

Supplementary table 1 Environmental data used in redundancy analysis (RDA) and variance partitioning. For RDA single values of grain size fractions, S, N, P, C and heavy metals were used; for PAH, PCB, HCH and DDX the sums of single values respectively. In variance partitioning variables were classified in grain size, S, N, P, C, organic pollutants (sums of PAH, PCB, HCH, DDX and hydrocarbons) and heavy metals.

<p>Grain size fractions</p> <p>< 20µm 20-63µm 63-100µm 100-200µm 200-630µm 630-1000µm 1000-2000µm</p> <p>S, N, P, C</p> <p>TOC (C) nitrogen (N) sulphur (S) phosphor (P)</p> <p>Hydrocarbons</p> <p>Sum Polycyclic Aromatic Hydrocarbons (PAH)</p> <p>naphthaline fluorene phenanthrene anthracene fluoranthene pyrene benz(a)anthracene chrysene benzo(b)fluoranthene benzo(k)fluoranthene benzo(a)pyrene dibenz(ah)anthracene benzo(ghi)perylene indeno(1.2.3cd)pyrene</p> <p>Sum Chlorinated Diphenyls (PCB)</p> <p>PCB28 PCB52 PCB101 PCB118 PCB138 PCB153 PCB180</p>	<p>Sum Hexachlorocyclohexane (HCH)</p> <p>alphaHCH betaHCH gammaHCH deltaHCH</p> <p>Sum Dichlorodiphenyldichloroethane (DDT) and metabolites</p> <p>ppDDE opDDD ppDDD opDDT ppDDT</p> <p>Sum Organotin Compounds</p> <p>monobutyltin (MBT) dibutyltin (DBT) tributyltin (TBT) tetrabutyltin</p> <p>Heavy Metals</p> <p>arsenic lead cadmium chrome copper nickel mercury zinc</p>
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Supplementary Table S2 Values of contextual data obtained at the sampling campaign in August 2009

Region	Grain size fractions (% dry weight)							Elemental composition (dry weight mg/kg)				(dryweight mg/kg)			(µg/kg)			Heavy metals (dry weight mg/kg)							
	< 20 µm	20-63 µm	63-100 µm	100-200 µm	200-630 µm	630-1000 µm	1000-2000 µm	TOC	nitrogen	sulphur	phosphor	hydrocarbons	Sum PAH	Sum PCB	Sum HCH	Sum DDX	Sum organotin	arsenic	lead	cadmium	chrome	copper	nickel	mercury	zinc
dumping centre	12.9	7.3	18.9	33	25	2.2	0.6	0.55	491	860	290	<50	0.96	7.01	0.32	3.41	78.7	4.1	8.6	0.21	9.2	8.3	4.9	0.12	51
dumping centre	18.1	11.7	30.6	32.4	6.3	0.5	0.2	0.92	638	1300	360	50	0.59	4.13	0.58	4.82	34.7	5.7	12	0.31	11	11	6.5	0.19	72
< 1 km	35	19.6	29.2	9.6	2.9	0.4	0.9	1.1	1010	3400	380	<50	0.41	4.02	<0.3	3.44	9.4	11	23	0.21	18	9.9	11	0.17	73
< 1 km	43.6	20.4	22.7	10.7	2.2	0.3	0.2	1.3	838	4400	410	<50	0.53	6.00	<0.4	3.6	12.3	11	26	0.31	23	13	13	0.21	88
< 1 km	28.1	21.5	33.1	13.9	2.9	0.4	0.1	0.95	1140	2600	360	<50	0.70	4.26	0.34	4.52	20	8.9	19	0.23	15	11	9.1	0.36	71
< 1 km	17.6	13.4	31.7	31.9	4.7	0.3	0.2	0.73	667	1600	330	<50	0.52	4.32	0.44	4.02	19	6.7	12	0.17	11	11	6.2	0.12	58
< 1 km	17.8	13.2	23	34.4	10.1	0.9	0.4	0.67	652	1500	340	<50	0.45	3.50	0.5	12.68	31.7	6.1	12	0.26	10	11	6.4	0.17	68
< 1 km	25.8	19.2	28.6	21.4	4.5	0.3	0.2	0.9	775	2000	340	56	0.44	3.91	0.5	4.09	22.2	7.5	15	0.26	12	10	7.4	0.16	69
< 1 km	36.8	16.6	25	17.5	3.3	0.3	0.4	1.2	773	2500	390	57	0.62	8.82	0.46	4.35	25.5	8.3	19	0.25	15	16	9.5	0.2	77
< 1 km	19.2	13.1	25	31.5	10.9	0.2	0.2	0.72	782	1500	310	<50	0.54	5.11	0.65	5.08	89.1	6.1	13	0.23	9.8	11	6	0.14	64
< 1 km	19.3	15.5	32.7	25.8	6.5	0.1	0.1	0.72	766	1400	310	53	0.73	3.70	0.66	4.3	19.8	6.3	12	0.23	9.8	9.9	6.1	0.14	64
< 1 km	24.1	19.1	35.9	19.1	1.5	0.2	0.1	0.95	606	2100	410	<50	0.47	4.05	0.54	4.73	24.9	7.7	16	0.28	13	15	8.1	0.19	78
< 1 km	39.8	23.4	23.1	9.5	3	1	0.3	1.2	836	3700	400	<50	0.64	4.38	0.31	3.34	13.4	11	22	0.26	18	20	11	0.18	77
< 1 km	42.3	21.4	22.8	9.9	3	0.4	0.2	1.4	984	3500	400	66	0.55	4.22	<0.3	3.42	11.2	10	25	0.3	21	11	12	0.2	102
< 1 km	45.4	26.5	19.4	5.5	1.7	1.3	0.3	1.2	943	4900	450	<50	0.48	6.56	0.33	13.74	17	13	27	0.29	21	14	13	0.21	90
< 1 km	41.8	23.6	22	7.9	3	1.2	0.5	1.2	1450	3600	410	53	0.53	4.63	<0.3	3.24	9.7	11	25	0.26	19	11	11	0.21	82
1 km	35.8	20.6	32.3	8.3	1.9	0.6	0.5	1.2	1000	3100	380	<50	0.43	4.17	<0.3	<3	9.1	9.5	22	0.23	23	8.4	11	0.15	74
1 km	34.4	19	27.6	15.2	2.8	0.6	0.3	1.1	1080	3400	390	<50	0.47	4.13	<0.3	3.7	21.8	9.4	21	0.27	21	9	11	0.15	74
1 km	39.8	23.2	22.4	11.1	2.4	0.9	0.1	1	1120	4800	400	<50	0.47	4.67	<0.3	3.29	12.3	11	25	0.3	22	12	13	0.19	80
1 km	39.4	19.2	27.8	10.6	2.1	0.6	0.3	1.3	1070	3300	370	53	0.51	4.23	<0.3	3.19	12	9.3	21	0.25	20	9.5	11	0.15	69
1.5 km	45.8	27.1	14.9	8.4	3.2	0.4	0.2	1.3	1180	5100	440	<50	0.39	3.96	<0.3	3.13	10.3	13	24	0.24	23	11	14	0.16	77
1.5 km	41.1	24.3	24.1	7.1	2.4	0.5	0.2	1.2	1180	4700	420	61	0.44	3.96	<0.3	3.1	10.5	12	25	0.26	20	11	13	0.19	82
1.5 km	35.1	21.9	32.7	8.3	1.6	0.2	0.2	1.2	824	3200	390	51	0.42	4.06	<0.3	3.16	12.4	10	21	0.24	17	10	10	0.17	73
1.5 km	32.2	22.2	34.1	9.3	1.9	0.1	0.1	1	753	2800	390	<50	0.43	4.14	<0.3	3.11	6.7	9.8	21	0.2	17	8.8	9.9	0.15	68
1.5 km	41.6	24.7	21.6	9.3	2.2	0.3	0.4	1.3	902	4200	400	57	0.70	3.74	<0.3	3.06	8.1	11	21	0.21	19	9.8	12	0.16	70
2 km	50.1	29.1	12.8	5.6	2.1	0.2	0.2	1.2	1640	5200	430	<50	0.40	3.88	<0.3	3.33	10.6	12	24	0.2	26	11	15	0.16	71
2 km	46.3	21.7	21.8	6.1	2.9	1	0.3	1.2	1340	4300	410	53	0.47	4.28	<0.3	3.31	10.9	13	26	0.26	24	11	13	0.21	83
2 km	36.2	21.9	31.5	8.2	1.4	0.4	0.3	1.1	1220	3100	380	65	0.45	4.11	<0.3	3.38	11.1	9.6	23	0.24	19	10	10	0.17	73
2 km	36.3	18.2	35.1	8.1	1.7	0.3	0.3	0.93	821	3100	350	<50	0.44	4.80	<0.3	3.08	6.8	11	21	0.19	19	9	10	0.15	70
2 km	50.2	16.6	21.3	9	2.6	0.2	0.2	1.3	1390	4300	400	58	0.42	3.70	<0.3	3.01	10	12	22	0.22	22	11	13	0.14	73
3 km	46.2	32	14.1	4.7	2.1	0.5	0.3	1.4	1170	4700	440	<50	0.44	3.88	<0.3	<3	9.2	12	25	0.23	24	11	13	0.17	75
3 km	44	22.8	23.2	7	2.4	0.5	0.1	1.4	1250	5200	430	<50	0.65	7.34	0.34	3.77	5.7	14	30	0.29	33	13	15	0.25	96
3 km	37.1	17.5	37.9	5.8	1.5	0.2	0.1	1	1120	3200	360	<50	0.52	4.37	<0.3	3.12	6.1	12	24	0.23	27	11	12	0.2	83
3 km	27.4	10.9	27	24.3	6.9	2.4	1	0.65	984	1800	310	<50	0.34	3.50	<0.3	<3	7	7.7	16	0.15	21	7.5	8.9	0.1	54
3 km	31.2	16	37	9.9	5.7	0.1	0.1	0.88	754	2500	350	<50	0.41	3.86	<0.3	<3	6.5	8.1	21	0.21	18	7.1	12	0.12	66
3 km	37.6	18.8	19.6	10.5	12.3	0.7	0.3	0.95	846	3400	420	<50	0.50	4.34	<0.3	3.08	10.4	9.6	23	0.22	22	8.9	13	0.13	74
6 km	46.6	32.6	11.8	5.5	2.7	0.6	0.2	1.2	1160	4100	430	66	0.48	4.10	<0.3	3.23	36.2	10	26	0.24	24	10	14	0.14	78
6 km	45.7	33.7	18.4	1.1	0.9	0.2	0.1	1.3	1370	5900	470	64	0.63	6.19	0.31	3.94	13.5	14	30	0.4	25	11	14	0.23	93
6 km	35.5	16	38.9	6.5	1.7	0.9	0.4	0.92	752	3800	350	62	0.85	6.55	0.39	3.86	5.7	10	26	0.29	22	11	12	0.24	88
6 km	20.2	14.9	48.1	11.6	4.8	0.4	0.1	0.63	423	1500	310	<50	0.35	3.50	<0.3	<3	4.7	5.6	13	0.12	14	5.1	8.1	0.08	47
6 km	28.9	10.8	22.4	17.1	19.8	0.9	0.1	0.8	826	2000	290	<50	0.40	3.50	<0.4	3.02	9.3	6.5	17	0.15	15	6.5	9.1	0.098	56
9 km	51	37.2	8.8	0.8	0.8	0.7	0.6	1.5	1810	6900	560	110	1.28	11.28	0.47	6.5	9	18	40	0.43	31	17	17	0.52	138
9 km	33.9	11	23.7	25.7	4.9	0.6	0.3	1	946	4100	310	74	0.59	7.06	<0.3	3.41	9.5	9.6	23	0.26	18	9.7	10	0.2	72
9 km	15.2	13.5	54.5	12.8	3.8	0.2	0	0.49	471	1300	290	<50	0.34	3.50	<0.3	<3	<4	5.1	12	0.11	13	4.5	6.3	0.064	40
9 km	32.8	12.4	29.5	20.4	4.9	0.1	0	0.98	868	2000	370	<50	0.38	3.53	<0.3	<3	5.7	7.7	18	0.14	21	7.4	9.5	0.12	60
12 km	39.1	40.9	17.1	1.8	0.7	0.2	0.2	1.4	1020	4000	470	67	0.55	4.15	<0.3	3.31	8	11	25	0.27	20	11	12	0.22	83
12 km	17.1	9.4	52.1	20.2	0.5	0.3	0.4	0.5	505	1500	240	<50	0.33	3.50	<0.3	3.5	5.1	4.6	9.6	<0.1	9.7	4	4.5	0.063	32
reference	41.9	29.1	14.7	10.7	2.7	0.4	0.5	1.1	1040	4400	370	51	0.43	3.65	<0.3	<3	5.1	11	21	0.2	19	7.8	11	0.14	60
reference	48.2	30.9	8.5	8.6	2.9	0.6	0.2	1.2	1060	5900	380	<50	0.34	5.65	<0.3	<3	<4	13	20	0.3	18	9	13	0.1	66
reference	43.3	29.3	10.6	12	3.4	0.8	0.6	1.2	1190	5200	380	<50	0.41	3.50	<0.3	<3	6	12	20	0.18	22	8.8	14	0.12	59
reference	40.9	30.5	12.8	10.9	3.6	0.6	0.6	1.2	1030	4400	370	52	0.46	3.80	<0.3	<3	10.2	11	21	0.19	18	8.3	11	0.14	60
reference	34.5	31.6	14.3	13.7	3.5	0.8	1.4	1.2	969	4400	360	<50	0.37	3.72	<0.3	3.07	5.3	11	20	0.17	17	7.7	11	0.13	57

Supplementary Table 3 Results of similarities among subsamples of the same sampling station

August 2009

Global Test

Sample statistic (Global R): 0.648

Significance level of sample statistic: 0.1%

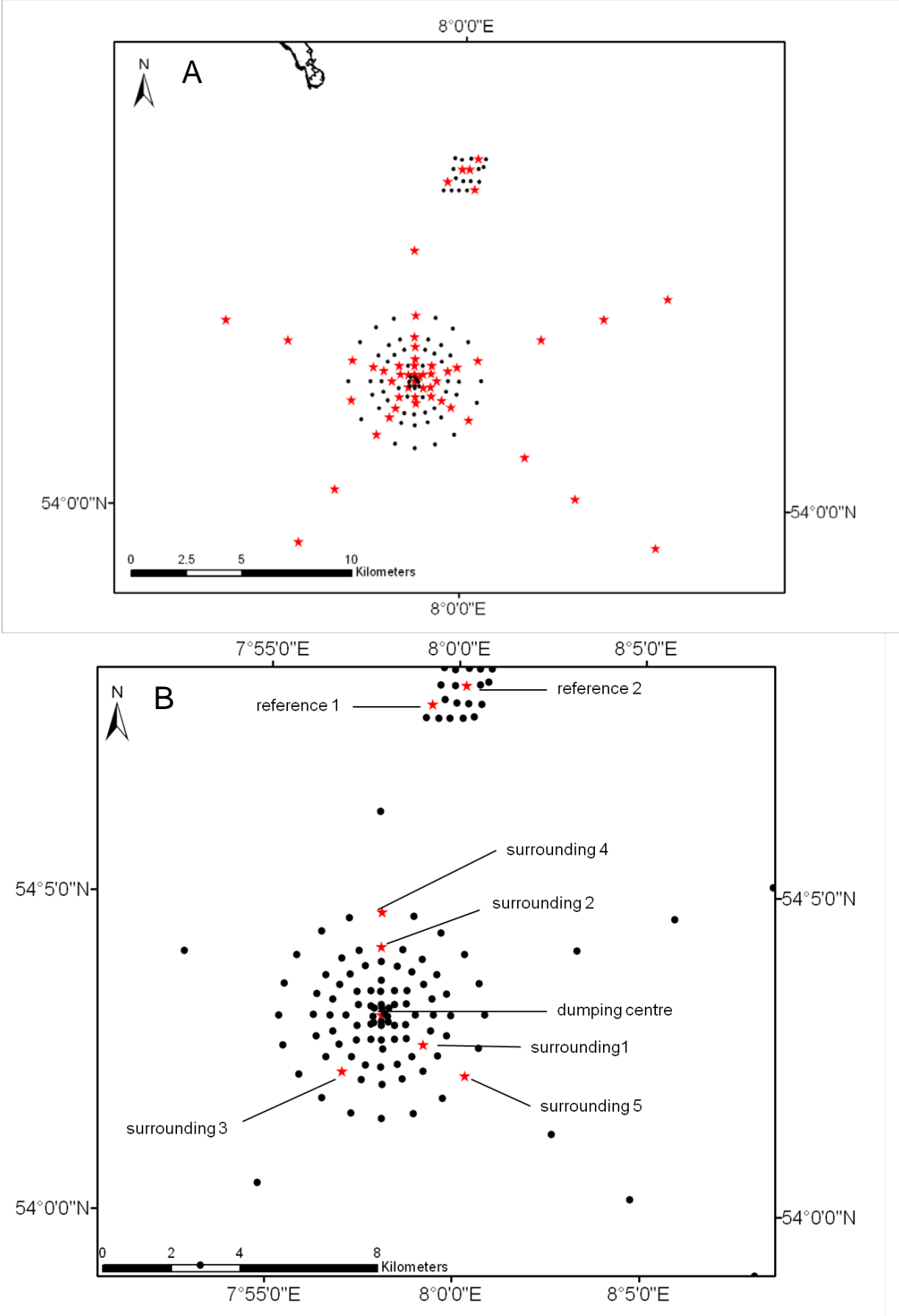
Number of permutations: 999 (Random sample from a large number)

Number of permuted statistics greater than or equal to Global R: 0

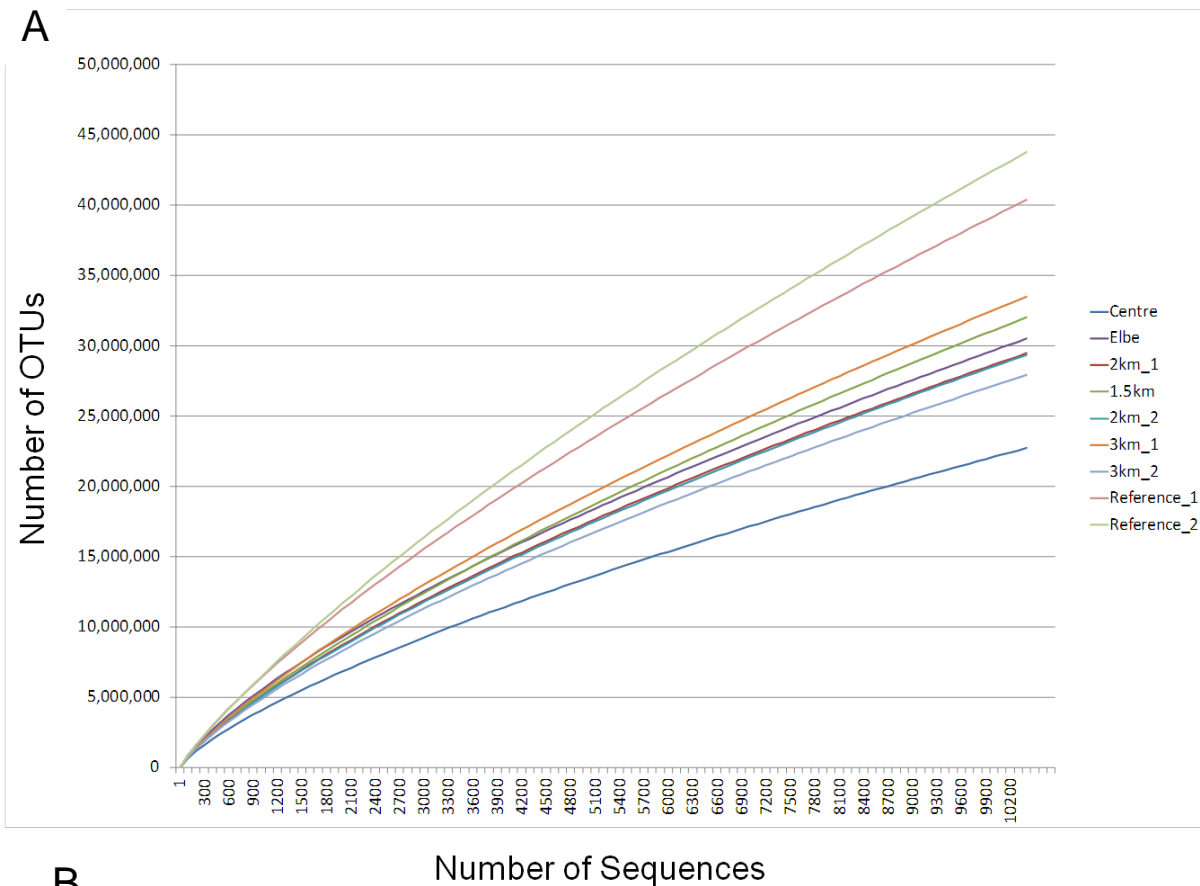
Supplementary table 4 Results of analysis of similarities (ANOSIM) showing the global R of pairwise comparisons of *a priori* regions. Significant values bold ($p < 0.05$)

		dumping site			surrounding			transects			reference
Region	centre	< 1 km	1 km	1.5 km	2 km	3 km	6 km	9 km	12 km	reference	
August 2009											
dumping site	centre										
	< 1 km	0.015									
	1 km	0.357	-0.315								
surrounding	1.5 km	0.783	0.194	0.150							
	2 km	0.505	0.110	-0.054	0.100						
	3 km	0.245	0.098	-0.167	0.217	0.062					
transects	6 km	0.790	0.078	0.081	0.538	0.247	0.021				
	9 km	0.790	0.046	0.354	0.531	0.216	-0.074	0.125			
	12 km	0.562	-0.176	0.643	0.591	0.186	-0.127	0.036	-0.036		
	reference	0.619	0.344	0.214	0.442	0.286	0.127	0.390	0.271	0.333	

Supplementary figure S5 Sampling sites where environmental data were obtained (A) and samples subjected to ribosomal tag sequencing (B, red stars)



Supplementary figure S6 Rarefaction curves of the samples after processing row sequences in Mothur (A) and estimated coverage and OTU richness of the 16SrRNA libraries of the samples.



Coverage (%), OTUs, invsimpson= calculated with MOTHUR at a 3% distance level