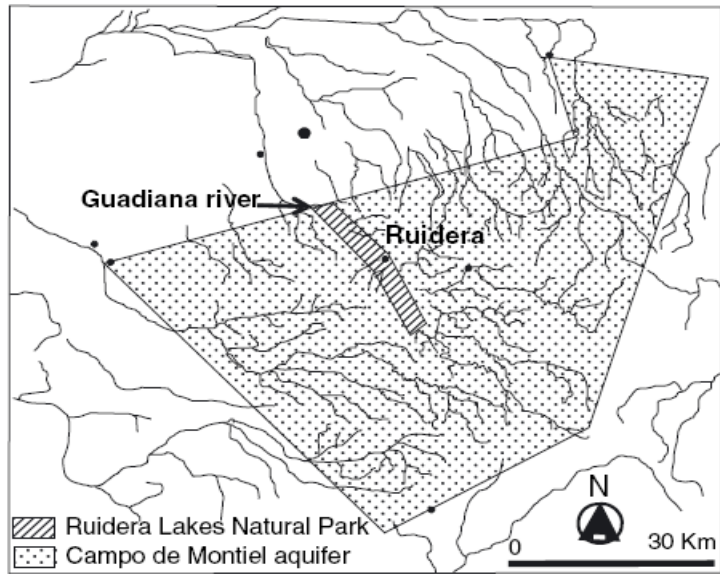


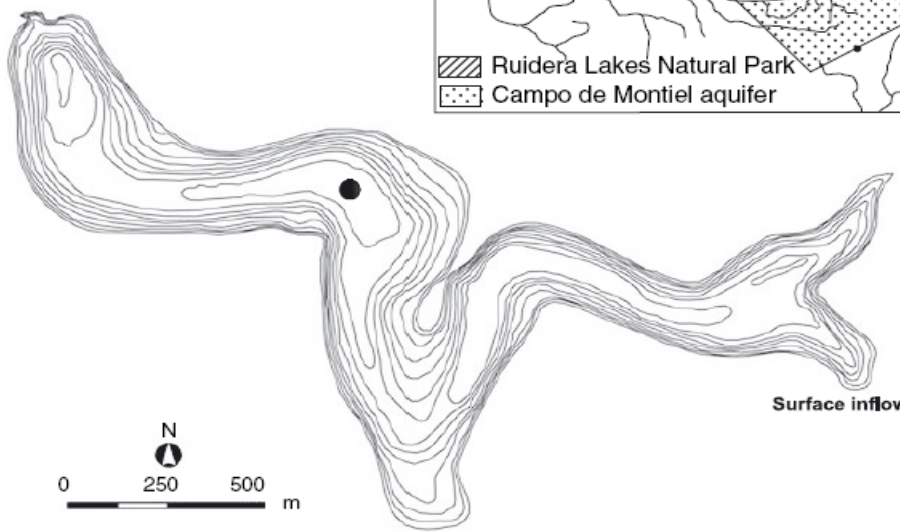
# **TEMA 15:**

## **Balances de masa en ecosistemas. Ejercicios**

- 1. Balance de N y P en un lago (Laguna La Colgada, Ruidera)**
- 2. Balance de N y P en un humedal de llanura de inundación (Tablas de Daimiel)**
- 3. Balance de C, N y P en un manglar (Bahía de Lobos, México)**



Surface outflow



**Characteristics of La Colgada Lake**

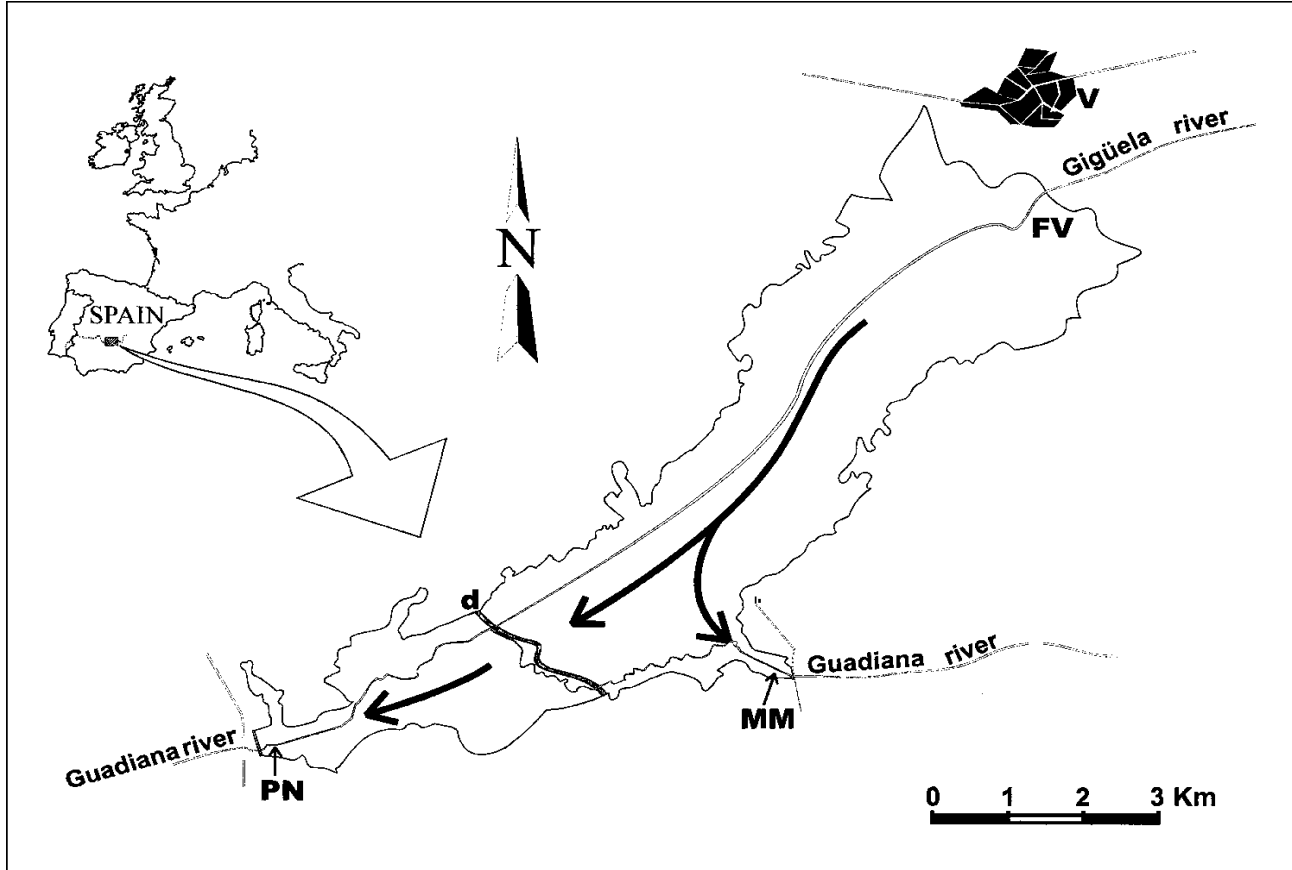
Surface area	(ha)	103
Catchment area	(km <sup>2</sup> )	800
Groundwater catchment	(km <sup>2</sup> )	2575
Residence time	(years)	0.09–149
Volume	(hm <sup>3</sup> )	9
Mean depth	(m)	8
Max depth	(m)	18
pH		7.6–8.2
Transparency	(m)	3–6.5
Alkalinity	(meq/L)	2.1–4.3
TN	(mg/L)	10–16
TP	(mg/L)	0.006–0.020
Chlorophyll-a	(mg/L)	1–4
Ca	(mg/L)	56–110

	Inflows						Groundwater		Outflows
	From Batana	Hazadillas	ManantialH	HotelColgada	Sarga	Pastores	Surg-1	Surg-2	To Rey
	hm3/mes	hm3/mes	hm3/mes	hm3/mes	hm3/mes	hm3/mes	hm3/mes	hm3/mes	hm3/mes
jun-03	1.773	0.028	0.171	0.000	0.402	0.067	0.16	2.28	2.59
jul-03	1.112	0.021	0.359	0.000	0.445	0.110	0.11	1.49	2.69
ago-03	1.190	0.029	0.356	0.000	0.254	0.006	0.12	1.59	3.11
sep-03	0.447	0.039	0.169	0.064	0.373	0.049	0.18	1.23	3.38
oct-03	0.826	0.051	0.122	0.042	0.286	0.028	0.10	1.47	4.63
nov-03	0.763	0.063	0.213	0.048	0.314	0.086	0.09	1.59	2.71
dic-03	0.745	0.010	0.201	0.021	0.143	0.040	0.10	1.81	1.45
ene-04	1.066	0.066	0.301	0.044	0.574	0.076	0.10	1.97	5.36
feb-04	0.958	0.053	0.271	0.064	0.411	0.117	0.22	1.75	4.92
mar-04	1.297	0.204	0.283	0.057	0.273	0.012	0.10	1.48	2.27
abr-04	2.060	0.128	0.581	0.001	0.328	0.112	0.15	2.15	5.18
may-04	3.296	0.180	0.870	0.020	0.670	0.104	0.18	1.48	8.29
jun-04	4.088	0.205	0.604	0.051	0.519	0.039	0.16	1.79	5.39
jul-04	7.226	0.144	1.214	0.057	0.300	0.092	0.28	2.51	5.26
ago-04	3.467	0.027	0.628	0.032	0.180	0.087	0.10	1.76	2.90
sep-04	3.529	0.038	0.523	0.045	0.461	0.098	0.36	2.80	9.03
oct-04	1.952	0.102	0.160	0.109	0.356	0.055	0.21	2.89	8.61
nov-04	3.790	0.060	0.018	0.022	0.218	0.076	0.19	3.17	4.36
dic-04	4.118	0.250	0.247	0.004	0.317	0.218	0.17	2.18	4.72

			N-inflows				N-Groundwater				N-Outflow
	TN-lago	N-Sediment	Batana	Hazadillas	ManantialH	HotelColgada	Sarga	Pastores	Surg-1	Surg-2	To Rey
	(gN/m2)	(gN/m2/d)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)	(mgN/L)
jun-03	195.33		11.93	15.80	13.19		15.60	15.60	14.33	13.74	8.33
jul-03	197.18	0.005	15.42	15.00	14.53		16.50	16.50	14.33	13.74	13.80
ago-03	202.40	0.005	15.08	14.80	15.00		17.00	17.00	14.33	13.74	10.00
sep-03	210.91	0.006	13.46	15.33	13.19	16.87	19.00	19.00	14.52	14.83	9.50
oct-03	227.40	0.006	11.83	16.43	15.60	18.12	21.63	21.63	15.67	15.71	9.96
nov-03	221.42	0.006	11.79	16.55	15.80	18.13	18.49	18.49	15.21	15.28	10.08
dic-03	218.38	0.006	11.72	16.16	15.20	16.91	18.05	18.05	15.30	15.35	9.85
ene-04	220.65	0.006	11.76	16.27	16.60	16.19	19.18	19.18	15.46	15.49	9.89
feb-04	219.51	0.006	11.81	16.32	15.40	16.20	19.25	19.25	15.22	15.16	9.92
mar-04	220.05	0.006	11.92	16.41	17.00	16.23	18.52	18.52	15.25	16.29	9.93
abr-04	214.91	0.006	11.94	16.34	16.60	16.18	18.05	18.05	15.22	15.78	9.84
may-04	225.58	0.006	16.37	15.69	15.13	16.78	14.15	14.15	15.34	15.34	17.41
jun-04	166.69	0.004	12.29	10.00	11.73	13.33	12.14	12.14	12.43	12.28	12.74
jul-04	165.12	0.004	12.32	10.45	11.78	13.36	12.24	12.24	12.65	12.57	12.79
ago-04	165.64	0.004	12.35	10.76	11.83	13.42	12.25	12.25	14.10	11.66	12.84
sep-04	170.67	0.004	12.07	12.03	12.71	15.31	12.28	12.28	14.03	10.50	13.92
oct-04	184.60	0.005	12.39	12.01	16.56	18.75	13.27	13.27	12.43	10.06	12.76
nov-04	163.16	0.004	10.55	10.93	11.54	14.20	11.11	11.11	12.76	10.65	8.27
dic-04	173.38	0.005	12.85	12.00	11.94	18.65	12.31	12.31	13.72	12.93	11.67

			P-inflows					P-Groundwater			P-Outflow
	TP-lago	P-Sediment	Batana	Hazadillas	ManantialH	HotelColgada	Sarga	Pastores	Surg-1	Surg-2	To Rey
	(gP/m2)	(gP/m2/d)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)	(mgP/L)
jun-03	0.140		0.022	0.034	0.003	0.000	0.023	0.023	0.030	0.072	0.04
jul-03	0.174	0.024	0.021	0.060	0.015	0.000	0.012	0.012	0.016	0.014	0.13
ago-03	0.306	0.008	0.015	0.043	0.052	0.000	0.041	0.041	0.019	0.032	0.07
sep-03	0.074	0.007	0.035	0.047	0.047	0.421	0.015	0.015	0.036	0.037	0.05
oct-03	0.288	0.002	0.065	0.032	0.058	0.107	0.051	0.051	0.082	0.086	0.07
nov-03	0.189	0.003	0.025	0.194	0.106	0.584	0.011	0.011	0.000	0.000	0.06
dic-03	0.154	0.004	0.020	0.014	0.014	0.017	0.027	0.027	0.000	0.000	0.03
ene-04	0.158	0.005	0.020	0.000	0.000	0.023	0.023	0.023	0.000	0.000	0.03
feb-04	0.250	0.004	0.075	0.030	0.024	0.055	0.107	0.107	0.078	0.030	0.06
mar-04	0.212	0.004	0.023	0.047	0.031	0.112	0.024	0.024	0.050	0.070	0.04
abr-04	0.090	0.005	0.037	0.027	0.042	0.191	0.018	0.018	0.020	0.020	0.04
may-04	0.239	0.011	0.031	0.022	0.044	0.413	0.046	0.046	0.036	0.048	0.02
jun-04	0.154	0.016	0.057	0.021	0.009	0.127	0.016	0.016	0.030	0.072	0.06
jul-04	0.158	0.006	0.018	0.016	0.074	0.697	0.020	0.020	0.016	0.014	0.02
ago-04	0.141	0.001	0.031	0.025	0.028	0.764	0.012	0.012	0.019	0.032	0.03
sep-04	0.132	0.001	0.043	0.030	0.030	0.455	0.032	0.032	0.011	0.019	0.04
oct-04	0.140	0.005	0.042	0.109	0.009	0.300	0.023	0.023	0.022	0.039	0.04
nov-04	0.171	0.012	0.013	0.023	0.016	0.234	0.048	0.048	0.024	0.037	0.02
dic-04	0.154	0.007	0.006	0.023	0.023	0.230	0.021	0.021	0.015	0.005	0.01

	<b>Total lake load</b>	<b>Δ Total lake load</b>	<b>Inflows</b>	<b>Outflows</b>	<b>Groundwater IN/OUT</b>	<b>Sedimentation</b>	<b>Denitrificación</b>
	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>	<b>(Tm N/month)</b>
jun-03							
jul-03							
ago-03							
sep-03							
oct-03							
nov-03							
dic-03							
ene-04							
feb-04							
mar-04							
abr-04							
may-04							
jun-04							
jul-04							
ago-04							
sep-04							
oct-04							
nov-04							
dic-04							
	<b>Total lake load</b>	<b>Δ Total lake load</b>	<b>Inflows</b>	<b>Outflows</b>	<b>Groundwater IN/OUT</b>	<b>Sedimentation</b>	
	<b>(Tm P/month)</b>	<b>(Tm P/month)</b>	<b>(Tm P/month)</b>	<b>(Tm P/month)</b>	<b>(Tm P/month)</b>	<b>(Tm P/month)</b>	
jun-03							
jul-03							
ago-03							
sep-03							
oct-03							
nov-03							
dic-03							
ene-04							
feb-04							
mar-04							
abr-04							
may-04							
jun-04							
jul-04							
ago-04							
sep-04							
oct-04							
nov-04							
dic-04							



**Characteristics of Las Tablas de Daimiel National Park**

Surface area	(ha)	1950
Catchment area	(km <sup>2</sup> )	15000
Groundwater catchment	(km <sup>2</sup> )	5000
Residence time	(years)	1.04-15.6
Volume	(hm <sup>3</sup> )	15
Mean depth	(m)	0.5
Max depth	(m)	4.5
pH		7.6-8.2
TN	(mg/L)	2-5
TP	(mg/L)	0.01-0.08
Chlorophyll-a	(µg/L)	0.1-250

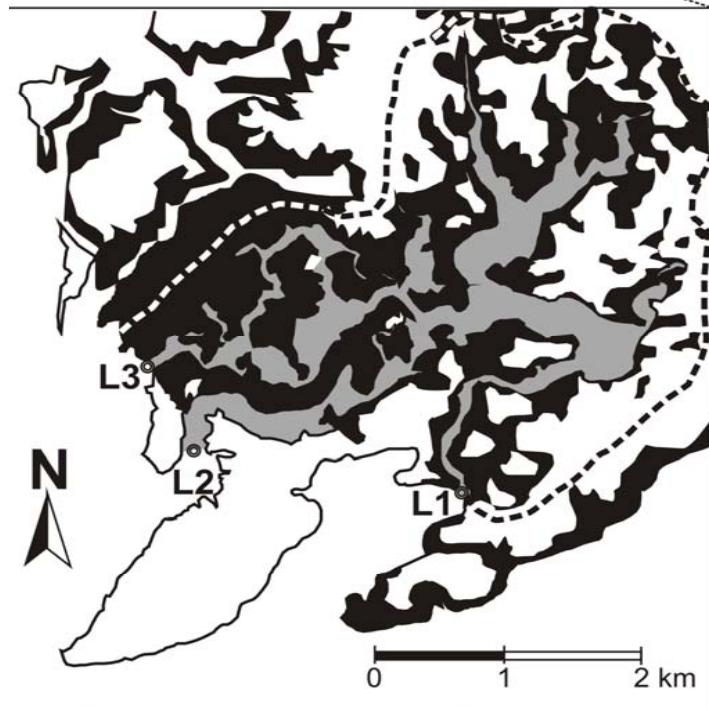
	<b>Rainfall</b>	<b>Inundation</b>	<b>Storage</b>	<b>Inflows</b>	<b>Ourflows PN</b>	<b>Ourflows MM</b>	<b>EVT</b>	<b>Infiltration</b>
	hm3/month	km2	hm3/month	hm3/month	hm3/month	hm3/month	hm3/month	hm3/month
ene-1996	1.6	1.1	0.33	0.0	0	0	0.01	2.08
feb-1996	0.4	2.8	1.04	0.9	0	0	0.03	0.75
mar-1996	0.6	7.7	3.36	5.3	0	0	0.26	3.38
abr-1996	0.5	12.1	6.75	5.1	0	0	0.72	1.55
may-1996	1.6	14.05	10.14	5.6	0	0	2.88	1.80
jun-1996	0.0	13.45	8.73	2.1	0	0	7.61	0.00
jul-1996	0.0	8.9	3.50	0.0	0	0	6.78	1.31
ago-1996	0.0	4.25	1.35	0.0	0	0	3.52	0.00
sep-1996	0.7	2.3	0.72	0.0	0	0	2.04	0.00
oct-1996	0.3	1.75	0.54	0.0	0	0	1.79	0.00
nov-1996	0.7	1.15	0.35	0.0	0	0	0.02	1.16
dic-1996	3.6	1	4.07	1.2	0	0	0.06	2.36
ene-1997	1.9	17.05	16.85	48.6	0.2	1.96	0.08	36.17
feb-1997	0.2	18.1	16.54	51.9	0.6	7.09	0.26	44.31
mar-1997	0.0	17.6	16.05	26.3	0.4	7.87	1.20	17.52
abr-1997	0.6	16.8	14.66	7.4	0.4	7.62	1.24	0.86
may-1997	0.8	15.3	11.92	4.3	0.01	5.28	2.40	0.59
jun-1997	0.3	16.05	13.29	5.1	0	1.77	3.84	0.00
jul-1997	0.1	12.3	7.02	1.8	0	0.21	6.16	4.56
ago-1997	0.2	8	2.92	0.1	0	0	4.25	2.13
sep-1997	0.4	4.28	1.36	0.0	0	0	1.97	0.70
oct-1997	0.5	6.32	3.65	0.5	0	0	1.53	0.00
nov-1997	1.7	9.52	3.96	0.2	0	0	0.12	2.03
dic-1997	1.9	9.12	8.65	1.6	0	0	0.12	0.00
ene-1998	0.5	16.8	14.66	18.7	0.05	0.76	0.13	12.52
feb-1998	0.4	17.65	16.13	16.3	6	7.11	0.29	1.86
mar-1998	0.3	18.15	16.93	17.7	4.4	7.87	0.99	3.83
abr-1998	0.5	17.6	16.03	11.9	1.1	7.62	0.74	3.63
may-1998	0.8	17	15.19	4.8	0.01	5.96	2.05	0.00
jun-1998	0.1	16.4	13.93	5.1	0.01	0.86	6.57	1.83
jul-1998	0.4	14.55	10.58	1.7	0	0.40	9.45	1.25
ago-1998	0.0	12.4	7.16	0.9	0	0	7.57	0.95
sep-1998	0.9	10.55	4.93	0.0	0	0	3.22	1.57
oct-1998	0.4	10.1	4.49	3.1	0	0	1.70	2.33
nov-1998	0.0	11.28	5.73	0.9	0	0	0.26	0.00
dic-1998	0.0	12.28	6.99	0.0	0	0	0.07	0.00



	<b>Inundation</b>	<b>Rainfall</b>	<b>Wetland</b>	<b>Inflows</b>	<b>Ourflows PN</b>	<b>Ourflows MM</b>	<b>Sedimentation</b>	<b>EVT</b>	<b>Groundwater</b>
	km2	g N /m3/d	g N /m3/d	g N /m3/d	g N /m3/d	g N /m3/d	g N /m2/d	g N /m3/d	g N /m3/d
ene-1996	1.1	0.0	4.03	3.86	2.74	5.50	0.00	0.0	0.01
feb-1996	2.8	0.0	3.84	4.26	2.96	4.28	0.05	0.0	0.01
mar-1996	7.7	0.0	4.23	3.90	3.67	5.11	0.24	0.0	0.01
abr-1996	12.1	0.0	4.63	4.04	4.17	5.67	0.35	0.0	0.01
may-1996	14.05	0.0	5.49	6.33	5.30	4.85	0.56	0.0	0.01
jun-1996	13.45	0.0	4.72	4.67	4.13	5.38	0.51	0.0	0.01
jul-1996	8.9	0.0	4.14	3.74	3.60	5.08	0.27	0.0	0.01
ago-1996	4.25	0.0	3.84	3.13	3.24	5.14	0.18	0.0	0.01
sep-1996	2.3	0.0	3.52	2.77	4.26	3.55	0.03	0.0	0.01
oct-1996	1.75	0.0	3.46	3.12	4.00	3.27	0.00	0.0	0.01
nov-1996	1.15	0.0	4.54	3.81	5.43	4.37	0.00	0.0	0.01
dic-1996	1	0.0	6.71	7.27	6.91	5.95	0.00	0.0	0.01
ene-1997	17.05	0.0	8.92	10.14	8.72	8.31	0.13	0.0	0.01
feb-1997	18.1	0.0	6.27	9.24	5.34	4.79	0.13	0.0	0.01
mar-1997	17.6	0.0	3.52	5.16	2.32	2.70	0.09	0.0	0.01
abr-1997	16.8	0.0	2.32	3.40	1.86	1.78	0.74	0.0	0.01
may-1997	15.3	0.0	2.33	2.88	2.00	2.05	0.12	0.0	0.01
jun-1997	16.05	0.0	2.22	2.70	1.96	1.98	0.13	0.0	0.01
jul-1997	12.3	0.0	1.92	2.67	1.75	1.55	0.27	0.0	0.01
ago-1997	8	0.0	2.28	3.05	1.92	1.90	0.25	0.0	0.01
sep-1997	4.28	0.0	3.06	3.71	2.34	2.74	0.23	0.0	0.01
oct-1997	6.32	0.0	3.64	6.00	2.20	2.46	0.30	0.0	0.01
nov-1997	9.52	0.0	4.39	2.89	3.64	5.14	0.34	0.0	0.01
dic-1997	9.12	0.0	2.99	5.78	2.63	1.60	0.17	0.0	0.01
ene-1998	16.8	0.0	4.61	7.58	1.11	3.13	0.08	0.0	0.01
feb-1998	17.65	0.0	5.99	9.55	4.11	4.21	0.17	0.0	0.01
mar-1998	18.15	0.0	6.71	9.64	3.27	5.24	0.93	0.0	0.01
abr-1998	17.6	0.0	2.37	4.00	1.83	1.55	0.67	0.0	0.01
may-1998	17	0.0	2.05	3.24	1.34	1.46	0.17	0.0	0.01
jun-1998	16.4	0.0	1.74	2.80	1.55	1.21	0.49	0.0	0.01
jul-1998	14.55	0.0	1.83	1.83	1.71	1.83	0.39	0.0	0.01
ago-1998	12.4	0.0	1.89	1.71	2.17	1.98	0.51	0.0	0.01
sep-1998	10.55	0.0	2.16	1.09	2.07	2.69	0.55	0.0	0.01
oct-1998	10.1	0.0	2.94	1.98	2.57	3.42	0.40	0.0	0.01
nov-1998	11.28	0.0	3.83	4.16	2.07	3.67	0.24	0.0	0.01
dic-1998	12.28	0.0	2.86	3.82	2.29	2.38	0.13	0.0	0.01

	<b>Inundation</b>	<b>Rainfall</b>	<b>Wetland</b>	<b>Inflows</b>	<b>Ourflows PN</b>	<b>Ourflows MM</b>	<b>Sedimentation</b>	<b>EVT</b>	<b>Infiltration</b>
	km2	g P /m3/d	g P /m3/d	g P /m3/d	g P /m3/d	g P /m3/d	g P /m2/d	g P /m3/d	g P /m3/d
ene-1996	1.1	0.0	0.180	0.300	0.150	0.090	0.006	0.0	0.0
feb-1996	2.8	0.0	0.213	0.450	0.060	0.130	0.005	0.0	0.0
mar-1996	7.7	0.0	0.064	0.090	0.012	0.090	0.004	0.0	0.0
abr-1996	12.1	0.0	0.477	0.450	0.750	0.230	0.005	0.0	0.0
may-1996	14.05	0.0	1.567	1.200	1.800	1.700	0.006	0.0	0.0
jun-1996	13.45	0.0	0.700	0.670	0.300	1.130	0.006	0.0	0.0
jul-1996	8.9	0.0	0.560	0.780	0.120	0.780	0.006	0.0	0.0
ago-1996	4.25	0.0	0.697	1.300	0.150	0.640	0.007	0.0	0.0
sep-1996	2.3	0.0	0.204	0.470	0.110	0.031	0.008	0.0	0.0
oct-1996	1.75	0.0	0.195	0.230	0.105	0.250	0.006	0.0	0.0
nov-1996	1.15	0.0	0.118	0.153	0.090	0.110	0.007	0.0	0.0
dic-1996	1	0.0	0.060	0.090	0.010	0.080	0.006	0.0	0.0
ene-1997	17.05	0.0	0.126	0.092	0.210	0.075	0.004	0.0	0.0
feb-1997	18.1	0.0	0.167	0.35	0.040	0.110	0.003	0.0	0.0
mar-1997	17.6	0.0	0.026	0.067	0.007	0.005	0.001	0.0	0.0
abr-1997	16.8	0.0	0.502	1.145	0.187	0.174	0.047	0.0	0.0
may-1997	15.3	0.0	0.912	1.84	0.217	0.680	0.335	0.0	0.0
jun-1997	16.05	0.0	0.370	0.53	0.170	0.410	0.089	0.0	0.0
jul-1997	12.3	0.0	0.349	0.6	0.117	0.330	0.110	0.0	0.0
ago-1997	8	0.0	0.727	1.422	0.138	0.620	0.117	0.0	0.0
sep-1997	4.28	0.0	0.078	0.073	0.040	0.120	0.008	0.0	0.0
oct-1997	6.32	0.0	0.281	0.269	0.097	0.476	0.138	0.0	0.0
nov-1997	9.52	0.0	0.144	0.161	0.125	0.145	0.055	0.0	0.0
dic-1997	9.12	0.0	0.076	0.0822	0.007	0.139	0.025	0.0	0.0
ene-1998	16.8	0.0	0.143	0.229	0.129	0.071	0.014	0.0	0.0
feb-1998	17.65	0.0	0.241	0.385	0.139	0.199	0.048	0.0	0.0
mar-1998	18.15	0.0	0.107	0.184	0.094	0.042	0.094	0.0	0.0
abr-1998	17.6	0.0	0.210	0.210	0.207	0.214	0.081	0.0	0.0
may-1998	17	0.0	0.278	0.380	0.166	0.287	0.170	0.0	0.0
jun-1998	16.4	0.0	0.297	0.410	0.192	0.290	0.269	0.0	0.0
jul-1998	14.55	0.0	0.325	0.370	0.263	0.342	0.099	0.0	0.0
ago-1998	12.4	0.0	0.298	0.278	0.310	0.307	0.215	0.0	0.0
sep-1998	10.55	0.0	0.365	0.460	0.234	0.400	0.109	0.0	0.0
oct-1998	10.1	0.0	0.385	0.530	0.245	0.380	0.114	0.0	0.0
nov-1998	11.28	0.0	0.237	0.310	0.211	0.190	0.092	0.0	0.0
dic-1998	12.28	0.0	0.375	0.540	0.205	0.380	0.033	0.0	0.0

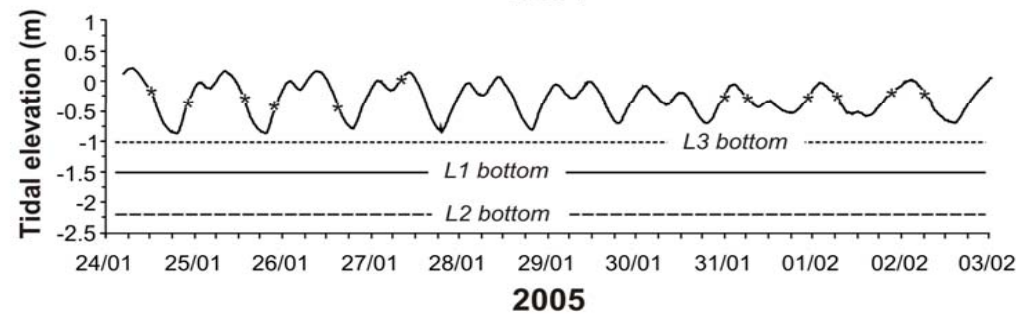
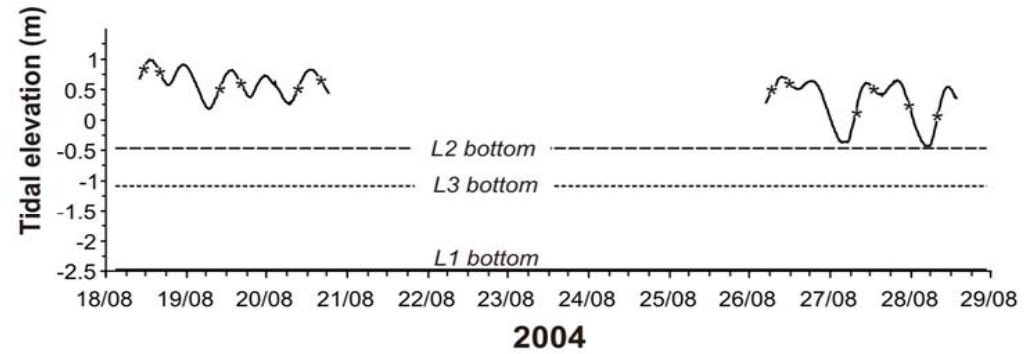
	<b>Total wetland load</b> <b>(g N/m2/month)</b>	<b>Δ Total wetland load</b> <b>(g N/m2/month)</b>	<b>Inflows</b> <b>(g N/m2/month)</b>	<b>Outflows</b> <b>(g N/m2/month)</b>	<b>Infiltration</b> <b>(g N/m2/month)</b>	<b>Sedimentation</b> <b>(g N/m2/month)</b>	<b>Denitrificación</b> <b>(g N/m2/month)</b>
ene-1996							
feb-1996							
mar-1996							
abr-1996							
may-1996							
jun-1996							
jul-1996							
ago-1996							
sep-1996							
oct-1996							
nov-1996							
dic-1996							
ene-1997							
feb-1997							
mar-1997							
abr-1997							
may-1997							
jun-1997							
jul-1997							
ago-1997							
sep-1997							
oct-1997							
nov-1997							
dic-1997							
ene-1998							
feb-1998							
mar-1998							
abr-1998							
may-1998							
jun-1998							
jul-1998							
ago-1998							
sep-1998							
oct-1998							
nov-1998							
dic-1998							
	<b>Total wetland load</b> <b>(g N/m2/month)</b>	<b>Δ Total wetland load</b> <b>(g N/m2/month)</b>	<b>Inflows</b> <b>(g N/m2/month)</b>	<b>Outflows</b> <b>(g N/m2/month)</b>	<b>Infiltration</b> <b>(g N/m2/month)</b>	<b>Sedimentation</b> <b>(g N/m2/month)</b>	
ene-1996							
feb-1996							
mar-1996							
abr-1996							
may-1996							
jun-1996							
jul-1996							
ago-1996							
sep-1996							
oct-1996							
nov-1996							
dic-1996							
ene-1997							
feb-1997							
mar-1997							
abr-1997							
may-1997							
jun-1997							
jul-1997							
ago-1997							
sep-1997							
oct-1997							
nov-1997							
dic-1997							
ene-1998							
feb-1998							
mar-1998							
abr-1998							
may-1998							
jun-1998							
jul-1998							
ago-1998							
sep-1998							
oct-1998							
nov-1998							
dic-1998							



■ Mangrove cover  
 □ Unvegetated soil and *Salicornia*  
 ■ Water  
 - - - Mangrove system catchment area

#### Characteristics of Mangrove Creek system at Lobos

Total area	(km <sup>2</sup> )	160
Studied Catchment area	(km <sup>2</sup> )	14.2
Mangrove cover	ha	540
Creek catchment areas		L1= 81 ha, L2= 243 ha and L3= 216 ha



	Tidal cycle discharge (m <sup>3</sup> )		
<b>NeapTide04</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>
Flood-1	657616.5166	1127188.9091	258148.8256
time (h)	11.7500	11.7500	11.75
Ebb-1	-1083050.1451	-1595713.1925	-343074.667
time (h)	12.0000	12.0000	12
Flood-2	883632.5362	1190928.4956	228168.959
time (h)	11.2500	11.2500	11.25
Ebb-2	-882081.8359	-1149158.5646	-206142.46
time (h)	12.7500	12.7500	12.75
Flood-3	480942.6055	653523.2062	174542.4594
time (h)	4.7500	4.7500	4.75
Ebb-3	-405928.2400	-505590.5200	-93126.92
time (h)	5.7500	5.7500	5.75
<b>SpringTide04</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>
Flood-1	794353.4838	2515806.6482	1444416.174
time (h)	11.7500	11.7500	11.75
Ebb-1	-882678.0470	-1795189.0153	-1310266.61
time (h)	12.0000	12.0000	12
Flood-2	870375.7751	2622906.5409	1478464.037
time (h)	12.0000	12.0000	10.75
Ebb-2	-925031.4578	-2206023.4054	-1625164.24
time (h)	12.7500	12.7500	13
Flood-3	797000.0768	2372902.2390	1334753.604
time (h)	11.0000	11.0000	11
Ebb-3	-1772441.7720	-1190310.2611	-2114567.46
time (h)	12.2500	12.2500	12.25
<b>SpringTide05</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>
Flood-1	940338.2954	-526472.7190	150328.7519
time (h)	11.2500	10.5000	11.75
Ebb-1	-950477.1931	503905.2308	-137384.695
time (h)	12.7500	13.5000	12
Flood-2	924951.6606	-484984.0496	137787.2665
time (h)	12.0000	11.5000	13.25
Ebb-2	-956279.4405	485241.0746	-135730.995
time (h)	12.0000	12.2500	11.75
Flood-3	934364.8796	-468187.9147	134980.0725
time (h)	11.7500	11.2500	11
Ebb-3	-876361.8096	416270.7381	-108708.052
time (h)	12.5000	13.0000	12.5
<b>NeapTide05</b>	<b>L1</b>	<b>L2</b>	<b>L3</b>
Flood-1	635939.3164	-238093.5969	50749.71034
time (h)	11.0000	8.5000	8.75
Ebb-1	-631670.2480	172433.2652	-37172.396
time (h)	12.7500	14.2500	13.75
Flood-2	502805.2893	-174113.7213	29194.19672
time (h)	9.0000	8.2500	10
Ebb-2	-619570.0816	220104.5696	-59110.3633
time (h)	11.2500	12.0000	9.75
Flood-3	632245.8687	-221090.5581	50745.16169
time (h)	11.5000	11.2500	12.5
Ebb-3	-671520.1946	273305.9055	-74324.5842
time (h)	12.2500	12.0000	10.75

	TOC (mg/L)			POC (mg/L)			DOC (mg/L)
<i>NeapTide04</i>	L1	L2	L3	L1	L2	L3	L1
Flood-1	4.36	4.61	3.71	0.078	0.039	0.032	4.28
Ebb-1	4.37	3.23	2.83	0.015	0.016	0.067	4.36
Flood-2	10.39	6.27	6.39	0.003	0.009	0.003	10.39
Ebb-2	7.97	17.50	17.18	0.003	0.004	0.001	7.97
Flood-3	4.15	4.24	5.49	0.006	0.013	0.006	4.15
Ebb-3	3.51	3.82	2.68	0.006	0.006	0.012	3.50
<i>SpringTide04</i>	L1	L2	L3	L1	L2	L3	L1
Flood-1	3.32	2.51	3.35	0.007	0.004	0.002	3.31
Ebb-1	4.88	2.98	2.67	0.003	0.003	0.003	4.87
Flood-2	4.08	8.36	13.53	0.017	0.006	0.008	4.06
Ebb-2	2.46	5.63	3.30	0.006	0.017	0.002	2.46
Flood-3	11.11	5.65	3.89	0.013	0.010	0.004	11.10
Ebb-3	14.12	7.53	3.57	0.006	0.004	0.003	14.11
<i>SpringTide04</i>	L1	L2	L3	L1	L2	L3	L1
Flood-1	4.00	3.56	3.56	0.007	0.007	0.007	4.00
Ebb-1	3.45	4.02	3.67	0.007	0.004	0.007	3.44
Flood-2	3.68	3.56	3.99	0.004	0.007	0.007	3.67
Ebb-2	3.35	3.29	3.56	0.004	0.005	0.004	3.34
Flood-3	2.41	2.52	2.57	0.001	0.001	0.001	2.41
Ebb-3	3.28	3.38	3.28	0.005	0.003	0.003	3.27
<i>NeapTide05</i>	L1	L2	L3	L1	L2	L3	L1
Flood-1	2.92	2.86	3.25	0.004	0.002	0.003	2.92
Ebb-1	3.61	3.61	3.67	0.003	0.003	0.004	3.60
Flood-2	3.58	2.86	3.51	0.000	0.002	0.002	3.58
Ebb-2	3.11	3.43	3.40	0.002	0.002	0.001	3.10
Flood-3	3.63	3.77	3.82	0.004	0.002	0.002	3.63
Ebb-3	3.63	3.59	3.55	0.005	0.007	0.002	3.63

		DIN (mg/L)			N-org (mg/L)				
L2	L3	L1	L2	L3	L1	L2	L3		
4.57	3.67	0.07	0.113	0.115	0.41	0.59	0.69		
3.22	2.76	0.127	0.126	0.161	0.54	0.51	0.64		
6.27	6.39	0.317	0.329	0.259	0.41	0.2	0.23		
17.50	17.18	0.334	0.734	0.429	0.23	0.2	0.49		
4.22	5.49	0.091	0.102	0.084	0.26	0.26	0.26		
3.81	2.67	0.06	0.062	0.023	0.26	0.2	0.23		
L2	L3	L1	L2	L3	L1	L2	L3		
2.50	3.34	0.325	0.164	0.08	0.56	0.15	0.08		
2.98	2.67	0.084	0.111	0.42	0.05	0.2	0.05		
8.36	13.52	0.092	0.099	0.053	0.31	0.2	0.15		
5.62	3.30	0.471	0.074	0.081	0.05	0.2	0.26		
5.64	3.88	0.084	0.082	0.067	0.23	0.1	0.08		
7.53	3.56	0.057	0.079	0.052	0.1	0.2	0.15		
L2	L3	L1	L2	L3	L1	L2	L3		
3.56	3.56	0.066	0.107	0.144	0.1	0.03	0.18		
4.02	3.66	0.05	0.065	0.125	0.18	0.15	0.08		
3.56	3.98	0.07	0.107	0.081	0.03	0.03	0.13		
3.29	3.56	0.071	0.075	0.081	0.08	0.03	0.08		
2.52	2.57	0.027	0.034	0.026	0.2	0.1	0.0		
3.37	3.27	0.044	0.088	0.147	0.03	0.03	0.1		
L2	L3	L1	L2	L3	L1	L2	L3		
2.85	3.24	0.196	0.066	0.047	0.25	0.19	0.25		
3.61	3.66	0.053	0.05	0.205	0.31	0.25	0.16		
2.85	3.51	0.091	0.066	0.071	0.28	0.19	0.28		
3.42	3.40	0.104	0.044	0.101	0.19	0.28	0.16		
3.77	3.82	0.098	0.065	0.05	0.22	0.22	0.22		
3.58	3.55	0.04	0.049	0.047	0.31	0.28	0.28		

SRP (mg/L)			TP (mg/L)		
L1	L2	L3	L1	L2	L3
0.003	0.047	0	2.711	1.57	0.173
0.046	0.072	0.032	0.185	0.861	0.193
0.094	0.015	0.054	0.281	0.288	0.158
0.029	0.017	0	0.209	0.179	0.17
0	0.054	0	0.187	0.176	0.093
0.041	0.013	0.035	0.061	0.142	0.082
L1	L2	L3	L1	L2	L3
0.074	0.049	0	0.231	0.182	0.173
0.075	0.016	0.044	0.171	0.186	0.171
0.205	0.174	0.036	0.428	1.561	0.915
0.223	0.121	0.101	0.431	0.186	0.24
0.144	0.001	0.047	0.621	1.193	0.217
0.019	0.077	0.011	0.293	0.556	0.246
L1	L2	L3	L1	L2	L3
0.038	0.045	0.02	0.15	0.12	0.14
0.029	0.018	0.029	0.14	0.25	0.09
0.03	0.045	0.037	0.1	0.12	0.17
0.029	0.069	0.03	0.12	0.12	0.14
0.04	0.029	0.04	0.12	0.13	0.13
0.047	0.047	0.05	0.1	0.31	0.13
L1	L2	L3	L1	L2	L3
0.028	0.037	0.056	0.2	0.17	0.18
0.028	0.027	0.036	0.11	0.11	0.13
0.033	0.037	0.04	0.16	0.17	0.08
0.03	0.04	0.046	0.17	0.11	0.15
0.04	0.13	0.03	0.11	0.13	0.11
0.03	0.08	0.04	0.17	0.13	0.15



