

Supplementary Table S1. Summary of river water data

	Date	WT (°C)	pH	Na (mmol L <sup>-1</sup> )	K (mmol L <sup>-1</sup> )	Mg (mmol L <sup>-1</sup> )	Ca (mmol L <sup>-1</sup> )	Cl (mmol L <sup>-1</sup> )	Alkalinity (meq L <sup>-1</sup> )	SO <sub>4</sub> (mmol L <sup>-1</sup> )	Sr (μmol L <sup>-1</sup> )	Ba (μmol L <sup>-1</sup> )	PO <sub>4</sub> (μmol L <sup>-1</sup> )
Kunigami area													
Genka-10	17/02/12	15.8	7.2	0.683	0.018	0.147	0.212	0.467	0.607	0.065	0.670	0.039	0.270
Genka-20	17/02/12	15.8	7.2	0.674	0.019	0.149	0.244	0.643	0.656	0.084	0.692	0.042	0.278
	31/03/13	18.4	6.9	0.552	0.023	0.079	0.102	0.592	0.221	0.047	0.327	0.026	0.258
Noha	31/03/13	18.7	7.5	0.724	0.042	0.220	0.635	0.852	1.30	0.105	0.769	0.025	3.26
Benoki	31/03/13	18.6	7.2	0.592	0.029	0.098	0.177	0.593	0.396	0.053	0.597	0.044	0.460
Aha	01/04/13	18.4	7.2	0.758	0.023	0.116	0.133	0.768	0.375	0.053	0.545	0.045	0.187
Fukuchi	01/04/13	19.4	7.2	0.815	0.026	0.133	0.282	0.840	0.686	0.072	0.761	0.061	0.113
Teima	01/04/13	19.0	7.2	0.986	0.036	0.127	0.186	0.957	0.449	0.064	0.563	0.132	0.521
Kushi-okawa	18/02/12	14.9	7.3	1.25	0.033	0.246	0.474	1.16	1.07	0.104	0.998	0.087	0.139
Maja	02/04/13	21.0	7.2	1.21	0.027	0.185	0.262	1.16	0.622	0.080	0.740	0.045	0.143
Okukubi-10	18/02/12	13.9	7.7	1.48	0.044	0.266	0.871	1.13	2.15	0.111	2.16	0.120	0.297
Okukubi-20	18/02/12	13.6	7.4	1.37	0.123	0.268	0.864	1.07	1.95	0.102	2.39	0.107	11.2
	02/04/13	24.7	7.5	1.27	0.085	0.223	0.825	1.18	1.85	0.110	1.88	0.114	5.41
Motobu area													
Yabu-10	17/02/12	17.2	7.5	1.27	0.047	0.575	1.78	0.978	4.17	0.280	2.57	0.083	1.68
Yabu-20	17/02/12	16.2	7.5	1.39	0.077	0.484	1.84	1.08	3.78	0.338	2.73	0.086	1.66
	01/04/13	20.4	7.5	1.10	0.071	0.338	1.50	0.978	3.25	0.260	2.48	0.092	1.37
Oi	02/04/13	20.7	7.8	0.769	0.042	0.164	1.55	0.835	3.06	0.113	1.12	0.077	1.79
Manna	02/04/13	21.6	7.2	0.693	0.033	0.204	1.55	0.836	3.20	0.098	0.960	0.086	1.30

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Shimajiri area

Tengan	02/04/13	22.2	7.3	1.02	0.045	0.217	1.09	1.03	1.97	0.206	1.21	0.050	0.723
Hija-10	19/02/12	12.9	7.7	3.31	0.158	0.576	1.92	2.58	4.72	0.435	4.07	0.118	9.90
Hija-20	19/02/12	15.6	7.3	2.57	0.116	0.459	2.48	1.97	5.17	0.485	3.45	0.150	10.3
Hija-30	19/02/12	16.2	7.8	1.22	0.109	0.307	2.22	1.26	4.50	0.305	2.12	0.117	4.32
	03/04/13	20.8	7.9	1.32	0.088	0.257	1.73	1.08	3.36	0.260	1.82	0.093	2.92
	20/04/14	23.3	7.6	1.63	0.142	0.300	2.46	2.11	4.62	0.204	2.08	0.114	2.69
	10/06/14	23.8	7.6	0.667	0.132	0.158	0.878	0.621	2.07	0.232	1.29	0.060	1.52
Futenma	03/04/13	18.7	8.0	2.26	0.156	0.928	3.03	1.62	7.47	1.15	7.45	0.188	9.16
	20/04/14	21.7	7.6	2.94	0.170	0.766	2.64	2.21	5.49	1.10	5.66	0.156	23.2
	09/06/14	23.4	7.9	2.38	0.160	0.865	2.87	1.45	5.95	1.23	6.67	0.175	8.17
Asato	03/04/13	19.7	7.8	3.24	0.229	1.02	2.54	1.51	6.19	1.12	7.67	0.236	15.3
	20/04/14	20.6	7.8	3.54	0.213	0.916	2.38	1.61	6.43	1.07	6.76	0.252	19.9
	09/06/14	23.6	7.9	3.61	0.243	1.09	2.73	1.46	7.05	1.18	7.95	0.253	10.7
Kokuba-10	19/02/12	15.2	7.9	2.79	0.152	1.18	2.90	1.16	6.93	1.25	7.63	0.165	1.94
	03/04/13	20.6	8.1	3.20	0.161	0.732	1.53	1.24	4.71	0.779	4.34	0.095	1.24
	19/04/14	22.9	8.2	2.63	0.127	1.14	2.54	1.59	6.02	1.79	6.95	0.120	1.21
	09/06/14	25.6	7.9	2.79	0.166	0.843	1.80	1.03	5.15	0.997	4.95	0.136	1.55
Kokuba-20	19/02/12	14.6	7.5	6.22	0.682	0.904	1.84	3.23	4.96	1.26	5.71	0.237	26.1
Kokuba-30	19/02/12	14.3	7.6	4.00	0.369	0.886	1.81	2.15	4.96	0.879	5.23	0.145	22.7
Mukue	03/04/13	19.3	7.9	1.86	0.186	1.35	3.50	1.30	6.73	1.64	8.95	0.164	2.77
	19/04/14	25.8	8.4	2.13	0.245	1.15	2.58	1.50	5.16	1.65	6.75	0.093	10.3
	09/06/14	24.5	7.8	1.89	0.253	1.20	3.21	1.43	6.40	1.62	7.57	0.144	2.64