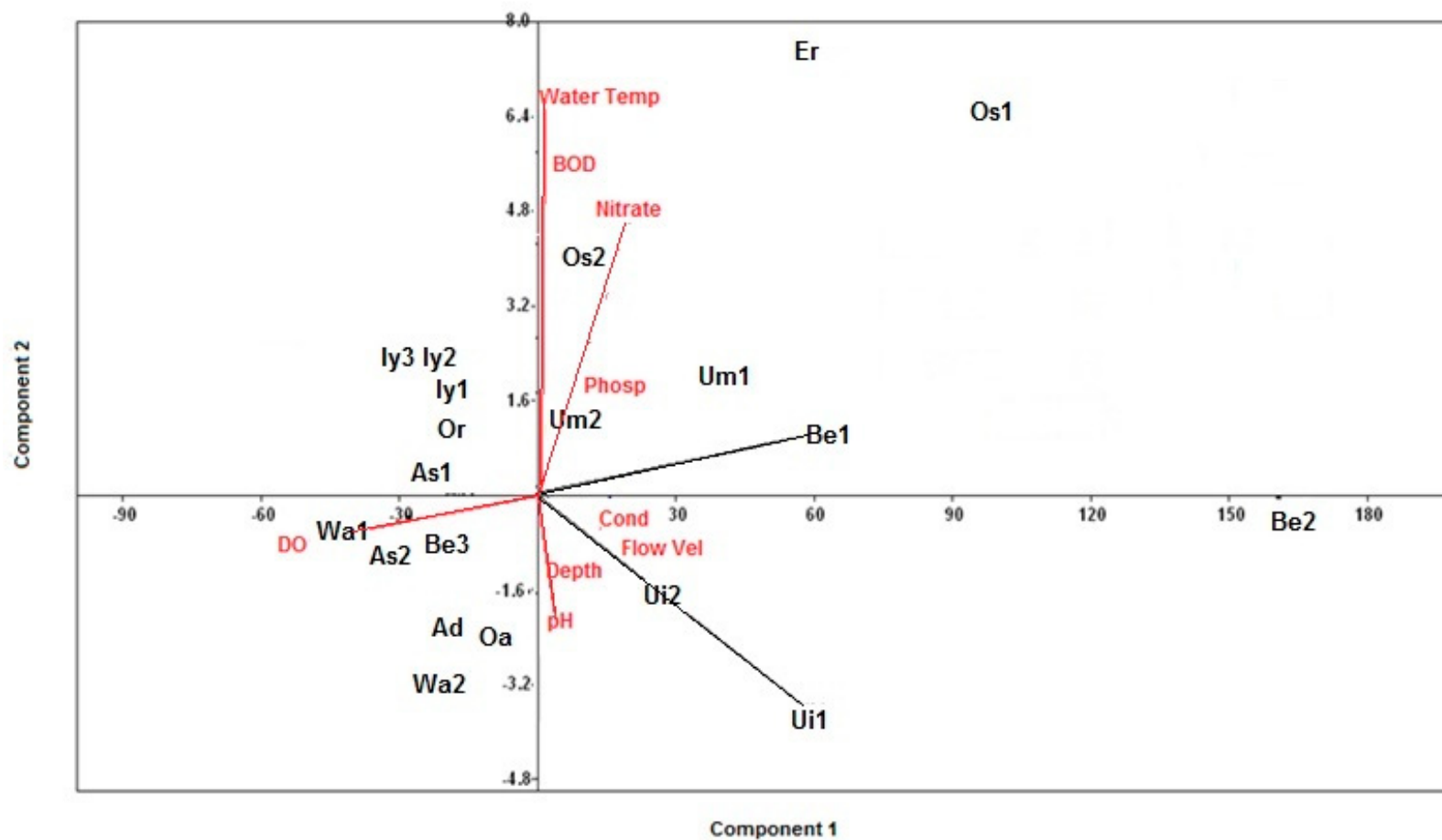


Supplementary materials

Supplementary Table S1: Geographical locations, land use types and catchment sizes of the sampled sites in the present study. √ = dominant, X = not-dominant

Rivers	Sites	Site codes	Latitude	Longitude	Forestry	Urbanization	Catchment area (km ²)
Adofi		Ad	5.93085	6.36853	√	X	294
Ase	1	As1	5.61100	6.41900	√	X	2687
Ase	2	As2	5.56000	6.40200	√	X	2845
Benin	1	Be1	5.89800	5.69300	X	√	4519
Benin	2	Be2	5.90400	5.68500	X	√	4526
Benin	3	Be3	5.90600	5.67800	X	√	4526
Eriora		Er	5.43800	6.11000	X	√	288
Iyiukwu	1	Iy1	6.41600	6.62300	√	X	85
Iyiukwu	2	Iy2	6.44000	6.63600	√	X	95
Iyiukwu	3	Iy3	6.45600	6.64700	√	X	147
Orogodo		Or	6.32333	6.25399	X	√	298
Ossiomo	1	Os1	6.28911	5.96374	X	√	338
Ossiomo	2	Os2	6.31228	5.84456	√	X	215
Owan		Oa	7.11070	5.85236	√	X	6213
Umaluku	1	Um1	5.49500	5.95300	√	X	839
Umaluku	2	Um2	5.47900	5.93700	√	X	860
Umomi	1	Ui1	6.06700	6.55800	√	X	44
Umomi	2	Ui2	6.05500	6.56200	X	√	55
Warri	1	Wa1	5.73700	6.17100	X	√	168
Warri	2	Wa2	5.69600	6.15400	X	√	242



Supplementary Figure S1: PCA biplot correlating physico-chemical variables with forested riverine system sites within urban catchment in the study area. **Abbreviations:** Cond (Electrical conductivity), Water Temp (Water Temperature), Flow Vel (Flow velocity), DO (Dissolved oxygen), BOD (Five-day biochemical oxygen demand), Phosp (Phosphate).

Supplementary Table S2: Mean values of physico-chemical variables analyzed between 2008 and 2012 in forested riverine systems draining urban catchments in the Niger Delta area of Nigeria.

River/Sites codes	Physico-chemical variables								
	Water Temp (°C)	Depth (m)	Flow vel (ms ⁻¹)	Cond (µScm ⁻¹)	DO (mgL ⁻¹)	BOD (mgL ⁻¹)	pH	Nitrate (mgL ⁻¹)	Phosp (mgL ⁻¹)
Wa2	22.3	0.91	0.14	9.5	5	0.9	7	0.1	0.1
Wa1	25.2	0.95	0.14	9.9	8.8	1	7	0.09	0.09
Ad	21.1	0.56	0.27	11.7	8	2.3	6.7	0.5	0.4
Or	26	0.66	0.1	13.6	7.4	2.3	6.4	2.8	0.01
As2	24.9	0.54	0.27	15.3	6.1	2.4	7.3	1.3	0.15
Iy3	27.8	0.45	0.23	15.4	6	2.6	6.4	0.03	2.2
Iy1	27.4	0.59	0.2	16.6	6	2.8	5.6	0.4	2.8
As1	25.3	0.7	0.22	17	5.4	3.3	6.7	2.3	0.13
Iy2	27.6	0.63	0.2	17.4	6	3.2	5.6	0.04	2.5
Be3	24.7	0.66	0.14	20.7	8	2.9	6	0.08	0.06
Os2	26	0.53	0.26	23	6.6	1.8	6.2	0.04	0.24
Be1	24.5	1	0.13	24.9	6.7	2.9	6.7	0.08	0.08
Os1	25.9	0.53	0.29	25.6	6	2.3	6.2	0.05	0.2
Oa	24.7	1.36	0.34	29.2	6.2	2.1	6.5	0.06	0.69
Um2	26	0.63	0.19	35.5	5.4	2.5	6.8	1.25	10.6
Er	29.8	0.75	0.25	56.5	11.3	9.7	5.3	1.45	0.26
Ui2	22.4	1	0.22	62.5	6.3	3.5	6.8	0.04	1.3
Um1	25.7	0.49	0.22	70.3	2.8	8.8	5.9	4.4	0.34
Ui1	22	0.99	0.2	81.9	5	3.4	6.9	0.03	1.15
Be2	24.5	0.79	0.19	198	4	14.6	7.2	0.5	0.8

Supplementary Table S3: Absolute abundance of macroinvertebrate taxa collected during the sampling period spanning from 2008 - 2012 in forested riverine systems draining urban catchments in the Niger Delta area of Nigeria.

Macroinvertebrate taxa	Taxa codes	Site codes																			
		Wa2	Wa1	Ad	Or	As2	Iy3	Iy1	As1	Iy2	Be3	Os2	Be1	Os1	Oa	Um2	Er	Ui2	Um1	Ui1	Be2
Naididae	Nai	11	9	21	12	27	11	8	14	20	4	2	3	15	0	0	0	318	0	21	2
Tubificidae	Tub	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lumbricidae	Lum	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	7
Lymnaidae	Lym	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Planorbidae	Pla	32	0	0	0	0	0	0	8	0	0	0	0	0	0	7	0	0	0	0	0
Thiaridae	Thi	4802	0	0	0	0	0	27	0	4	0	0	0	0	441	4	0	0	8	0	0
Amphullariidae	Amp	0	0	0	0	0	12	3	0	0	0	0	0	0	0	0	0	0	0	0	0
Atyidae	Aty	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	182	0	0	0	0
Euryrhynchidae	Eur	233	0	50	31	37	0	24	8	30	0	295	0	0	15	0	400	0	0	109	0
Palaemonidae	Pal	10	5	11	0	3	0	0	0	0	4	64	0	0	0	0	0	0	0	28	20
Baetidae	Bae	32	11	188	31	56	39	65	58	10	33	547	37	51	0	28	288	377	3	513	2
Leptophlebiidae	Lep	512	0	28	18	0	33	47	0	9	3	50	21	22	0	0	0	78	0	505	0
Caenidae	Cae	0	16	66	0	0	4	5	0	5	0	0	0	0	0	5	111	129	0	512	0
Heptageniidae	Hep	13	30	0	0	0	7	0	0	0	0	74	0	46	0	0	0	0	0	74	0

Tricorythidae	Tri	104	0	30	7	0	13	34	13	13	0	0	0	0	0	0	0	0	0	278	0
Oligoneuridae	Oli	892	0	0	0	21	0	0	11	0	0	0	0	0	0	0	0	41	0	149	0
Potamanthidae	Pot	4	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prosopistomatidae	Pro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0
Glossosomatidae	Glo	0	0	0	0	0	3	12	0	0	0	0	0	0	0	0	0	41	0	124	0
Hydroptilidae	Hyd	13	44	14	0	2	0	9	3	0	0	31	0	10	0	5	0	121	0	187	0
Hydropsychidae	Hyr	80	0	0	0	2	43	27	0	55	0	15	0	15	31	34	0	58	3	317	0
Ecnomidae	Ecn	12	0	0	0	0	31	11	0	0	0	0	0	0	16	0	0	0	0	22	0
Helicopsychidae	Hel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	0
Leptoceridae	Let	0	37	15	0	0	0	11	0	26	0	28	0	16	0	0	331	79	0	139	0
Pyraustidae	Pyr	0	0	3	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0
Notonectidae	Not	0	0	0	12	3	0	0	5	0	5	0	0	0	9	13	363	0	0	0	0
Corixidae	Cor	4	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	2
Pleidae	Ple	9	12	15	0	0	15	0	0	25	0	0	0	0	0	11	0	34	0	133	0
Mesoviliidae	Mes	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nepidae	Nep	0	2	7	0	0	0	0	0	0	5	0	11	0	64	0	0	0	0	13	0

Naucoridae	Nau	8	9	8	2	8	12	0	4	13	5	41	8	0	72	12	0	230	38	136	0
Belostomatidae	Bel	27	11	20	20	3	3	19	0	6	2	0	7	0	16	0	144	112	5	173	0
Gerridae	Ger	349	7	8	24	0	6	12	0	6	0	0	8	0	53	0	180	7	0	0	0
Dytiscidae	Dyt	20	19	52	14	88	22	35	122	41	13	55	32	7	15	15	289	156	2	224	0
Hydrophilidae	Hyp	10	24	51	0	51	7	0	4	0	5	0	0	1	52	10	71	73	3	194	0
Elmidae	Elm	0	12	0	7	0	0	0	0	0	0	0	0	10	7	0	0	0	0	0	0
Gyrinidae	Gyr	22	34	19	15	126	0	17	20	0	5	88	14	36	11	6	363	0	0	89	0
Noteridae	Nor	0	0	15	0	0	4	5	0	3	0	0	7	0	0	0	0	116	0	125	0
Aeschnidae	Aes	0	0	0	0	0	11	0	0	12	2	14	0	0	0	0	0	0	0	0	0
Gomphidae	Gom	91	14	35	0	8	25	18	7	19	0	17	0	13	36	25	0	38	0	71	0
Coenagrionidae	Coe	14	15	55	12	20	49	62	9	61	2	10	11	16	6	0	0	142	0	215	2
Libellulidae	Lib	30	33	57	16	20	0	0	10	0	5	68	13	22	98	4	71	159	6	166	4
Calopterygidae	Cal	6	8	4	0	0	9	0	0	0	0	48	0	9	0	0	0	28	0	86	0
Macromidae	Mac	0	0	0	0	13	0	0	0	0	10	7	20	0	5	0	146	0	0	0	1
Chlorocyphidae	Chl	7	7	2	0	0	6	6	0	0	0	0	0	0	0	0	0	39	0	0	0
Culicidae	Cul	2792	0	3	0	15	0	0	0	0	6	17	2	3	8	3	109	0	34	0	3
Simuliidae	Sim	0	0	21	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	9	0

Tabanidae	Tab	0	0	0	0	0	0	0	0	0	3	0	0	0	16	0	0	0	0	0	11
Ceratopogonidae	Cer	296	12	5	10	10	36	57	37	34	0	7	0	7	0	0	146	152	0	87	4
Athericidae	Ath	0	0	8	0	0	0	0	0	21	0	0	0	0	0	0	0	0	0	101	0
Chaoboridae	Cha	0	0	0	0	24	0	0	38	0	0	0	0	0	0	0	0	0	0	0	0
Tipulidae	Tip	0	0	0	0	0	9	0	0	0	0	0	0	0	10	0	0	0	0	0	0
Sryhidae	Sry	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	27	0	0
Chironomidae	Chi	22	22	93	34	81	156	149	122	46	7	354	2	163	41	26	1418	1141	109	587	51
Absolute abundance per site		10468	401	904	273	618	566	663	493	459	126	1845	200	462	1041	228	4612	3708	238	5402	109