F. Tamooh et al. (2013): Dynamics of dissolved inorganic carbon and aquatic metabolism in the Tana River Basin, Kenya.

Supplementary Table 1: Overview of Disslolved Oxygen (DO), pH, Temparature, Total Alkalinity, Conductivity, DIC, $\delta\ ^{13}C_{DIC}$, Major elements, pCO_2 and CO_2 fluxes, for the different sampling sites during the wet season and end-of-wet season sampling campaigns. Note that full data for the dry season can be found in Bouillon et al. (2009)

Sampling site	Date	Latitude	Longitude	Altitude (m)	DO (%)	pH (NBS scale)	Temp (^oC)	Total alkalinity (mmol L^{-1})	Conductivity (µS cm^{-1})	DIC (mmol L^{-1})	$\delta^{13}C_{DIC}$ (‰)	Ca (µM)	Mg (µM)	Na (µM)	Si (µM)	SO_4^{2-} (µM)	pCO_2 (ppm)	CO_2 flux (mol CO_2 m^{-2} d^{-1})
Wet season																		
Aberdares Region																		
Chania river-Aberdares	02/09/2009	-0.4572	36.7026	3003	102.1	7.82	14.5	0.491	50	0.509	-6.4	107	62	125	275	4	420	15
Gikururu river-Aberdares	03/09/2009	-0.4704	36.7123	2970	106.0	7.67	12.6	0.619	64	0.654	-7.9	155	79	138	257	5	740	7
Magura river-Aberdares	03/09/2009	-0.4866	36.7076	2989	99.1	7.16	12.3	0.155	21	0.185	-5.7	45	24	73	173	3	600	33
Karuru river-Aberdares	03/09/2009	-0.5299	36.7166	2949	105.6	7.39	13.4	0.240	26	0.266	-4.1	50	37	58	179	4	555	20
Kinaini river-Aberdares	09/09/2009	-0.3873	36.8168	2274	101.1	7.27	18.0	0.385	47	0.437	-8.4	68	34	164	363	5	1248	66
Honi River-Aberdares	15/09/2009	-0.3613	36.6737	3219	111.3	7.84	14.1	0.753	73	0.780	-6.9	190	97	153	330	5	621	
Muringato River-Aberdares	15/09/2009	-0.3746	36.8837	1991	113.5	8.13	20.5	0.669	73	0.676	-6.8	114	61	260	412	10	300	-4
Chania River-Nyeri Town	16/10/2009	-0.4151	36.9436	1763	110.2	6.93	17.5	0.322	46	0.416	-6.8	77	57	120	205	16	2240	23
Gura River-Othaya	16/10/2009	-0.4990	36.9363	1769	107.4	6.91	19.8	0.183	24	0.237	-7.7	47	33	62	126	7	1378	23
Satima springs																		
Satima springs-stream 1 A	14/09/2009	-0.3381	36.6476	3600	90.0	6.81	11.1	0.564	64	0.812	-20.8						4789	
Satima springs-Stream 2 A	14/09/2009	-0.3381	36.6476	3600	97.0	6.99	11.2	0.601	61	0.774	-19.7						3367	
Satima springs-Point B	14/09/2009	-0.3385	36.6465	3553	98.1	7.81	13.1	0.589	57	0.612	-10.9						515	
Satima springs-Point C	14/09/2009	-0.3382	36.6450	3503	94.2	7.83	11.0	0.575	56	0.598	-8.8						468	
Satima springs-Point D	14/09/2009	-0.3388	36.6423	3455	95.0	7.86	10.6	0.865	83	0.897	-8.7						657	
Dam																		
Kamburu dam-Tana entrance	17/09/2009	-0.8341	37.6731	1010	112.8	7.97	26.7	1.194	213	1.216	-8.3						864	
Kamburu dam-exit point-0.5m depth	17/09/2009	-0.8138	37.6840	1010	134.4	8.81	30.0	1.167	190	1.125		368	243	518	275	85	118	-29
Kamburu dam-exit point-10m depth	17/09/2009	-0.8138	37.6840	1010	83.2	7.68	24.4	1.113	184	1.162	-8.0	355	235	490	279	81	1504	
Kamburu dam-exit point-20m depth	17/09/2009	-0.8138	37.6840	1010	60.0	7.44	23.2	1.100	181	1.19	-10.8	353	233	484	284	77	2556	
Mt Kenya Region																		
Thiba river-Kerogoya kutus	30/9/2009	-0.5671	37.3226	1293	93.5	7.63	23.5	0.649	70	0.682	-6.8	104	116	253	324	10	980	13
Nyamidi River-Kerogoya	01/10/2009	-0.5474	37.3886	1353	111.6	7.81	26.1	0.436	46	0.449	-3.1	50	41	249	213	4	451	
Rupingazi River-Embu Town	02/10/2009	-0.5450	37.4490	1302	104.4	8.09	22.2	0.826	89	0.836	-4.1	85	68	523	291	9	417	-10
Thambana river-Manyatta	02/10/2009	-0.3995	37.4717	1768	119.6	7.37	24.2	0.482	57	0.528	-7.7	62	48	301	215	7	1337	93
Nyanjara river-manyatta	03/10/2009	-0.3843	37.4588	1756	89.9	7.57	22.5	0.835	82	0.886	-8.4	151	116	265	429	4	1432	167
Rupingazi River (B)-manyatta	03/10/2009	-0.3811	37.4531	1753	96.1	7.48	23.0	0.454	46	0.488	-2.4	47	29	263	255	5	965	38
Karute River-Mt. Kenya	04/10/2009	-0.3659	37.3106	2130	116.3	7.34	18.5	0.284	30	0.315	-4.4	48	35	97	239	3	778	42
Gathiba River-Mt.Kenya	04/10/2009	-0.3587	37.3133	2142	112.8	7.47	19.0	0.428	43	0.463	-6.6	64	42	183	345	2	886	
Thiba river (B)-Mt. Kenya	05/10/2009	-0.3988	37.3086	1939	125.0	6.85	22.0	0.259	29	0.344	-9.2	45	36	102	234	3	2291	56
Kiringa river	05/10/2009	-0.5043	37.3211	1461	99.9	6.86	21.6	0.340	37	0.452	-8.9	49	57	134	200	9	2983	115
Nithi tributary-Mt Kenya	06/10/2009	-0.1543	37.4385	2964	100.8	7.33	16.7	0.768	80	0.859	-3.0	25	25	635	676	5	2117	
Giinchi River-Mt.Kenya	07/10/2009	-0.2514	37.6000	1634	101.1	6.82	20.4	0.218	26	0.298	-10.2	23	15	158	185	4	2064	51
Maara river-Mt. Kenya	07/10/2009	-0.2401	37.5985	1664	110.1	8.04	21.1	1.214	135	1.233	-2.7	92	52	933	428	6	684	
Chania-Thika river-Thika	14/10/2009	-1.0261	37.2447	1421	109.4	7.99	26.9	4.241	582		-6.3	352	257	4112	317	160	2891	227
Mathioya river-Muran'ga	15/10/2009	-0.7141	37.1806	1157	108.4	6.86	22.5	0.363	49	0.481	-8.0	81	74	117	177	12	3225	
Thuchi River-Ishiara	17/10/2009	-0.4461	37.7894	824	108.6	7.02	24.4	0.240	42	0.292	-6.2	22	15	241	150	16	1503	34
Mutonga river-Tharaka	19/10/2009	-0.3089	37.8735	713	102.0	7.25	23.8	0.408	64	0.460	-9.7	39	22	394	317	29	1481	26
Maara river down-Tharaka	19/10/2009	-0.3440	37.8708	682	104.1	6.61	26.3					10	4					
Kazita River-Tharaka	22/10/2009	-0.1508	37.9721	572	106.9	8.00	26.4	1.277	159	1.298	-7.2	182	191	673	435	51	850	13
Nyambene Hills Region																		
Thanandu River-Tharaka	20/10/2009	-0.1000	38.0088	587	96.3	7.05	27.9	0.383	76	0.457	-12.1	37	52	346	264	76	2365	259
murera river-meru N.Park	23/10/2009	0.2687	38.1321	736	98.8	7.93	26.2	4.213	409	4.305	-14.2	559	685	1479	1148	29	3322	257
Rojewero river-Meru N.P	24/10/2009	-0.0693	38.4187	333	97.5	8.27	30.9	4.027	408	4.031	-10.7	573	598	1573	827	39	1534	79
Ura river-Meru N.P	26/10/2009	0.0231	38.0662	689	98.9	7.69	25.9	0.705	93	0.735	-7.6	120	89	329	335	17	954	28
Mutundu River-Meru N.P	27/10/2009	0.2151	38.1292	709	102.9	8.41	25.9	4.862	454	4.841	-11.9	837	796	1449	1040	19	1220	301
Main Tana River																		
Sagana River-Makutano	15/10/2009	-0.7879	37.2685	1054	94.1	7.32	25.1	0.724	98	0.801	-7.8	178	149	681	296	153	1035	
Tana river-masinga bridge	18/09/2009	-0.8739	37.5913	1013	99.6	7.87	22.6	1.198	252	1.231	-8.3	459	327	234	276	18	2303	
Tana river-Irira bridge-Ishiara	18/10/2009	-0.4742	37.9132	543	80.4	7.76	25.7	1.360	227	1.408	-11.7	438	202	689	197	116	1553	
Tana river-usueni bridge	21/10/2009	-0.1516	38.1968	389	110.1	7.69	28.4	1.016	165	1.058	-10.4	286	132	588	280	89	1432	34
Tana River-Kora bridge	24/10/2009	-0.0766	38.4146	324	104.0	7.94	27.9	1.301	174	1.326	-10.2	359	160	519	272	65	1017	51
Tana river-Ura river junction	26/10/2009	-0.0546	38.3108	355	96.9	7.75	29.8	2.921	113	3.022	-8.8	194	122	403	349	24	3649	69
Tana river-Saka	01/11/2009	-0.1453	39.3256	175	83.1	7.67	28.7	1.174	151	1.225	-12.5	350	145	471	228	54	1748	99
Tana River -Garissa bridge	02/11/2009	-0.4636	39.6366	153	74.1	7.64	28.9	1.452	179	1.520	-12.5	405	167	493	232	55	2325	
Tana River-Sankuri	03/11/2009	-0.3025	39.5506	152	90.7	8.06	30.2	1.191	147	1.204	-10.1	351	132	410	209	45	731	25
Tana River-Balambala	04/11/2009	-0.0939	39.1050	196	95.4	7.52	29.2	0.933	126	0.991	-12.3	239	112	407	219	46	1975	
Tana River-Jara	06/11/2009	-0.7073	39.8057	120	70.5	7.64	29.5	1.284	164	1.342	-12.2	350	144	446	223		2041	
Tana River-Bura Bridge	06/11/2009	-1.0996	39.9379	87	78.7	7.79	29.4	1.377	176	1.420	-12.5	383	155	510	237	56	1569	
Tana River-Garsen bridge	07/11/2009	-2.2887	40.1266	20	75.5	7.71	30.1	1.650	210	1.712	-12.7	463	202	590	249	72	2260	187
Tana River-Tana Primate	08/11/2009	-1.8511	40.1153	31	78.3	7.71	30.4	1.453	183	1.508	-12.5	406	174	542	241	62	2009	369
Tana River-Hola	09/11/2009	-1.4945	40.0393	53	90.1	7.69	32.1	1.358	164	1.411	-12.9	393	164	408	209	52	2007	139

Supplementary Table 1: Overview of Disslolved Oxygen (DO), pH, Temparature, Total Alkalinity, Conductivity, DIC, $\delta\ ^{13}C_{DIC}$, Major elements, pCO_2, CO_2 fluxes for the different sampling sites during the wet season and end-of-wet season sampling campaigns. Note that full data for the dry season can be found in Bouillon et al. (2009)

Sampling site	Date	Latitude (decimal degree	Longitude ecimal degree	Altitude (m)	DO (%)	pH (NBS scale)	Temp (^{o}C)	Total alkalinity (mmol L^{-1})	Conductivity (µS cm^{-1})	DIC (mmol L^{-1})	$\delta^{13}C_{DIC}$ (‰)	Ca (μM)	Mg (μM)	Na (µM)	Si (µM)	SO_4^{2-} (µM)	pCO_2 (ppm)	CO_2 flux (mmol CO_2 m^{-2} d^{-1})
End of wet season																		
Aberdares Region																		
Chania river-Aberdares	09/06/2010	-0.4572	36.7026	3003	106.4	7.35	13.2	0.335	19	0.376	-5.9	53	30	71	196		853	63
Gikururu river-Aberdares	09/06/2010	-0.4704	36.7123	2970	107.2	7.24	12.7	0.335	20	0.391	-9.1	64	38	84	189		1058	308
Magura river-Aberdares	10/06/2010	-0.4866	36.7076	2989	104.3	6.86	12.7	0.227	11	0.319	-10.9	29	19	61	138		1713	214
Karuru river-Aberdares	10/06/2010	-0.5299	36.7166	2949	103.4	6.87	13.2	0.307	13	0.423	-5.6	33	23	41	153		2338	478
Kinaini river-Aberdares	08/06/2010	-0.3873	36.8168	2274	102.4	7.18	13.2	0.277	22	0.327	-7.2	45	19	110	229		1043	64
Honi River-Aberdares	07/06/2010	-0.3613	36.6737	3219	103.4	7.56	11.6	0.495	32	0.533	-7.0	125	59	104	259		757	137
Muringato River-Aberdares	11/06/2010	-0.3746	36.8837	1991	100.1	7.40	18.9	0.360	37	0.395	-6.8	70	36	159	292		869	108
Chania River-Nyeri Town	05/06/2010	-0.4151	36.9436	1763	102.4	7.60	16.7	0.391	43	0.415	-6.8	92	62	136	262		577	8
Gura River-Othaya	06/06/2010	-0.4990	36.9363	1769	106.4	7.87	15.4	0.355	32	0.366	-7.2	80	53	93	244		274	-57
Dam																		
Masinga reservoir-depth 0.5m	27/06/2010	-0.8894	37.6402	1050	74.8	7.04	22.5	0.579	74	0.701	-10.0						3389	
Masinga reservoir-depth 2.5m	27/06/2010	-0.8894	37.6402	1050	70.0	7.07	22.7	0.567	74	0.679	-10.6						3115	
Masinga reservoir-depth 5m	27/06/2010	-0.8894	37.6402	1050	71.2	7.05	22.6	0.564	74	0.682	-10.2						3243	
Masinga reservoir-depth 10m	27/06/2010	-0.8894	37.6402	1050	67.6	7.00	22.5	0.566	73	0.698	-10.6						3633	
Masinga reservoir-depth 15m	27/06/2010	-0.8894	37.6402	1050	67.0	7.00	22.5	0.562	74	0.690	-10.8						3545	
Masinga reservoir-depth 20m	27/06/2010	-0.8894	37.6402	1050	66.9	6.96	22.7	0.724	75	0.907	-10.5						5059	
Kamburu dam-Tana entrance	30/06/2010	-0.8341	37.6731	1010	88.2	7.07	24.2	0.607	78	0.726	-9.6	150	90	229	231		3392	67
Kamburu dam-exit point-0.5m depth	30/06/2010	-0.8138	37.6840	1010	117.9	8.13	27.3	0.621	85	0.626	-7.8						305	
Kamburu dam-exit point-10m depth	30/06/2010	-0.8138	37.6840	1010	78.5	7.20	24.1	0.642	83	0.734	-10.1						2626	
Kamburu dam-exit point-20m depth	30/06/2010	-0.8138	37.6840	1010	54.93	7.10	22.7	0.648	86	0.764	-10.6						3270	
Mt Kenya Region																		
Thiba river-Kerogoya kutus	14/06/2010	-0.5671	37.3226	1293	102.6	7.54	19.6	0.440	48	0.470	-7.1	82	83	155	300		774	32
Nyamidi River-Kerogoya	15/06/2010	-0.5474	37.3886	1353	105.8	7.58	16.9	0.327	33	0.348	-5.1	47	32	171	229		511	7
Rupingazi River-Embu Town	15/06/2010	-0.5450	37.4490	1302		7.64	19.3	0.471	48	0.497	-5.0	69	48	257	283		647	32
Thambana river-Manyatta embu	19/06/2010	-0.3995	37.4717	1768	100.9	7.09	19.8	0.283	32	0.339	-9.8	56	37	127	201		1381	260
Nyanjara river-Embu manyatta	19/06/2010	-0.3843	37.4588	1756	102.3	7.39	17.5	0.633	54	0.700	-7.8	126	83	190	379		1522	814
Rupingazi River (B)-manyatta	16/06/2010	-0.3811	37.4531	1753	103.8	7.48	15.7	0.404	34	0.438	-5.5	61	33	174	291		767	77
Karute River-Mt. Kenya	14/06/2010	-0.3659	37.3106	2130	101.1	7.34	13.5	0.216	17	0.243	-7.7	37	23	66	206		550	323
Thiba River-Mwea	01/07/2010	-2.4027	40.3515	1019	102.8	7.72	24.3	0.855	103	0.889	-9.4	149	131	400	316		1045	20
Thiba river (B)-Mt. Kenya	13/06/2010	-0.3988	37.3086	1939	99.0	7.16	14.5	0.235	19	0.278	-11.4	44	26	128	219		934	396
Kiringa river-Kirinyaga	13/06/2010	-0.5043	37.3211	1461	100.9	7.32	18.2	0.348	38	0.389	-7.8	102	69	428	295		986	167
Nithi tributary-Mt Kenya N.P	22/06/2010	-0.1543	37.4385	2964	102.6	7.44	14.1	0.732	58	0.804	-4.5	25	22	551	679		1497	205
Giinchi River-Mt.Kenya	21/06/2010	-0.2514	37.6000	1634	101.8	6.83	18.2	0.135	15	0.185	-10.8	25	10	194	164		1181	92
Maara river-Mt. Kenya	22/06/2010	-0.2401	37.5985	1664	103.1	7.70	16.1	0.606	55	0.637	-4.2	58	25	405	339		704	28
Chania-Thika river	03/06/2010	-1.0261	37.2447	1421	102.0	7.32	22.3	0.533	63	0.594	-9.5	109	64	275	240		1582	332
Mathioya river-Muran'ga	12/06/2010	-0.7141	37.1806	1157	103.5	7.81	20.5	0.575	59	0.595	-7.2	143	117	96	290		546	
Thuchi River-Ishiara	24/06/2010	-0.4461	37.7894	824	102.1	7.39	22.0	0.322	38	0.353	-4.7	28	20	242	241		813	70
Mutonga river-Tharaka	23/06/2010	-0.3089	37.8735	713	104.6	7.88	21.6	0.660	69	0.678	-5.7	78	53	377	477		536	-21
Maara river down-Tharaka	23/06/2010	-0.3440	37.8708	682	103.1	7.66	22.1	0.475	48	0.498	-3.5	32	23	342	329		645	-7
Kazita River-Tharaka	02/07/2010	-0.1508	37.9721	572	110.2	8.20	25.6	1.601	174	1.611	-7.9	272	280	606	600		643	-8
Nyambene Hills Region																		
Thanandu River-Tharaka	02/07/2010	-0.1000	38.0088	587	105.7	8.08	25.4	1.620	172	1.640	-9.2	309	292	450	634		867	12
murera river-meru N.Park	04/07/2010	0.2687	38.1321	736	97.7	7.73	24.8	4.152	386	4.318	-15.0	577	662	1392	1131		4915	671
Rojewero river-Meru N.P	06/07/2010	-0.0693	38.4187	333	97.0	8.10	25.0	3.534	339	3.576	-10.9	513	488	1362	900		1827	58
Ura river-Meru N.P	05/07/2010	0.0231	38.0662	689	101.6	7.81	22.9	0.816	88	0.843	-7.8	133	101	350	405		806	-4
Mutundu River-Meru N.P	04/07/2010	0.2151	38.1292	709	101.0	8.19	22.6	4.534	388	4.570	-12.6	820	712	1231	1033		1805	453
Main Tana River																		
Sagana River-Makutano	12/06/2010	-0.7879	37.2685	1054	110.3	7.73	23.7	0.656	71	0.683	-7.2	150	114	294	275		761	600
Tana river-masinga bridge	01/07/2010	-0.8739	37.5913	1013	56.5	6.89	22.1	0.632	73	0.824	-10.4	146	93	230	234		5204	88
Tana river-Irira bridge-Ishiara	24/06/2010	-0.4742	37.9132	543	92.0	7.41	25.3	0.736	96	0.762	-9.9	194	103	283	235		837	-7
Tana river-usueni bridge	03/07/2010	-0.1516	38.1968	389	112.3	7.76	25.9	0.833	102	0.864	-8.8	200	110	331	286		943	28
Tana River-Kora bridge	06/07/2010	-0.0766	38.4146	324	105.2	7.78	26.6	0.888	113	0.917	-8.7	213	113	351	297		984	14
Tana river-Ura river junction	05/07/2010	-0.0546	38.3108	355	102.0	7.75	24.9	0.886	105	0.918	-8.5	202	114	348	309		1017	19
Tana river-Saka	17/07/2010	-0.1453	39.3256	175	100.9	7.76	25.7	1.038	123	1.074	-8.3	260	123	385	293		1184	
Tana River -Garissa bridge	16/07/2010	-0.4636	39.6366	153	102.1	7.79	27.1	1.086	132	1.121	-8.5	286	122	392	293		1188	28
Tana River-Sankuri	17/07/2010	-0.3025	39.5506	152	102.4	7.80	27.5	1.111	130	1.146	-8.6	290	126	397	290		1174	25
Tana River-Balambala	15/06/2010	-0.0939	39.1050	196	101.3	7.59	26.2	0.963	121	1.015	-8.5	245	121	365	295		1627	
Tana River-Jara	18/07/2010	-0.7073	39.8057	120	98.1	7.89	25.2	1.142	134	1.170	-8.7	302	124	406	293		971	
Tana River-Bura Bridge	19/07/2010	-1.0996	39.9379	87	98.7	7.85	25.2	1.131	135	1.162	-8.7	313	126	419	288		1045	59
Tana River-Garsen bridge	22/07/2010	-2.2887	40.1266	20	96.9	7.76	26.6	1.254	149	1.298	-8.7	343	132	465	283		1451	104
Tana River-Tana Primate	21/07/2010	-1.8511	40.1153	31	100.4	7.82	26.7	1.209	146	1.244	-8.1	336	128	430	287		1238	28
Tana River-Hola	21/07/2010	-1.4945	40.0393	53	98.2	7.83	25.5	1.190	139	1.225	-8.4	328	128	413	290		1173	143
Tana River-Chalaluma	21/07/2010	-2.4098	40.3518	8	94.5	7.55	26.8	1.321	155	1.401	-8.5	358	135	475	282		2531	

Supplementary Table 2: Overview of Chlorophyll *a*, Primary production (P), Respiration (R) and nitrate for the different sampling sites during the wet season and end-of-wet season sampling campaigns. Note that full data for the dry season can be found in Bouillon et al. (2009)

Sampling site	Date	Latitude (decimal degrees)	Longitude (decimal degrees)	Altitude (m)	Chlorophyll *a* ($\mu g\ L^{-1}$)	P ($\mu mol\ C\ L^{-1}\ h^{-1}$)	R ($\mu mol\ O_2\ L^{-1}\ h^{-1}$)	R (Stdev) ($\mu mol\ O_2\ L^{-1}\ h^{-1}$)	NO_3^- (μM)	TSM ($mg\ L^{-1}$)
Wet season										
Aberdares Region										
Chania river-Aberdares	02/09/2009	-0.4572	36.7026	3003	0.43	0.006	0.40	0.04	0.6	2
Gikururu river-Aberdares	03/09/2009	-0.4704	36.7123	2970	0.93	0.047	0.24	0.01	2.7	6
Magura river-Aberdares	03/09/2009	-0.4866	36.7076	2989	0.49	0.009			11.0	7
Karuru river-Aberdares	03/09/2009	-0.5299	36.7166	2949	0.48	0.031	0.45	0.16	1.8	2
Kinaini river-Aberdares	09/09/2009	-0.3873	36.8168	2274	0.60	0.013	0.82	0.03	15.7	31
Honi River-Aberdares	15/09/2009	-0.3613	36.6737	3219	0.50	0.049			1.0	3
Muringato River-Aberdares	15/09/2009	-0.3746	36.8837	1991	2.48	0.316			16.3	69
Chania River-Nyeri Town	16/10/2009	-0.4151	36.9436	1763	3.68	0.188	2.81	0.30	32.5	224
Gura River-Othaya	16/10/2009	-0.4990	36.9363	1769	0.85		0.20	0.07	13.4	37
Satima springs										
Satima springs-stream 1 A	14/09/2009	-0.3381	36.6476	3600						3
Satima springs-Stream 2 A	14/09/2009	-0.3381	36.6476	3600						
Satima springs-Point B	14/09/2009	-0.3385	36.6465	3553						
Satima springs-Point C	14/09/2009	-0.3382	36.6450	3503						
Satima springs-Point D	14/09/2009	-0.3388	36.6423	3455						
Dam										
Kamburu dam-Tana entrance	17/09/2009	-0.8341	37.6731	1010	11.91	18.283				82
Kamburu dam- exit point	17/09/2009	-0.8138	37.6840	1010	20.58				49.4	82
Mt Kenya Region										
Thiba river-Kerogoya kutus	30/9/2009	-0.5671	37.3226	1293	0.84	0.129	0.85	0.13	3.3	6
Nyamidi River-Kerogoya	01/10/2009	-0.5474	37.3886	1353	0.29	0.033			4.7	3
Rupingazi River-Embu Town	02/10/2009	-0.5450	37.4490	1302	0.78	0.092	1.09	0.10	5.6	5
Thambana river-Manyatta	02/10/2009	-0.3995	37.4717	1768	0.73	0.050	3.64	0.03	36.8	7
Nyanjara river-manyatta	03/10/2009	-0.3843	37.4588	1756	1.02	0.065			6.0	13
Rupingazi River (B)-manyatta	03/10/2009	-0.3811	37.4531	1753	0.39	0.049			4.8	3
Karute River-Mt. Kenya	04/10/2009	-0.3659	37.3106	2130	0.30		1.56	0.59	9.8	3
Gathiba River-Mt.Kenya	04/10/2009	-0.3587	37.3133	2142	0.35	0.042	1.45	0.39	7.6	4
Thiba river (B)-Mt. Kenya	05/10/2009	-0.3988	37.3086	1939	0.29	0.026	2.00	0.08	15.8	2
Kiringa river	05/10/2009	-0.5043	37.3211	1461	3.15	0.088	0.57	0.26	7.8	33
Nithi tributary-Mt Kenya	06/10/2009	-0.1543	37.4385	2964	0.38	0.089			0.8	4
Giinchi River-Mt.Kenya	07/10/2009	-0.2514	37.6000	1634	0.21	0.026	0.32	0.13	14.1	6
Maara river-Mt. Kenya	07/10/2009	-0.2401	37.5985	1664	0.60	0.046			8.4	10
Chania-Thika river-Thika	14/10/2009	-1.0261	37.2447	1421	1.20	0.543			33.7	6
Mathioya river-Muran'ga	15/10/2009	-0.7141	37.1806	1157		0.759	2.16	0.02	32.6	1886
Thuchi River-Ishiara	17/10/2009	-0.4461	37.7894	824	2.59		0.96	0.01	41.4	333
Mutonga river-Tharaka	19/10/2009	-0.3089	37.8735	713	1.36	0.440	0.90	0.04	47.4	1460
Maara river down-Tharaka	19/10/2009	-0.3440	37.8708	682	2.24				42.1	5904
Kazita River-Tharaka	22/10/2009	-0.1508	37.9721	572	0.73	0.369	0.89	0.00	63.2	481
Nyambene Hills Region										
Thanandu River-Tharaka	20/10/2009	-0.1000	38.0088	587					63.6	3688
murera river-meru N.Park	23/10/2009	0.2687	38.1321	736	0.25	0.411			146.2	6
Rojewero river-Meru N.P	24/10/2009	-0.0693	38.4187	333	8.42	1.281	1.52		64.3	95
Ura river-Meru N.P	26/10/2009	0.0231	38.0662	689	0.57		0.46	0.08	33.5	33
Mutundu River-Meru N.P	27/10/2009	0.2151	38.1292	709	1.16	0.679	0.69	0.04	85.2	17
Main Tana River										
Tana river-masinga bridge	18/09/2009	-0.8739	37.5913	1013	0.97	0.786	1.20	0.06	77.8	144
Sagana River-Makutano	15/10/2009	-0.7879	37.2685	1054	5.52		1.25	0.42	32.0	40
Tana river-Irira bridge-Ishiara	18/10/2009	-0.4742	37.9132	543	5.24	1.365	2.84		45.5	4486
Tana river-usueni bridge	21/10/2009	-0.1516	38.1968	389	1.39	1.459	1.19	0.06	53.0	1740
Tana River-Kora bridge	24/10/2009	-0.0766	38.4146	324	0.89	0.476	0.85	0.12	46.0	603
Tana river-Ura river junction	26/10/2009	-0.0546	38.3108	355	1.30	0.407	2.00	0.44	23.0	88
Tana river-Saka	01/11/2009	-0.1453	39.3256	175	5.36	0.419	1.73	0.23	68.2	6778
Tana River -Garissa bridge	02/11/2009	-0.4636	39.6366	153	5.32				72.3	7058
Tana River-Sankuri	03/11/2009	-0.3025	39.5506	152	4.45		1.86	0.30	63.1	5112
Tana River-Balambala	04/11/2009	-0.0939	39.1050	196	4.22		2.85	0.09	59.9	6075
Tana River-Jara	06/11/2009	-0.7073	39.8057	120	2.43					4870
Tana River-Bura Bridge	06/11/2009	-1.0996	39.9379	87	2.99	1.353	1.87	0.38	78.0	5640
Tana River-Garsen bridge	07/11/2009	-2.2887	40.1266	20		1.113			91.9	5098
Tana River-Tana Primate	08/11/2009	-1.8511	40.1153	31	2.52	0.817	2.45	0.35	81.8	5212
Tana River-Hola	09/11/2009	-1.4945	40.0393	53	5.01	1.112	2.95	0.33	69.9	5230

Supplementary Table 2: Overview of Chlorophyll *a*, Primary production (P), Respiration (R) and nitrate for the different sampling sites during the wet season and end-of-wet season sampling campaigns. Note that full data for the dry season can be found in Bouillon et al. (2009)

Sampling site	Date	Latitude (decimal degrees)	Longitude (decimal degrees)	Altitude (m)	Chlorophyll *a* ($\mu g\ L^{-1}$)	P ($\mu mol\ C\ L^{-1}\ h^{-1}$)	NO_3^- (μM)	TSM ($mg\ L^{-1}$)
End of wet season								
Aberdares Region								
Chania river-Aberdares	09/06/2010	-0.4572	36.7026	3003	0.29	0.011	0.1	3
Gikururu river-Aberdares	09/06/2010	-0.4704	36.7123	2970	0.41	0.017	2.7	16
Magura river-Aberdares	10/06/2010	-0.4866	36.7076	2989	0.18	0.026	0.7	13
Karuru river-Aberdares	10/06/2010	-0.5299	36.7166	2949	0.23	0.007	4.7	6
Kinaini river-Aberdares	08/06/2010	-0.3873	36.8168	2274	0.22	0.004	18.6	23
Honi River-Aberdares	07/06/2010	-0.3613	36.6737	3219	0.19	0.007	1.7	3
Muringato River-Aberdares	11/06/2010	-0.3746	36.8837	1991	2.20	0.079	19.4	158
Chania River-Nyeri Town	05/06/2010	-0.4151	36.9436	1763	2.84	0.042	10.9	25
Gura River-Othaya	06/06/2010	-0.4990	36.9363	1769	9.60	0.221	8.6	7
Dam								
Masinga reservoir	27/06/2010	-0.8894	37.6402	1050	6.28		38.6	66
Kamburu dam-Tana entrance	30/06/2010	-0.8341	37.6731	1010	3.46	10.280	39.2	
Kamburu dam- exit point	30/06/2010	-0.8138	37.6840	1010	8.69		29.6	
Mt Kenya Region								
Thiba river-Kerogoya kutus	14/06/2010	-0.5671	37.3226	1293	0.89	0.022	54.2	38
Nyamidi River-Kerogoya	15/06/2010	-0.5474	37.3886	1353	0.85	0.053	20.1	9
Rupingazi River-Embu Town	15/06/2010	-0.5450	37.4490	1302	1.13	0.071	25.9	27
Thambana river-Manyatta	19/06/2010	-0.3995	37.4717	1768	0.81	0.034	31.9	44
Nyanjara river-manyatta	19/06/2010	-0.3843	37.4588	1756	0.71	0.035	20.2	17
Rupingazi River (B)-manyatta	16/06/2010	-0.3811	37.4531	1753	0.54	0.038	13.9	5
Karute River-Mt. Kenya	14/06/2010	-0.3659	37.3106	2130	0.30	0.005	15.9	3
Thiba River-Mwea	01/07/2010	-2.4027	40.3515	1019	0.62	0.195	35.2	43
Thiba river (B)-Mt. Kenya	13/06/2010	-0.3988	37.3086	1939	0.58	0.010	25.9	10
Kiringa river-Kirinyaga	13/06/2010	-0.5043	37.3211	1461	0.71	0.026	41.8	14
Nithi tributary-Mt Kenya	22/06/2010	-0.1543	37.4385	2964	0.37	0.021	0.4	1
Giinchi River-Mt.Kenya	21/06/2010	-0.2514	37.6000	1634	0.70	0.032	24.9	16
Maara river-Mt. Kenya	22/06/2010	-0.2401	37.5985	1664	0.78	0.010	15.2	12
Chania-Thika river	03/06/2010	-1.0261	37.2447	1421	0.84	0.220	61.6	114
Mathioya river-Muran'ga	12/06/2010	-0.7141	37.1806	1157	0.80	0.060	28.5	40
Thuchi River-Ishiara	24/06/2010	-0.4461	37.7894	824	1.05		21.2	34
Mutonga river-Tharaka	23/06/2010	-0.3089	37.8735	713	1.02	0.155	28.0	18
Maara river down-Tharaka	23/06/2010	-0.3440	37.8708	682	0.98	0.047	14.7	21
Kazita River-Tharaka	02/07/2010	-0.1508	37.9721	572	1.77	0.255	82.5	18
Nyambene Hills Region								
Thanandu River-Tharaka	02/07/2010	-0.1000	38.0088	587	2.96	0.528	110.3	15
murera river-meru N.Park	04/07/2010	0.2687	38.1321	736	1.05	0.096	131.7	17
Rojewero river-Meru N.P	06/07/2010	-0.0693	38.4187	333	2.38	0.590	73.1	105
Ura river-Meru N.P	05/07/2010	0.0231	38.0662	689	0.63		27.4	9
Mutundu River-Meru N.P	04/07/2010	0.2151	38.1292	709	0.81	0.103	84.8	18
Main Tana River								
Sagana River-Makutano	12/06/2010	-0.7879	37.2685	1054	0.77	0.016	33.2	89
Tana river-masinga bridge	01/07/2010	-0.8739	37.5913	1013		0.278	41.4	82
Tana river-Irira bridge-Ishiara	24/06/2010	-0.4742	37.9132	543	0.51	0.255	48.4	75
Tana river-usueni bridge	03/07/2010	-0.1516	38.1968	389	0.78	0.349	48.9	62
Tana River-Kora bridge	06/07/2010	-0.0766	38.4146	324	0.97	0.373	33.1	79
Tana river-Ura river junction	05/07/2010	-0.0546	38.3108	355	0.91	0.331	27.8	60
Tana river-Saka	17/07/2010	-0.1453	39.3256	175	2.61	2.056	31.7	116
Tana River -Garissa bridge	16/07/2010	-0.4636	39.6366	153	5.44	3.249	30.8	192
Tana River-Sankuri	17/07/2010	-0.3025	39.5506	152	3.78	2.071	32.8	144
Tana River-Balambala	15/06/2010	-0.0939	39.1050	196	2.09	1.349	33.2	100
Tana River-Jara	18/07/2010	-0.7073	39.8057	120	6.07	4.310	32.1	180
Tana River-Bura Bridge	19/07/2010	-1.0996	39.9379	87	7.51	3.890	28.8	273
Tana River-Garsen bridge	22/07/2010	-2.2887	40.1266	20	8.99	7.378	29.5	398
Tana River-Tana Primate	21/07/2010	-1.8511	40.1153	31	8.26	4.469	30.9	303
Tana River-Hola	21/07/2010	-1.4945	40.0393	53	8.24	2.369	29.4	314
Tana River-Chalaluma	21/07/2010	-2.4098	40.3518	8	8.97	3.285	28.5	471

F. Tamooh et al. (2013): Dynamics of dissolved inorganic carbon and aquatic metabolism in the Tana River Basin, Kenya.

Supplementary Table 3: Overview of Disslolved Oxygen (DO), pH, Temparature, Conductivity, $\delta^{18}O_{DO}$, $\delta^{13}C_{DIC}$,Total Alkalinity, DIC, CO_2 efflux, and pCO_2 fluxes for the different sampling sites during the 24 hour sampling.

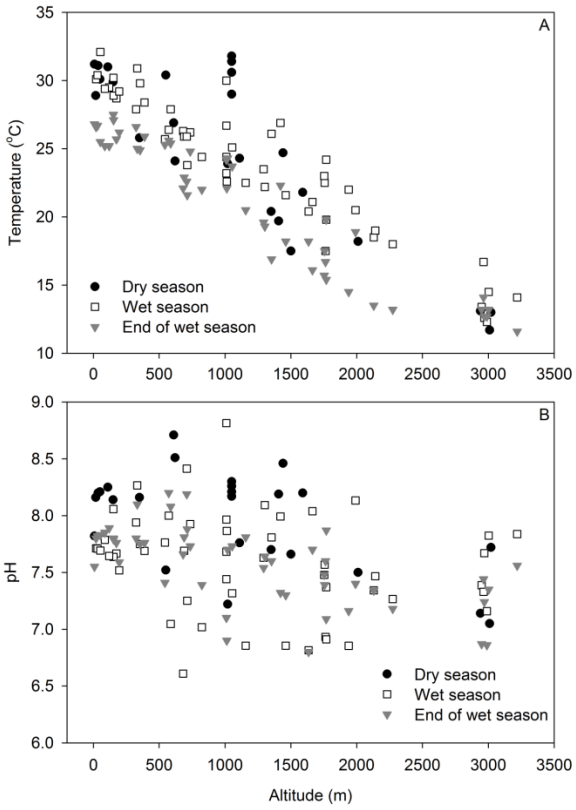
Sampling site	Date	Time (24 hour)	DO (%)	pH (NBS scale)	Temp (^oC)	Conductivity ($\mu S\ cm^{-1}$)	$\delta^{18}O_{DO}$ (‰)	$\delta^{13}C_{DIC}$ (‰)	Total alkalinity ($mmol\ L^{-1}$)	DIC ($mmol\ L^{-1}$)	CO_2 flux ($mmol\ CO_2\ m^{-2}\ d^{-1}$)	pCO_2 (ppm)	*k600* ($cm\ h^{-1}$)
Headwater stream													
Chania stream-Aberdares	12/09/2009	16:00	102.0	8.00	12.6	50	24.3	-6.3	0.496	0.508		277	
Chania stream-Aberdares	12/09/2009	17:00	96.3	7.97	12.0	51		-6.4			4.30		
Chania stream-Aberdares	12/09/2009	18:00	93.7	7.93	11.4		24.4	-6.4				527	
Chania stream-Aberdares	12/09/2009	19:00	96.3	7.73	11.2	52	23.8	-6.6	0.521	0.547	33.04	490	33.4
Chania stream-Aberdares	12/09/2009	20:00	96.9	7.77	10.7	52	24.8	-6.8	0.533	0.558		402	
Chania stream-Aberdares	12/09/2009	21:00	96.5	7.86	10.6	53	24.7	-6.8	0.531	0.551	19.34	614	8.8
Chania stream-Aberdares	12/09/2009	22:00	96.0	7.67	10.4	53	24.8	-7.0	0.528	0.560		511	
Chania stream-Aberdares	12/09/2009	23:00	94.5	7.75	10.1	53	24.8	-7.0	0.535	0.561	52.16	506	45.3
Chania stream-Aberdares	12/09/2009	00:00	94.8	7.75	9.9	53	24.7	-6.9	0.532	0.558		569	
Chania stream-Aberdares	13/09/2009	01:00	93.1	7.71	8.9	54	24.3	-6.9	0.542	0.573	30.91	574	16.9
Chania stream-Aberdares	13/09/2009	02:00	94.4	7.70	9.0	53	24.0	-6.9	0.541	0.572		604	
Chania stream-Aberdares	13/09/2009	03:00	91.4	7.67	8.2	53	24.9	-7.1	0.537	0.571	48.56	580	25.6
Chania stream-Aberdares	13/09/2009	04:00	90.8	7.68	7.5	52	25.5	-7.0	0.533	0.566		581	
Chania stream-Aberdares	13/09/2009	05:00	93.0	7.69	7.2	52	23.9	-7.2	0.537	0.571	46.11	507	39.1
Chania stream-Aberdares	13/09/2009	06:00	89.4	7.74	6.9	52	24.6	-7.1	0.528	0.557		529	
Chania stream-Aberdares	13/09/2009	07:00	97.4	7.72	8.3	52	24.1	-7.2	0.527	0.556	31.10	505	27.0
Chania stream-Aberdares	13/09/2009	08:00	107.7	7.76	12.0	52	24.2	-6.9	0.528	0.552		438	
Chania stream-Aberdares	13/09/2009	09:00	106.4	7.82	12.8	51	23.6	-6.9	0.518	0.538	-1.83	393	
Chania stream-Aberdares	13/09/2009	10:00	113.3	7.86	12.7	51	23.0	-5.9	0.514	0.532		311	
Chania stream-Aberdares	13/09/2009	11:00	124.0	7.97	15.2	50	22.5	-6.0	0.506	0.518	-13.48	234	9.1
Chania stream-Aberdares	13/09/2009	12:00	107.0	8.09	14.8	50	23.2	-5.9	0.507	0.515		175	
Chania stream-Aberdares	13/09/2009	13:00	105.3	8.21	14.8	50	23.0	-5.8	0.502	0.506	-31.51	185	16.1
Chania stream-Aberdares	13/09/2009	14:00	108.2	8.21	15.1	52	22.9	-5.9	0.528	0.533		174	
Chania stream-Aberdares	13/09/2009	15:00	119.0	8.25	16.6	52	23.0	-6.3	0.528	0.531			
Reservoir													
Masinga reservoir	27/06/2010	10:00	72.1	7.07	22.2	74	26.7	-9.8	0.605	0.719	268.9	3252	10.1
Masinga reservoir	27/06/2010	11:00	63.0	7.12	22.2	71	26.9	-10.4	0.580	0.681		2784	
Masinga reservoir	27/06/2010	12:00	65.4	7.04	22.7	72		-10.1	0.570	0.691	200.9	3353	7.3
Masinga reservoir	27/06/2010	13:00	65.4	7.07	22.6	72	27.3	-10.2	0.526	0.630		2851	
Masinga reservoir	27/06/2010	14:00	73.6	7.10	23.4	75	25.7	-9.6	0.549	0.649	208.2	2832	9.2
Masinga reservoir	27/06/2010	15:00	68.5	6.99	22.7	73		-10.1	0.565	0.698		3684	
Masinga reservoir	27/06/2010	16:00	69.1	6.99	22.8	73	25.4	-10.1	0.542	0.671	330.7	3593	11.1
Masinga reservoir	27/06/2010	17:00	67.5	6.99	22.5	73		-10.1	0.521	0.645		3414	
Masinga reservoir	27/06/2010	18:00	64.8	7.02	22.3	72	27.7	-10.1	0.545	0.666	236.7	3319	8.7
Masinga reservoir	27/06/2010	19:00	63.0	6.98	22.2	72	27.6	-10.1	0.546	0.678		3596	
Masinga reservoir	27/06/2010	20:00	65.5	6.99	22.1	72	27.5	-10.3	0.536	0.663	254.2	3462	8.9
Masinga reservoir	27/06/2010	21:00	69.3	7.04	22.1	73	27.1	-10.0	0.578	0.701		3351	
Masinga reservoir	27/06/2010	22:00	69.2	7.07	22.1	73	27.2	-9.9	0.549	0.657	122.4	2959	5.1
Masinga reservoir	27/06/2010	23:00	67.2	7.05	22.1	73	27.6	-10.0	0.565	0.684		3225	
Masinga reservoir	27/06/2010	00:00	68.3	7.06	22.1	73	28.1	-10.0	0.554	0.667	123.8	3077	5.0
Masinga reservoir	28/06/2010	01:00	66.9	7.02	22.0	72		-9.9	0.552	0.674		3322	
Masinga reservoir	28/06/2010	02:00	65.4	7.04	22.0	72	27.8	-10.3	0.556	0.674	205.5	3202	7.9
Masinga reservoir	28/06/2010	03:00	66.9	7.05	22.0	72	27.8	-10.4	0.538	0.649		3006	

F. Tamooh et al. (2012): Dynamics of dissolved inorganic carbon and aquatic metabolism in the Tana River Basin, Kenya.

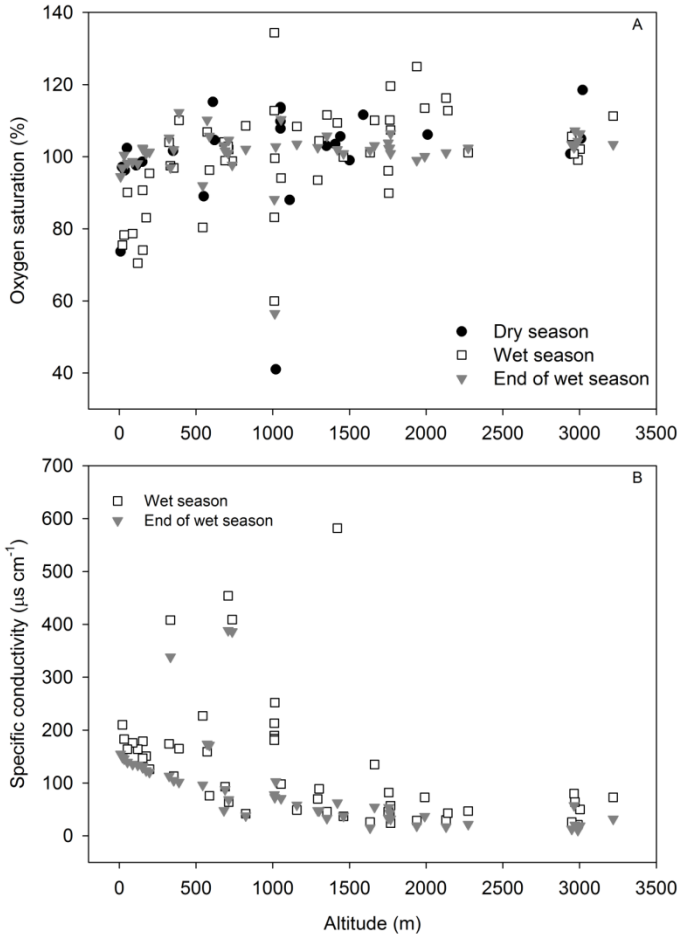
Supplementary Table 3: Overview of Disslolved Oxygen (DO), pH, Temparature, Conductivity, $\delta^{18}O_{DO}$, $\delta^{13}C_{DIC}$,Total Alkalinity, DIC, CO_2 efflux, and pCO_2 fluxes for the different sampling sites during the 24 hour sampling.

Sampling site	Date	Time (24 hour)	DO (%)	pH (NBS scale)	Temp (^{o}C)	Conductivity (µS cm^{-1})	$\delta^{18}O_{DO}$ (‰)	$\delta^{13}C_{DIC}$ (‰)	Total alkalinity (mmol L^{-1})	DIC (mmol L^{-1})	CO_2 flux (mmol CO_2 m^{-2} d^{-1})	pCO_2 (ppm)	*k600* (cm h^{-1})
Reservoir													
Masinga reservoir	28/06/2010	04:00	65.9	7.04	22.0	72	27.6	-10.1	0.553	0.670	95.0	3171	3.7
Masinga reservoir	28/06/2010	05:00	65.6	7.05	22.0	72	27.7	-10.4	0.498	0.603		2844	
Masinga reservoir	28/06/2010	06:00	66.2	7.03	22.0	72	27.8	-10.2	0.562	0.684	150.8	3309	5.5
Masinga reservoir	28/06/2010	07:00	66.4	7.05	22.0	72	27.6	-10.4	0.551	0.665		3112	
Masinga reservoir	28/06/2010	08:00	68.2	7.09	22.0	72	27.4	-10.3	0.510	0.607	215.6	2621	10.4
Masinga reservoir	28/06/2010	09:00	69.1	7.08	22.3	73	27.0	-10.2	0.557	0.664		2930	
Main Tana River													
Tana River-Bura	20/07/2010	11:00	99.0	7.86	25.2	135	24.9	-8.4	1.168	1.183		1047	
Tana River-Bura	20/07/2010	12:00	98.7	7.85	25.1	135	24.7	-8.4	1.131	1.163	1.5	1060	0.2
Tana River-Bura	20/07/2010	13:00	98.1	7.88	25.1	136	24.9	-8.4	1.124	1.152		980	
Tana River-Bura	20/07/2010	14:00	99.5	7.88	25.5	137	25.1	-8.4	1.146	1.175	15.5	1011	2.7
Tana River-Bura	20/07/2010	15:00	99.4	7.86	25.6	137	24.9	-8.3	1.183	1.214		1078	
Tana River-Bura	20/07/2010	16:00	99.9	7.84	25.7	137	24.6	-8.4	1.171	1.204	10.0	1131	1.5
Tana River-Bura	20/07/2010	17:00	99.9	7.86	25.8	137	24.6	-8.4	1.179	1.210		1070	
Tana River-Bura	20/07/2010	18:00	99.2	7.86	25.7	137	25.0	-8.4	1.172	1.203	4.6	1071	0.7
Tana River-Bura	20/07/2010	19:00	98.5	7.88	25.5	137	24.9	-8.3	1.174	1.203		1015	
Tana River-Bura	20/07/2010	20:00	98.7	7.87	25.4	136	24.8	-8.4	1.175	1.205	6.7	1045	1.1
Tana River-Bura	20/07/2010	21:00	98.4	7.88	25.3	136	24.9	-8.4	1.138	1.167		991	
Tana River-Bura	20/07/2010	22:00	97.5	7.86	25.3	136	25.1	-8.5	1.141	1.171	10.6	1046	1.8
Tana River-Bura	20/07/2010	23:00	97.4	7.86	25.1	136	24.7	-8.6	1.141	1.171		1031	
Tana River-Bura	20/07/2010	00:00	97.1	7.86	25.1	136	24.8	-8.9	1.136	1.167	9.9	1039	1.6
Tana River-Bura	21/07/2010	01:00	96.8	7.87	25.0	135	25.1	-8.4	1.162	1.192		1029	
Tana River-Bura	21/07/2010	02:00	96.9	7.86	24.9	135	24.8	-8.3	1.166	1.197	8.6	1059	1.4
Tana River-Bura	21/07/2010	03:00	96.7	7.88	24.9	135	24.9	-8.2	1.175	1.205		1010	
Tana River-Bura	21/07/2010	04:00	98.0	7.86	24.8	135	25.2	-8.1	1.166	1.197	6.8	1056	1.1
Tana River-Bura	21/07/2010	05:00	97.7	7.87	24.7	135	25.5	-8.3	1.170	1.201		1041	
Tana River-Bura	21/07/2010	06:00	98.0	7.86	24.7	134	25.3	-8.0	1.170	1.201	6.6	1051	1.1
Tana River-Bura	21/07/2010	07:00	97.7	7.85	24.6	134	25.3	-8.0	1.172	1.204		1076	
Tana River-Bura	21/07/2010	08:00	97.4	7.86	24.6	134	25.2	-8.3	1.192	1.224	9.1	1070	1.5
Tana River-Bura	21/07/2010	09:00	98.0	7.83	24.7	135	25.0	-8.2	1.169	1.203		1123	
Tana River-Bura	21/07/2010	10:00	98.3	7.85	24.8	135	25.0	-8.0	1.140	1.172	13.1	1067	2.1

Supplementary Figures



Supplementary Fig. 1: Altitudinal profiles of (A) temperature, and (B) pH throughout the Tana River Basin during three sampling seasons.



Supplementary Fig. 2: Altitudinal profiles of (A) dissolved oxygen saturation, and (B) specific conductivity throughout the Tana River Basin during three sampling seasons.