

Supplementary Material

Assessment of Terrigenous Nutrient Loading to Coastal Ecosystems Along a Human Land-Use Gradient, Tutuila, American Samoa

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Table S1: Coastal surface water geochemical data

Sample ID	Date	Latitude	Longitude	Salinity	DIN [μmol/L]	TDN [μmol/L]	PO4 [μmol/L]	Silicate [μmol/L]	D ¹⁵ N [‰]	D ¹⁸ O [‰]
V-C-1	8/17/2016	-14.24867	-170.67504	31.0	27.1	29.5	2.6	183	11.1	1.5
V-C-2	8/17/2016	-14.25049	-170.67503	34.0	1.6	7.4	0.4	17	10.8	1.0
V-C-3	8/17/2016	-14.24918	-170.67092	35.8	1.1	5.6	0.2	0	-	-
V-C-4	8/17/2016	-14.24978	-170.67020	32.6	0.6	5.4	1.0	2	-	-
V-C-5	8/17/2016	-14.25069	-170.67132	35.6	1.3	6.3	0.3	8	-	-
V-C-6	8/17/2016	-14.25055	-170.67233	33.2	0.4	5.9	0.2	3	-	-
V-C-7	8/17/2016	-14.24688	-170.67423	35.3	1.3	6.7	0.2	2	-	-
V-C-8	8/17/2016	-14.24827	-170.67218	35.5	2.2	6.6	0.4	5	9.1	0.1
V-C-9	8/17/2016	-14.24987	-170.67496	33.8	2.6	6.8	0.4	5	9.6	-1.7
V-C-10	8/17/2016	-14.24970	-170.67500	35.3	3.1	6.7	0.5	6	9.6	0.3
V-C-11	8/17/2016	-14.25003	-170.67504	35.2	2.1	7.2	0.4	6	-	-
V-C-12	8/17/2016	-14.24734	-170.67378	33.6	0.4	5.5	0.2	1	-	-
V-C-13	8/17/2016	-14.24732	-170.67392	35.4	1.2	5.0	0.2	1	-	-
V-C-14	7/27/2015	-14.24925	-170.67526	33.2	0.8	5.7	0.3	13	-	-
V-C-15	7/27/2015	-14.24596	-170.67296	34.6	1.3	13.4	0.3	3	-	-
V-C-16	7/27/2015	-14.24682	-170.67432	35.3	0.5	5.4	0.2	6	-	-
V-C-17	7/27/2015	-14.25046	-170.67507	33.0	1.6	6.3	0.3	18	-	-
V-C-18	7/27/2015	-14.25083	-170.67387	33.1	0.4	5.3	0.3	16	-	-
V-C-19	7/27/2015	-14.25067	-170.67086	31.5	1.0	5.6	0.4	38	-	-
V-C-20	7/27/2015	-14.24980	-170.67024	34.7	0.6	6.2	0.2	3	-	-
V-C-21	7/27/2015	-14.24921	-170.67083	34.8	0.8	5.6	0.2	2	-	-
V-C-22	7/27/2015	-14.24515	-170.66791	34.6	0.5	5.3	0.2	3	-	-
V-C-23	7/27/2015	-14.24723	-170.67332	34.6	0.8	5.6	0.2	2	-	-
V-C-24	7/27/2015	-14.25010	-170.67395	33.8	0.9	5.6	0.3	11	-	-
O-C-1	8/18/2016	-14.25248	-170.64336	35.4	1.4	6.4	0.2	5	6.7	-0.7
O-C-2	8/18/2016	-14.25294	-170.64234	34.0	0.4	6.4	0.3	23	-	-
O-C-3	8/18/2016	-14.25264	-170.64117	35.5	1.5	6.6	0.2	9	8.5	3.6
O-C-4	8/18/2016	-14.25249	-170.64224	35.8	1.1	5.5	0.3	1	-	-
O-C-5	8/18/2016	-14.25223	-170.64227	35.9	1.1	5.1	0.2	0	6.2	1.6
O-C-6	8/18/2016	-14.25154	-170.64219	36.0	1.0	5.2	0.2	0	-	-
O-C-7	8/18/2016	-14.25306	-170.64232	0.0	6.5	8.8	2.6	219	6.9	-2.5
O-C-8	8/18/2016	-14.24807	-170.64178	0.0	0.7	5.4	0.2	0	-	-
O-C-9	7/28/2015	14.24472	170.64095	34.9	0.0	5.2	0.2	1	-	-
O-C-10	7/28/2015	14.25289	170.64245	34.3	0.3	6.2	0.2	14	-	-
O-C-11	7/28/2015	-14.25151	-170.64071	34.9	0.5	5.4	0.2	2	-	-
O-C-12	7/28/2015	-14.25268	-170.64124	34.1	0.9	6.4	0.3	15	-	-
O-C-13	7/28/2015	-14.25307	-170.64243	21.6	2.5	7.1	1.7	162	-	-
O-C-14	7/28/2015	-14.25272	-170.64327	34.7	0.8	6.5	0.2	6	-	-
O-C-15	7/28/2015	-14.25191	-170.64401	34.9	0.5	5.6	0.2	2	-	-
O-C-16	7/28/2015	-14.25237	-170.64217	34.6	0.4	5.9	0.2	6	-	-
O-C-17	7/28/2015	-14.25187	-170.64211	35.0	1.0	6.6	0.2	1	-	-
P-C-1	8/16/2016	-14.31781	-170.71644	13.4	34.4	44.4	2.1	302	8.9	0.2
P-C-2	8/16/2016	-14.31983	-170.71512	12.8	48.5	57.7	2.1	368	8.5	-0.2
P-C-3	8/16/2016	-14.32414	-170.71252	22.3	12.7	25.8	1.1	174	9.6	3.3
P-C-4	8/16/2016	-14.32419	-170.70240	31.2	0.9	5.1	0.5	39	-	-
P-C-5	8/16/2016	-14.32074	-170.71161	33.6	1.9	6.4	0.4	32	6.6	-0.4
P-C-6	8/16/2016	-14.32442	-170.69969	33.2	2.0	6.6	0.3	23	8.0	-0.5
P-C-7	8/16/2016	-14.32293	-170.70649	33.2	0.7	5.8	0.3	21	-	-
P-C-8	8/16/2016	-14.32116	-170.71414	24.8	7.7	11.2	0.9	92	8.0	2.3
P-C-9	8/16/2016	-14.32528	-170.70093	33.7	0.7	7.0	0.2	23	-	-
P-C-10	7/26/2015	-14.31985	-170.71513	21.2	24.5	30.4	1.3	185	-	-
P-C-11	7/26/2015	-14.31786	-170.71648	15.3	11.3	30.5	1.4	258	-	-

P-C-12	7/26/2015	-14.32184	-170.71333	31.5	1.6	6.5	0.5	46	-	-
P-C-13	7/26/2015	-14.32418	-170.71269	32.1	1.2	5.5	0.4	37	-	-
P-C-14	7/26/2015	-14.32560	-170.71022	32.8	0.9	5.1	0.4	28	-	-
P-C-15	7/26/2015	-14.32434	-170.70026	34.9	0.6	5.7	0.2	1	-	-
P-C-16	7/26/2015	-14.32412	-170.70247	33.4	0.6	5.5	0.3	19	-	-
P-C-17	7/26/2015	-14.32356	-170.70946	32.4	0.7	5.1	0.4	32	-	-
P-C-18	7/26/2015	-14.32187	-170.71156	32.2	1.1	5.7	0.4	36	-	-
P-C-19	7/26/2015	-14.31899	-170.71466	23.9	14.3	20.4	0.9	149	-	-
P-C-20	7/26/2015	-14.31722	-170.71172	25.4	0.3	6.6	0.6	131	-	-
P-C-21	7/26/2015	-14.31695	-170.70698	28.5	0.6	6.1	0.6	87	-	-
F-C-1	8/19/2016	-14.28937	-170.68127	35.3	1.6	5.8	0.4	10	6.2	-2.0
F-C-2	8/19/2016	-14.29118	-170.68252	32.2	2.3	6.4	1.3	38	7.6	-0.7
F-C-3	8/19/2016	-14.29229	-170.68091	32.9	5.3	12.5	5.6	152	-	-
F-C-4	8/19/2016	-14.29306	-170.67956	31.2	3.4	9.7	4.3	118	7.8	0.3
F-C-5	8/19/2016	-14.29105	-170.68074	35.4	2.2	6.1	0.7	18	9.4	2.8
F-C-6	8/19/2016	-14.28942	-170.67939	35.6	2.6	7.3	0.4	1	9.3	-1.1
F-C-7	8/19/2016	-14.28995	-170.67783	35.9	2.3	5.7	0.3	1	9.1	-1.3
F-C-8	8/19/2016	-14.29084	-170.67908	35.9	3.2	8.0	0.4	1	9.7	-0.8
F-C-9	8/19/2016	-14.29180	-170.67832	0.0	3.0	6.8	0.3	1	9.5	-1.3
F-C-10	8/19/2016	-14.29520	-170.67678	0.0	1.8	6.3	0.2	2	9.1	-1.3
F-C-11	8/19/2016	-14.29164	-170.68136	31.5	3.3	7.8	1.9	72	9.0	-0.4
F-C-12	8/19/2016	-14.29164	-170.68136	31.8	3.8	7.8	2.3	82	-	-
F-C-13	8/19/2016	-14.29164	-170.68136	31.8	4.5	8.5	3.2	112	7.5	0.5
F-C-14	8/19/2016	-14.29306	-170.67956	35.9	1.6	6.1	0.3	2	8.6	-1.9
F-C-15	8/19/2016	-14.29306	-170.67956	35.9	1.4	5.4	0.2	2	-	-
F-C-16	8/19/2016	-14.29306	-170.67956	35.9	1.6	6.2	0.3	2	-	-
F-C-17	7/29/2015	-14.29229	-170.68093	34.8	1.0	6.0	0.2	3	-	-
F-C-18	7/29/2015	-14.29321	-170.67944	34.9	0.9	6.1	0.2	2	-	-
F-C-19	7/29/2015	-14.29198	-170.68257	15.7	7.9	11.5	2.1	255	-	-
F-C-20	7/29/2015	-14.29140	-170.68263	2.0	11.1	13.6	3.4	451	-	-
F-C-21	7/29/2015	-14.29121	-170.68250	26.3	4.1	8.9	1.3	123	-	-
F-C-22	7/29/2015	-14.28939	-170.68133	27.6	2.9	8.3	1.2	109	-	-
F-C-23	7/29/2015	-14.28900	-170.67948	34.7	1.5	6.8	0.3	3	-	-
F-C-24	7/29/2015	-14.28996	-170.67786	34.9	1.3	6.2	0.3	1	-	-
F-C-25	7/29/2015	-14.29172	-170.67960	35.0	1.3	6.1	0.3	1	-	-
F-C-26	7/29/2015	-14.29095	-170.68104	34.4	1.2	6.0	0.3	9	-	-
OUT-F-C-1	8/19/2016	-14.28310	-170.67561	35.9	0.3	5.5	0.2	0	-	-

Notes: Site Id's are coded to indicate study location, F – Faga'alū, P – Pala, V – Vatia, and O – Oa, sample type, C – coastal surface water, and sample number of each type at each location.

Table S2: Coastal spring water geochemical data

Sample ID	Date	Latitude	Longitude	Salinity	DIN [μmol/L]	TDN [μmol/L]	PO4 [μmol/L]	Silicate [μmol/L]	D ¹⁵ N [‰]	D ¹⁸ O [‰]	Radon [dpm/L]
F-CSP-1	8/19/2016	-14.28879	-170.68079	14.11	18.0	23.8	3.5	246.1	-	-	91
F-CSP-2	8/19/2016	-14.29294	-170.68039	28.4	6.5	10.0	1.7	69.2	-	-	32
F-CSP-3	7/30/2015	-14.28943	-170.68154	5.71	19.1	19.3	5.4	579.5	5.6	-2.7	257
F-CSP-4	7/9/2014	-14.29316	-170.68007	26.23	7.9	13.8	2.1	116.9	-	-	1
F-CSP-5	7/9/2014	-14.29173	-170.68298	9.55	12.0	18.0	2.5	144.7	7.5	2.2	1
F-CSP-6	7/9/2014	-14.29046	-170.68234	8.12	10.9	13.8	6.7	231.7	-	-	62
F-CSP-7	7/15/2014	-14.29316	-170.68008	26.66	10.4	13.9	1.1	144.1	5.5	0.3	7
F-CSP-8	7/15/2014	-14.28960	-170.68167	4.71	57.3	53.0	3.8	453.9	7.1	-0.5	102
O-CSP-1	8/18/2016	-14.25314	-170.64247	15.97	6.7	10.9	2.9	264.8	6.9	-3.4	131
O-CSP-2	8/18/2016	-14.25314	-170.64247	22.13	6.3	9.9	2.6	181.9	6.3	-3.5	112
O-CSP-3	8/18/2016	-14.25264	-170.64337	27.17	4.4	6.8	0.9	141.2	4.4	-2.1	111
O-CSP-4	7/28/2015	-14.25275	-170.64335	26	6.7	12.3	0.4	128.7	4.6	-0.4	
O-CSP-5	7/28/2015	-14.25314	-170.64244	6.94	6.2	7.3	3.1	328.0	6.5	-3.8	189
P-CSP-1	8/14/2016	-14.31969	-170.71535	5.13	22.9	65.3	1.5	267.4	7.9	-0.2	141
P-CSP-2	7/15/2015	-14.31969	-170.71535	3.36	68.8	69.7	2.0	392.8	8.9	0.4	142
P-CSP-3	7/25/2014	-14.32567	-170.71036	26.55	10.1	13.0	1.3	116.1	-	-	-
P-CSP-4	7/25/2014	-14.32214	-170.71335	26.15	28.1	35.3	1.0	130.2	-	-	20
P-CSP-5	7/25/2014	-14.31973	-170.71533	7.64	66.4	68.2	1.5	366.5	9.2	0.5	36
P-CSP-6	7/25/2014	-14.31865	-170.71635	17.81	24.6	25.4	1.6	294.4	-	-	28
P-CSP-7	7/25/2014	-14.32095	-170.71443	15.53	69.3	73.0	1.2	244.8	8.3	0.5	23
P-CSP-8	7/25/2014	-14.32198	-170.71344	31.55	8.1	10.5	0.6	62.5	8.8	0.7	6
V-CSP-1	8/15/2016	-14.25116	-170.67168	0.46	11.9	15.9	2.7	545.4	7.3	-1.4	572
V-CSP-2	8/15/2016	-14.24872	-170.67531	6.32	41.3	49.4	3.3	363.4	14.3	2.8	272
V-CSP-3	7/23/2015	-14.24916	-170.67542	0.325	29.3	29.4	1.0	390.4	14.8	3.7	197.4
V-CSP-4	7/27/2015	-14.24932	-170.67540	0.93	23.7	26.1	1.5	400.6	11.1	0.8	519.9
V-CSP-5	8/7/2014	-14.24935	-170.67543	0.25	25.6	35.4	2.5	373.4	12.9	2.8	239
V-CSP-6	8/7/2014	-14.25113	-170.67171	0.41	11.5	12.5	3.4	452.1	8.6	-1.3	198

Notes: Site Id's are coded to indicate study location, F – Faga'alu, P – Pala, V – Vatia, and O – Oa, sample type, Ux-CSP – coastal spring (measured value), and sample number of each type at each location.

Table S3: Salinity-unmixed coastal spring water geochemical data

Sample ID	Date	Latitude	Longitude	Salinity	DIN [μmol/L]	TDN [μmol/L]	PO4 [μmol/L]	Silicate [μmol/L]	D ¹⁵ N [‰]	D ¹⁸ O [‰]	Radon [dpm/L]
F-Ux-CSP-1	8/19/2016	-14.28879	-170.68079	0.1	29.6	39.1	5.7	409	-	-	150
F-Ux-CSP-2	8/19/2016	-14.29294	-170.68039	0.1	31.7	48.6	7.7	352	-	-	156
F-Ux-CSP-3	7/30/2015	-14.28943	-170.68154	0.1	22.7	22.9	6.4	689	5.6	-2.7	306
F-Ux-CSP-4	7/9/2014	-14.29316	-170.68007	0.1	29.7	51.7	7.5	453	-	-	-
F-Ux-CSP-5	7/9/2014	-14.29173	-170.68298	0.1	16.3	24.3	3.3	198	7.5	2.2	1
F-Ux-CSP-6	7/9/2014	-14.29046	-170.68234	0.1	14.1	17.7	8.7	300	-	-	80
F-Ux-CSP-7	7/15/2014	-14.29316	-170.68008	0.1	41.2	54.7	4.1	587	5.5	0.3	23
F-Ux-CSP-8	7/15/2014	-14.28960	-170.68167	0.1	65.9	60.9	4.3	522	7.1	-0.5	117
O-Ux-CSP-1	8/18/2016	-14.25314	-170.64247	0.1	12.0	19.2	5.1	482	6.9	-3.4	237
O-Ux-CSP-2	8/18/2016	-14.25314	-170.64247	0.1	16.1	25.3	6.7	486	6.3	-3.5	295
O-Ux-CSP-3	8/18/2016	-14.25264	-170.64337	0.1	18.1	27.2	3.4	611	4.4	-2.1	473
O-Ux-CSP-4	7/28/2015	-14.25275	-170.64335	0.1	24.6	44.9	1.0	487	4.6	-0.4	-7
O-Ux-CSP-5	7/28/2015	-14.25314	-170.64244	0.1	7.6	8.9	3.8	407	6.5	-3.8	234
P-Ux-CSP-1	8/14/2016	-14.31969	-170.71535	0.1	26.6	76.1	1.7	312	7.9	-0.2	164
P-Ux-CSP-2	7/15/2015	-14.31969	-170.71535	0.1	75.8	76.8	2.2	433	8.9	0.4	156
P-Ux-CSP-3	7/25/2014	-14.32567	-170.71036	0.1	39.8	50.5	4.6	466	-	-	-
P-Ux-CSP-4	7/25/2014	-14.32214	-170.71335	0.1	107.4	134.2	3.5	500	-	-	72
P-Ux-CSP-5	7/25/2014	-14.31973	-170.71533	0.1	84.4	86.6	1.9	466	9.2	0.5	45
P-Ux-CSP-6	7/25/2014	-14.31865	-170.71635	0.1	49.2	50.6	3.1	592	-	-	55
P-Ux-CSP-7	7/25/2014	-14.32095	-170.71443	0.1	123.2	129.6	2.0	436	8.3	0.5	40
P-Ux-CSP-8	7/25/2014	-14.32198	-170.71344	0.1	73.5	93.7	4.1	586	8.8	0.7	41
V-Ux-CSP-1	8/15/2016	-14.25116	-170.67168	0.1	12.1	16.0	2.7	551	7.3	-1.4	578
V-Ux-CSP-2	8/15/2016	-14.24872	-170.67531	0.1	50.1	59.8	3.9	441	14.3	2.8	330
V-Ux-CSP-3	7/23/2015	-14.24916	-170.67542	0.1	29.5	29.6	1.0	393	14.8	3.7	199
V-Ux-CSP-4	7/27/2015	-14.24932	-170.67540	0.1	24.3	26.7	1.5	410	11.1	0.8	532
V-Ux-CSP-5	8/7/2014	-14.24935	-170.67543	0.1	25.7	35.6	2.5	375	12.9	2.8	240
V-Ux-CSP-6	8/7/2014	-14.25113	-170.67171	0.1	11.6	12.6	3.4	456	8.6	-1.3	199

Notes: Site Id's are coded to indicate study location, F – Faga'alu, P – Pala, V – Vatia, and O – Oa, sample type, Ux-CSP – salinity unmixed coastal springs (to a salinity of 0.1), and sample number of each type at each location.

Table S4: Well water geochemical data

Sample ID	Date	Latitude	Longitude	Salinity	DIN [$\mu\text{mol/L}$]	TDN [$\mu\text{mol/L}$]	PO4 [$\mu\text{mol/L}$]	Silicate [$\mu\text{mol/L}$]	D ¹⁵ N [‰]	D ¹⁸ O [‰]	Radon [dpm/L]
F-W-1	8/13/2016	-14.31969	-170.71535	0.1	7.7	11.6	8.2	719	7.0	-3.3	334
F-W-2	7/22/2015	-14.29092	-170.68910	0.1	11.3	12.3	7.2	658	6.3	-1.6	354
F-W-3	7/21/2014	-14.29092	-170.68910	0.2	11.2	13.6	8.1	632	5.4	-2.5	124
P-W-1	8/13/2016	-14.32065	-170.73203	0.2	52.9	69.8	2.9	552	7.4	-0.9	261
P-W-2	8/9/2016	-14.32436	-170.73219	0.6	47.9	66.9	1.8	619	7.2	-0.5	170
P-W-3	7/19/2015	-14.32438	-170.73213	0.2	52.0	52.6	1.1	434	7.2	-0.1	169
P-W-4	7/19/2015	-14.31756	-170.73825	0.1	42.1	42.8	1.4	495	5.6	-0.1	245
P-W-5	7/25/2015	-14.32065	-170.73203	0.1	46.3	46.0	2.5	469	6.9	-0.1	308
P-W-6	7/21/2014	-14.32438	-170.73213	0.9	83.6	78.3	1.5	556	8.2	-0.1	68
V-W-1	8/15/2016	-14.25476	-170.66857	0.1	7.3	9.0	9.2	1049	4.3	-2.2	1170
V-W-3	7/27/2015	-14.25478	-170.66858	0.1	8.0	9.2	8.6	565	4.7	-1.3	-
V-W-4	8/1/2014	-14.25478	-170.66858	0.2	9.8	10.6	8.9	734	5.7	-1.9	644

Notes: Site Id's are coded to indicate study location, F – Faga'alu, P – Pala, V – Vatia, and O – Oa, sample type, W – wells, and sample number of each type at each location.

Table S5: Stream water geochemical data

Sample ID	Date	Latitude	Longitude	Salinity	DIN [$\mu\text{mol/L}$]	TDN [$\mu\text{mol/L}$]	PO4 [$\mu\text{mol/L}$]	Silicate [$\mu\text{mol/L}$]	D ¹⁵ N [‰]	D ¹⁸ O [‰]	Radon [dpm/L]
F-S-1	8/10/2016	-14.29137	-170.68379	0.1	10.0	13.0	3.4	601	-	-	122
F-S-2	7/23/2015	-14.29143	-170.68383	0.1	9.3	11.7	3.3	505	6.4	0.1	101
F-S-3	7/2/2014	-14.29153	-170.68465	0.1	7.3	11.1	3.1	518	-	-	16
O-S-1	8/18/2016	-14.25457	-170.64335	0.1	4.1	10.3	6.8	603	4.4	-2.5	23
O-S-2	7/28/2015	-14.25683	-170.64386	0.0	1.8	4.0	3.3	398	6.8	-2.5	58
P-S-1	8/11/2016	-14.31768	-170.71676	3.5	9.8	12.7	3.2	363	9.0	1.2	58
P-S-2	7/23/2015	-14.31779	-170.71791	0.1	5.5	9.7	4.2	433	7.2	-0.2	13
P-S-3	8/6/2014	-14.31800	-170.71846	0.1	9.9	14.7	4.2	415	-	-	1
V-S-1	8/16/2016	-14.25093	-170.67553	0.2	4.9	9.8	3.2	373	5.1	-5.3	29
V-S-2	8/16/2016	-14.25239	-170.67273	0.1	1.4	5.8	2.1	456	-	-	23
V-S-3	7/23/2015	-14.25094	-170.67562	0.1	2.8	7.9	2.5	328	4.2	-3.0	19
V-S-4	8/7/2014	-14.25059	-170.67525	1.1	21.8	27.7	2.8	323	-	-	43

Notes: Site Id's are coded to indicate study location, F – Faga'alu, P – Pala, V – Vatia, and O – Oa, sample type, S – streams, and sample number of each type at each location.

Table S6: Algae N and C parameter data for deployed algal samples

Sample ID	Sample year	Latitude	Longitude	Nitrogen by weight [%]	D15N [‰]	Carbon by weight [%]	Carbon to nitrogen ratio
F-Dep-Hp-1	2016	-14.289371	-170.6812731	1.6	8.2	15.2	9.5
F-Dep-Hp-2	2016	-14.291182	-170.6825189	2.3	8.3	22.4	9.6
F-Dep-Hp-3	2016	-14.292286	-170.6809127	1.7	8.7	15.7	9.2
F-Dep-Hp-4	2016	-14.293061	-170.679555	1.7	8.6	16.7	9.6
F-Dep-Hp-5	2016	-14.291047	-170.6807421	1.8	8.5	16.4	8.9
F-Dep-Hp-6	2016	-14.289422	-170.6793883	2	8.5	17.6	8.8
F-Dep-Hp-7	2016	-14.290835	-170.6790841	1.8	9.4	16.3	9.1
F-Dep-Hp-8	2016	-14.291801	-170.6783233	2.1	8.9	17.9	8.5
F-Dep-Hp-9	2016	-14.295201	-170.676782	1.7	8.2	16.5	9.7
Oa-Dep-Hp-1	2016	-14.252478	-170.6433634	1.1	6.4	15.3	13.6
Oa-Dep-Hp-2	2016	-14.25294	-170.6423413	1.3	6.4	18.2	14.5
Oa-Dep-Hp-3	2016	-14.252642	-170.6411735	1.3	6.5	16.6	12.3
Oa-Dep-Hp-4	2016	-14.252489	-170.6422443	1.5	6.6	16.4	10.8
Oa-Dep-Hp-5	2016	-14.252226	-170.6422722	1.7	6.8	17.7	10.3
Oa-Dep-Hp-6	2016	-14.251539	-170.6421883	1.4	7	16.6	11.9
Pl-Dep-Hp-1	2016	-14.32414	-170.712521	2	7.4	17.4	8.7
Pl-Dep-Hp-2	2016	-14.324187	-170.7024008	1.7	7.4	18.1	10.8
Pl-Dep-Hp-3	2016	-14.32074	-170.7116105	1.9	7.5	17	8.9
Pl-Dep-Hp-4	2016	-14.324424	-170.6996857	1.6	7.2	15.1	9.3
Pl-Dep-Hp-5	2016	-14.322926	-170.7064932	1.6	7.1	15.5	9.5
Pl-Dep-Hp-6	2016	-14.321162	-170.7141373	2.3	7.5	20	8.7
V-Dep-Hp-1	2016	-14.248673	-170.6750382	1.2	8.8	14.4	12.2
V-Dep-Hp-2	2016	-14.250488	-170.6750312	1.8	8.6	17.1	9.5
V-Dep-Hp-3	2016	-14.249185	-170.6709203	1.7	6.6	14.9	8.7
V-Dep-Hp-4	2016	-14.249785	-170.6702002	1.2	6.2	14.7	11.8
V-Dep-Hp-5	2016	-14.25069	-170.671316	1.5	6.2	16.7	11.3
V-Dep-Hp-6	2016	-14.250546	-170.6723282	1.5	7	16.8	11.2
V-Dep-Hp-7	2016	-14.246878	-170.6742287	1.3	6.7	16.4	12.2
V-Dep-Hp-8	2016	-14.24827	-170.6721811	1.8	7.7	17.3	9.7
X-Dep-Hp-1	2016	-14.283105	-170.6756103	2.3	9.3	18	8
X-Dep-Hp-2	2016	-14.281954	-170.6783773	1.7	9.2	15.6	9
X-Dep-Hp-	2016	-14.286124	-170.6754757	1.9	9.2	16.7	8.8
Data for collected <i>H. pannosa</i> specimens, removed prior to treatment and analyzed to assess pre-treatment variability							
Pre-treatment-1	2016	-14.32516471	-170.7008813	1.1	7.3	15.2	13.6
Pre-treatment-2	2016	-14.32516471	-170.7008813	1.7	7.1	15.5	9.1
Pre-treatment-3	2016	-14.32516471	-170.7008813	1.3	7.2	14.5	10.8

Notes: Site Id's are coded to indicate study location, F – Faga'alua, P – Pala, V – Vatia, and O – Oa, sample species, Hp - *Hypnea pannosa*, and sample number of each species at each location.

Table S7: Algae N and C parameter data for collected *in situ* algal samples

Sample ID	Sample year	Latitude	Longitude	Nitrogen by weight [%]	D15N [‰]	Carbon by weight [%]	Carbon to nitrogen ratio
F-Cf-1	2016	-14.293506	-170.6768181	5.9	9.2	44.7	7.6
F-Cf-2	2016	-14.289275	-170.6811212	4	10.1	34.2	8.5
F-Cf-3	2016	-14.291801	-170.6783233	4.7	10.1	41.9	8.9
F-Cf-4	2015	-14.292635	-170.680634	4.6	7.8	41.5	9
F-Cf-5	2015	-14.2922	-170.6796198	5.3	7.7	42.6	8.1
F-Cf-6	2015	-14.286812	-170.6760387	4.8	9	39.4	8.3
F-Cf-7	2015	-14.289033	-170.679477	6.8	8.2	44.8	6.6
F-Db-1	2016	-14.289235	-170.679873	1.5	10.2	22.2	14.6
F-Db-2	2016	-14.291594	-170.6813936	1.5	8.5	23.3	15.4
F-Db-3	2016	-14.289275	-170.6811212	1.8	9.8	24.1	13
F-Db-4	2016	-14.292286	-170.6809127	1.4	8.5	23.2	16.2
F-Db-5	2016	-14.292972	-170.6798812	1.4	8.6	21.1	15.3
F-Db-6	2015	-14.289929	-170.6816141	1.7	7.7	24.5	14.6
F-Db-7	2015	-14.292286	-170.6809127	2	7.6	30	15.3
F-Db-8	2015	-14.292635	-170.680634	2.1	7.2	30.2	14.2
F-Hp-1	2016	-14.295201	-170.676782	1.9	9.6	18	9.4
F-Hp-2	2016	-14.291881	-170.6802107	1.8	9.8	19.2	10.4
F-Hp-3	2016	-14.291594	-170.6813936	1.6	9.2	16.4	10.2
F-Hp-4	2016	-14.291801	-170.6783233	2.2	10.5	19.6	8.7
F-Hp-5	2016	-14.293061	-170.679555	1.3	9.3	17.7	13.2
F-Hp-6	2015	-14.2922	-170.6796198	2.1	7.8	18.9	9
F-Hp-7	2015	-14.29168	-170.6800413	1.9	8.2	18.8	10.1
F-Hp-8	2015	-14.291525	-170.6807598	1.5	8.3	18.1	11.8
F-Hp-9	2015	-14.291487	-170.6812898	1.6	7.6	17.7	11.2
F-Hp-10	2015	-14.291914	-170.6808262	2	7.9	19.7	9.9
F-Ui-1	2016	-14.29192	-170.6825919	2.6	8.1	28.2	10.7
F-Ui-2	2016	-14.291698	-170.6828267	1.6	8	21.4	13.5
F-Ui-3	2016	-14.291743	-170.6824654	1.5	8.7	24.7	15.9
F-Ui-4	2015	-14.291871	-170.6828564	3	7.3	26.4	8.8
O-Cf-1	2016	-14.252642	-170.6411735	5.3	5.3	36.5	6.9
O-Cf-2	2016	-14.252036	-170.6428887	4.7	5.7	43.7	9.2
O-Cf-3	2016	-14.252545	-170.6424856	5	6.1	45.1	9.1
O-Cf-4	2016	-14.25287	-170.6426722	3.4	5.2	42.9	12.7
O-Cf-5	2016	-14.252072	-170.642638	4.4	5.5	40.2	9.2
O-Cf-6	2016	-14.251919	-170.6439818	5.2	6.5	44.8	8.6
O-Cf-7	2016	-14.251192	-170.6429906	5.1	6.2	44.4	8.7
O-Cf-8	2015	-14.251606	-170.643366	5	4.9	40.3	8.1
O-Cf-9	2015	-14.252243	-170.6438936	4.9	4.3	36.2	7.5
O-Cf-10	2015	-14.252665	-170.6432801	2.7	5	33.8	12.7
O-Db-1	2016	-14.252657	-170.6432849	1.7	5.3	29	16.9
O-Db-2	2016	-14.251919	-170.6439818	1.7	6.8	24.8	14.4

O-Db-3	2016	-14.252255	-170.6437463	1.3	6.1	22.6	17.7
O-Db-4	2015	-14.252243	-170.6438936	1.9	5.3	31.6	16.5
O-Db-5	2015	-14.252665	-170.6432801	1.9	4.9	33.1	17.1
O-Db-6	2015	-14.252988	-170.6423885	1.7	5	30.7	18.6
O-Db-7	2015	-14.252294	-170.6408672	1.5	5.1	29.6	19.5
O-Db-8	2015	-14.251304	-170.6403125	2.4	5.3	32.5	13.3
P-Cf-1	2016	-14.324454	-170.6997225	5	6.2	41.1	8.3
P-Cf-2	2016	-14.325165	-170.7008813	4.6	6.9	43.1	9.4
P-Cf-3	2015	-14.284088	-170.6767402	5	8.4	38.2	7.7
P-Cf-4	2015	-14.32465	-170.7010565	4.2	6.4	37.9	9
P-Db-1	2016	-14.321988	-170.7088063	1.2	7.3	21.1	17.5
P-Db-2	2016	-14.323245	-170.7052629	1.8	6.8	29.3	16.6
P-Db-3	2016	-14.322903	-170.7064723	1.3	6.8	22.4	16.9
P-Db-4	2016	-14.324168	-170.7024108	0.9	6.1	18.4	19.5
P-Db-5	2015	-14.324196	-170.7024293	1.4	5.6	24.3	18
P-Db-6	2015	-14.323337	-170.7059016	2	6.2	31.4	15.5
P-Hp-1	2016	-14.328442	-170.7015466	1.3	7.1	20.1	15.3
P-Hp-2	2016	-14.324454	-170.6997225	1.7	7	16.8	9.6
P-Hp-3	2016	-14.325165	-170.7008813	1.1	7.3	15.2	13.6
P-Hp-4	2016	-14.325165	-170.7008813	1.7	7.1	15.5	9.1
P-Hp-5	2016	-14.325165	-170.7008813	1.3	7.2	14.5	10.8
P-Hp-6	2015	-14.283345	-170.6774462	3	8.4	26.5	8.8
P-Hp-7	2015	-14.324311	-170.7002821	2.1	6.6	18.4	9
P-Hp-8	2015	-14.32465	-170.7010565	1.4	7	21.4	14.8
P-Ui-1	2016	-14.319826	-170.7151175	3.3	8.3	29.3	8.8
P-Ui-2	2016	-14.317731	-170.7165364	3.5	8.7	29.8	8.5
P-Ui-3	2016	-14.318555	-170.7164019	3.9	7.9	33.6	8.6
P-Ui-4	2016	-14.321237	-170.7143268	2.9	8.5	29.3	10
P-Ui-5	2016	-14.32424	-170.7128188	2.4	7	25.6	10.8
P-Ui-6	2015	-14.31748	-170.715993	4	8	27.7	6.9
P-Ui-7	2015	-14.320985	-170.7144163	2.5	7.4	24.3	9.7
P-Ui-8	2015	-14.319639	-170.7154152	2.7	8.3	25.4	9.5
P-Ui-9	2015	-14.318646	-170.7164634	3.3	8	29.2	8.9
P-Ui-10	2015	-14.317874	-170.7166678	3	11.7	26.1	8.8
V-Cf-1	2016	-14.24878	-170.6751368	2.4	8.4	28.2	11.9
V-Cf-2	2016	-14.250378	-170.6737846	4.3	6.4	38	8.8
V-Cf-3	2016	-14.247014	-170.6742087	3.9	5.6	35.5	9.1
V-Cf-4	2016	-14.248972	-170.6742767	4.9	6.8	44.3	9
V-Cf-5	2016	-14.245848	-170.6729926	2.5	5.8	32.4	12.7
V-Cf-6	2016	-14.250546	-170.6723282	3.1	6.4	32.3	10.4
V-Cf-7	2015	-14.249517	-170.6750146	2.8	7.1	32.1	11.6
V-Cf-8	2015	-14.250627	-170.6722927	3.1	5.2	34.6	11.3
V-Cf-9	2015	-14.242078	-170.670777	3.5	5.6	39.9	11.5
V-Cf-10	2015	-14.245673	-170.6727996	5	4.4	41.4	8.4

V-Cf-11	2015	-14.249952	-170.6734651	4.8	5	42	8.7
V-Cf-12	2015	-14.249971	-170.674648	5.9	5.9	45.6	7.7
V-Cf-13	2015	-14.250252	-170.6724957	5.3	5.5	43.6	8.2
V-Db-1	2016	-14.24878	-170.6751368	1.9	7.7	28.5	15
V-Db-2	2016	-14.247187	-170.6741775	1.7	5.9	28	16.9
V-Db-3	2016	-14.249627	-170.6749364	1.4	7.8	22.1	15.7
V-Db-4	2016	-14.24995	-170.6706178	1.1	6	20.9	18.9
V-Db-5	2016	-14.249785	-170.6702002	1.5	5.4	26.2	17.4
V-Db-6	2016	-14.25069	-170.671316	1.7	5.6	26.6	16.1
V-Db-7	2016	-14.250546	-170.6723282	1.1	6.6	20.5	18.3
V-Db-8	2016	-14.246786	-170.6740902	1.6	5.7	27.1	17.1
V-Db-9	2016	-14.250522	-170.6707607	1.4	5.2	23.4	16.9
V-Db-10	2015	-14.248678	-170.67499	2.3	6.8	33.3	14.2
V-Db-11	2015	-14.249517	-170.6750146	2.2	6.4	32.9	14.8
V-Db-12	2015	-14.250599	-170.6744079	1.7	7.4	25.7	15.1
V-Db-13	2015	-14.250627	-170.6722927	1.6	5.2	27.2	17.1
V-Db-14	2015	-14.2507	-170.6711816	1.9	4.5	31.3	16.6
V-Db-15	2015	-14.250626	-170.6706727	1.7	4.2	27.3	15.9
V-Db-16	2015	-14.249785	-170.6702535	1.5	4.1	26.5	17.2
V-Hp-1	2016	-14.24732	-170.6737941	2.3	6.8	23.1	10.2
X-Cf-1	2016	-14.284311	-170.6756585	4.6	9.9	40.2	8.8
X-Cf-2	2016	-14.283181	-170.6759416	5.7	10.3	44.9	7.9
X-Cf-1	2016	-14.283939	-170.6766093	5.3	9.8	43	8.1
X-Cf-2	2016	-14.282973	-170.6761598	4.9	9.8	40.5	8.2
X-Cf-3	2016	-14.281977	-170.6785069	4.5	9.7	36.2	8.1
X-Hp-1	2016	-14.281977	-170.6785069	2.1	10	16.5	8
X-Hp-2	2016	-14.280538	-170.6808764	1.5	10.3	12	8.1

Notes: Site Id's are coded to indicate study location, F – Faga'alu, P – Pala, V – Vatia, O – Oa, and X – Outer Faga'alu , sample species, Cf - *Chlorodesmis fastigiata*, Hp - *Hypnea pannosa*, Db - *Dictyota bartayresiana*, and Ui - *Ulva intestinalis*, and sample number of each species at each location.

Table S8: Pala Lagoon ^{222}Rn survey data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Latitude (°S)	Longitude (°W)	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)
7/26/15 8:22	-14.31986	-170.71515	25.4	20.7	9.7
7/26/15 8:36	-14.31953	-170.71534	24.6	20.0	10.7
7/26/15 8:41	-14.31911	-170.71586	24.6	16.9	9.9
7/26/15 8:46	-14.31776	-170.71625	24.7	21.5	11.3
7/26/15 8:51	-14.31786	-170.71648	25.1	24.8	10.6
7/26/15 8:56	-14.31931	-170.71555	24.9	30.7	14.8
7/26/15 9:01	-14.32014	-170.71466	25.0	30.9	11.6
7/26/15 9:06	-14.32069	-170.71442	24.9	31.1	13.1
7/26/15 9:11	-14.32181	-170.71351	25.0	32.0	8.6
7/26/15 9:16	-14.32219	-170.71311	25.0	31.9	9.4
7/26/15 9:21	-14.32336	-170.71311	25.1	32.1	7.1
7/26/15 9:26	-14.32418	-170.71269	25.3	32.6	6.4
7/26/15 9:31	-14.32506	-170.71112	25.4	33.0	4.5
7/26/15 9:36	-14.32556	-170.70974	25.6	33.2	4.9
7/26/15 9:41	-14.32549	-170.70670	25.6	33.2	4.1
7/26/15 9:46	-14.32548	-170.70500	26.7	34.7	4.6
7/26/15 9:51	-14.32543	-170.70101	26.7	34.8	3.4
7/26/15 9:56	-14.32434	-170.70026	26.0	33.9	3.2
7/26/15 10:01	-14.32416	-170.70065	25.8	33.3	3.1
7/26/15 10:08	-14.32414	-170.70245	25.6	33.1	1.7
7/26/15 10:16	-14.32342	-170.70539	25.4	32.3	1.9
7/26/15 10:21	-14.32374	-170.70929	25.4	32.3	1.5
7/26/15 10:26	-14.32314	-170.71017	25.3	32.3	2.3
7/26/15 10:31	-14.32203	-170.71139	24.9	28.6	2.3
7/26/15 10:36	-14.32102	-170.71238	25.1	23.3	0.9
7/26/15 10:41	-14.31969	-170.71425	25.1	23.5	1.7
7/26/15 10:46	-14.31868	-170.71494	25.0	24.7	3.0
7/26/15 10:51	-14.31806	-170.71479	24.9	25.4	3.9
7/26/15 10:56	-14.31781	-170.71294	24.9	27.0	4.1
7/26/15 11:01	-14.31704	-170.71184	25.0	28.1	3.0
7/26/15 11:06	-14.31729	-170.70880	25.3	30.4	4.0
7/26/15 11:11	-14.31707	-170.70716	25.4	31.7	2.3

Table S9: Faga'alu ^{222}Rn survey data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Latitude (°S)	Longitude (°W)	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)
7/29/15 11:57	-14.29193	-170.68163	28.3	34.9	0.8
7/29/15 12:05	-14.29229	-170.68094	28.5	34.9	0.8
7/29/15 12:10	-14.29266	-170.68017	28.5	34.9	0.2
7/29/15 12:15	-14.29336	-170.67918	28.5	34.6	0.9
7/29/15 12:20	-14.29331	-170.67932	28.5	33.7	0.6
7/29/15 12:25	-14.29321	-170.67946	28.5	34.6	1.1
7/29/15 12:30	-14.29308	-170.68006	28.6	33.9	0.6
7/29/15 12:35	-14.29277	-170.68035	28.4	33.4	1.7
7/29/15 12:40	-14.29241	-170.68083	27.2	16.5	1.9
7/29/15 12:45	-14.29214	-170.68138	27.2	16.8	3.2
7/29/15 12:50	-14.29191	-170.68211	27.0	21.8	5.4
7/29/15 12:55	-14.29197	-170.68258	26.0	1.4	11.9
7/29/15 13:00	-14.29184	-170.68273	27.0	25.8	17.2
7/29/15 13:07	-14.29143	-170.68259	27.3	25.2	17.5
7/29/15 13:15	-14.29121	-170.68250	27.8	27.8	15.1
7/29/15 13:20	-14.29069	-170.68244	27.8	28.6	12.5
7/29/15 13:25	-14.28954	-170.68155	28.2	34.5	13.0
7/29/15 13:30	-14.28939	-170.68133	28.0	34.6	13.7
7/29/15 13:35	-14.28903	-170.68103	28.0	34.6	11.2
7/29/15 13:42	-14.28904	-170.67954	27.7	34.8	6.7
7/29/15 13:50	-14.28941	-170.67933	27.7	34.8	5.0
7/29/15 13:55	-14.28988	-170.67792	27.7	34.8	4.8
7/29/15 14:00	-14.29059	-170.67888	27.6	33.4	3.9
7/29/15 14:06	-14.29163	-170.67967	27.4	32.0	4.1
7/29/15 14:11	-14.29090	-170.68073	27.3	32.0	4.0
7/29/15 14:16	-14.29093	-170.68118	27.4	32.2	2.6

Table S10: Vatia ^{222}Rn survey data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Latitude (°S)	Longitude (°W)	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)
7/27/15 8:48	-14.24929	-170.67527	27.0	33.2	2.9
7/27/15 9:06	-14.24893	-170.67466	27.5	34.6	2.7
7/27/15 9:11	-14.24545	-170.67160	27.2	34.5	2.0
7/27/15 9:16	-14.24660	-170.67280	27.4	34.5	2.1
7/27/15 9:21	-14.24771	-170.67453	27.7	34.5	1.5
7/27/15 9:26	-14.24681	-170.67358	27.7	34.4	0.8
7/27/15 9:31	-14.24595	-170.67297	27.6	34.5	0.8
7/27/15 9:36	-14.24606	-170.67335	27.5	34.2	1.0
7/27/15 9:41	-14.24670	-170.67391	27.1	32.6	1.8
7/27/15 9:46	-14.24682	-170.67432	27.0	30.0	1.6
7/27/15 9:51	-14.24770	-170.67492	27.5	33.9	3.1
7/27/15 9:56	-14.24870	-170.67525	27.9	34.2	5.8
7/27/15 10:01	-14.24967	-170.67522	27.7	33.0	3.9
7/27/15 10:06	-14.25040	-170.67512	27.7	31.5	5.3
7/27/15 10:11	-14.25047	-170.67505	27.9	32.7	5.1
7/27/15 10:16	-14.25085	-170.67387	28.1	33.5	4.8
7/27/15 10:21	-14.25078	-170.67339	28.0	31.0	5.9
7/27/15 10:26	-14.25112	-170.67295	27.8	29.7	3.5
7/27/15 10:31	-14.25076	-170.67215	27.5	31.1	5.3
7/27/15 10:41	-14.25072	-170.67085	27.9	32.2	6.6
7/27/15 10:51	-14.25043	-170.67049	28.5	34.7	3.2
7/27/15 10:58	-14.24979	-170.67024	28.1	34.7	3.6
7/27/15 11:06	-14.24924	-170.67070	28.0	34.8	2.3
7/27/15 11:11	-14.24904	-170.67076	27.8	34.8	2.7
7/27/15 11:16	-14.24781	-170.66982	27.6	34.6	2.7
7/27/15 11:21	-14.24665	-170.66829	27.6	34.5	1.7
7/27/15 11:26	-14.24464	-170.66756	27.6	34.5	1.6
7/27/15 11:31	-14.24375	-170.66974	27.9	34.6	1.0
7/27/15 11:36	-14.24590	-170.67197	27.9	34.6	1.0
7/27/15 11:41	-14.24725	-170.67331	27.9	33.6	0.8
7/27/15 11:46	-14.24793	-170.67380	28.0	33.3	1.0
7/27/15 11:51	-14.25021	-170.67482	28.1	34.1	1.2
7/27/15 11:56	-14.25010	-170.67394	28.1	34.8	1.0
7/27/15 12:01	-14.25001	-170.67299	27.9	33.9	1.4

Table S11: Oa ^{222}Rn survey data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Latitude (°S)	Longitude (°W)	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)
7/28/15 11:04	-14.25153	-170.64193	28.0	33.3	3.1
7/28/15 11:14	-14.25289	-170.64246	27.9	34.5	2.8
7/28/15 11:24	-14.25257	-170.64230	28.0	34.9	2.3
7/28/15 11:29	-14.25140	-170.64086	28.1	34.2	3.7
7/28/15 11:34	-14.25153	-170.64071	28.2	34.7	2.1
7/28/15 11:39	-14.25224	-170.64107	28.2	31.2	2.1
7/28/15 11:44	-14.25269	-170.64125	28.3	29.9	2.9
7/28/15 11:49	-14.25298	-170.64163	28.2	26.0	7.9
7/28/15 11:59	-14.25305	-170.64245	29.2	34.5	10.9
7/28/15 12:16	-14.25274	-170.64331	28.5	34.7	10.0
7/28/15 12:29	-14.25226	-170.64386	28.3	34.9	9.5
7/28/15 12:36	-14.25192	-170.64401	28.6	34.7	6.2
7/28/15 12:44	-14.25170	-170.64345	28.4	34.8	5.3
7/28/15 12:49	-14.25228	-170.64231	28.0	34.9	4.0
7/28/15 12:54	-14.25240	-170.64213	28.3	34.8	5.9
7/28/15 12:59	-14.25086	-170.64044	28.4	34.8	4.4

Table S12: Pala Lagoon ^{222}Rn time-series data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)	Water depth (m)
7/25/15 19:38	25.8	13.6	3.1	0.64
7/25/15 20:08	25.7	14.4	7.4	0.57
7/25/15 20:38	25.8	11.9	14.7	0.56
7/25/15 21:08	25.7	13.6	21.0	0.51
7/25/15 21:38	25.7	11.6	24.3	0.52
7/25/15 22:08	25.6	14.9	17.2	0.56
7/25/15 22:38	25.5	15.0	15.9	0.64
7/25/15 23:08	25.3	17.4	18.7	0.70
7/25/15 23:38	25.5	13.6	22.1	0.74
7/26/15 0:08	25.3	18.8	21.5	0.85
7/26/15 0:38	25.1	21.0	19.8	0.94
7/26/15 1:08	25.0	20.9	16.3	1.01
7/26/15 1:38	24.9	22.9	8.8	1.13
7/26/15 2:08	24.9	21.5	7.5	1.15
7/26/15 2:39	24.8	22.3	7.2	1.21
7/26/15 3:09	24.9	27.0	6.3	1.20
7/26/15 3:39	24.8	23.1	6.0	1.22
7/26/15 4:09	24.8	24.1	4.8	1.17
7/26/15 4:39	24.7	24.0	4.1	1.12
7/26/15 5:09	24.7	24.2	4.5	1.08
7/26/15 5:39	24.7	25.2	4.1	1.00
7/26/15 6:09	24.7	24.6	3.9	0.96
7/26/15 6:39	24.7	25.4	4.3	0.87
7/26/15 6:40	24.7	25.4	1.6	0.85

Table S13: Faga'alu ^{222}Rn time-series data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)	Water depth (m)
7/29/15 16:09	26.5	26.8	0.9	1.37
7/29/15 16:39	26.4	27.7	1.5	1.46
7/29/15 17:09	26.3	27.9	2.1	1.50
7/29/15 17:39	26.2	28.6	3.0	1.55
7/29/15 18:09	26.1	27.5	3.6	1.52
7/29/15 18:39	26.0	28.2	2.7	1.55
7/29/15 19:09	26.0	28.8	3.3	1.47
7/29/15 19:39	25.8	28.2	3.7	1.37
7/29/15 20:09	25.7	27.0	4.5	1.23
7/29/15 20:39	25.6	23.7	5.5	1.14
7/29/15 21:09	25.6	25.3	7.4	1.02
7/29/15 21:39	25.2	25.7	8.8	0.90
7/29/15 22:09	25.1	23.7	8.8	0.84
7/29/15 22:39	24.8	18.2	10.8	0.72
7/29/15 23:09	24.7	18.1	14.0	0.65
7/29/15 23:39	24.5	20.3	14.1	0.68
7/30/15 0:09	24.6	19.0	14.2	0.66
7/30/15 0:39	24.7	19.1	16.4	0.69
7/30/15 1:09	24.7	21.7	13.9	0.81
7/30/15 1:39	24.6	21.9	13.0	0.89
7/30/15 2:09	24.6	22.7	10.7	0.98
7/30/15 2:39	24.6	23.7	10.3	1.10
7/30/15 3:09	24.6	25.0	8.5	1.22
7/30/15 3:39	24.6	26.7	7.7	1.36
7/30/15 4:09	24.7	25.4	5.4	1.45
7/30/15 4:39	24.8	27.5	5.5	1.51
7/30/15 5:09	24.9	27.7	4.1	1.63
7/30/15 5:39	25.5	25.8	4.0	1.67
7/30/15 6:09	25.5	28.0	3.7	1.70
7/30/15 6:39	25.4	28.9	3.3	1.73
7/30/15 7:09	25.6	29.5	1.6	1.65
7/30/15 7:39	25.9	29.6	0.4	1.59
7/30/15 8:09	25.4	29.0	0.5	1.44
7/30/15 8:39	25.4	27.9	0.9	1.35
7/30/15 9:09	25.4	27.3	1.6	1.20
7/30/15 9:39	25.8	25.7	2.5	1.07
7/30/15 10:09	26.0	27.4	3.2	0.91
7/30/15 10:39	26.2	27.0	3.7	0.80
7/30/15 11:09	27.8	29.6	4.2	0.72
7/30/15 11:39	27.4	27.3	4.3	0.63
7/30/15 12:09	27.3	26.7	3.8	0.64
7/30/15 12:39	27.7	24.4	4.1	0.65

Table S14: Vatia ^{222}Rn time-series data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)	Water depth (m)
7/27/15 15:00	28.0	32.5	0.3	1.37
7/27/15 15:30	27.9	32.8	0.5	1.34
7/27/15 16:00	27.7	33.3	1.3	1.38
7/27/15 16:30	27.6	33.6	1.0	1.46
7/27/15 17:00	27.4	33.5	1.1	1.35
7/27/15 17:30	27.3	33.4	1.2	1.27
7/27/15 18:00	27.1	33.2	1.2	1.24
7/27/15 18:30	27.0	33.1	1.4	1.12
7/27/15 19:00	26.9	33.2	1.3	1.03
7/27/15 19:30	26.8	33.0	1.7	0.91
7/27/15 20:00	26.6	33.2	1.7	0.87
7/27/15 20:30	26.6	33.1	1.2	0.74
7/27/15 21:00	26.4	32.6	1.7	0.69
7/27/15 21:30	26.4	32.6	2.0	0.63
7/27/15 22:00	26.2	32.1	2.1	0.65
7/27/15 22:30	26.0	31.7	2.6	0.66
7/27/15 23:00	26.0	31.6	2.5	0.70
7/27/15 23:30	25.8	30.9	3.8	0.77
7/28/15 0:00	25.8	31.2	3.1	0.84
7/28/15 0:30	25.7	30.7	2.8	0.97
7/28/15 1:00	25.8	30.3	3.4	1.11
7/28/15 1:30	25.7	30.8	3.9	1.19
7/28/15 2:00	25.8	31.6	3.7	1.25
7/28/15 2:30	25.7	32.2	2.8	1.42
7/28/15 3:00	25.9	33.1	3.4	1.55
7/28/15 3:30	26.0	33.4	2.7	1.55
7/28/15 4:00	26.1	34.0	2.1	1.53
7/28/15 4:30	26.4	34.5	2.1	1.51
7/28/15 5:00	26.5	34.5	1.8	1.45
7/28/15 5:30	26.3	34.4	1.3	1.44
7/28/15 6:00	26.4	34.4	1.5	1.40
7/28/15 6:30	26.3	34.2	1.2	1.28
7/28/15 7:00	26.3	34.1	1.3	1.27
7/28/15 7:30	26.4	34.0	1.5	1.10

Table S15: Oa ^{222}Rn time-series data, with all parameters down-sampled with rolling averages to match RAD7 Rn detector measurement resolution.

Date and Time	Water Temp. (°C)	Surface Salinity	Radon in water (dpm/L)	Water depth (m)
7/28/15 13:57	29.5	33.2	1.7	0.72
7/28/15 14:27	30.1	33.3	3.8	0.81
7/28/15 14:57	29.3	33.9	3.7	0.89
7/28/15 15:27	29.8	34.2	3.7	0.98
7/28/15 15:57	29.1	34.2	2.7	1.04
7/28/15 16:27	29.2	34.1	2.1	1.03
7/28/15 16:57	28.5	34.0	1.3	1.04
7/28/15 17:27	28.1	34.0	1.1	1.03
7/28/15 17:57	27.9	33.9	0.8	0.97
7/28/15 18:27	27.6	33.8	0.9	0.95
7/28/15 18:57	27.5	33.5	1.0	0.86
7/28/15 19:27	27.4	33.3	1.7	0.77
7/28/15 19:57	27.3	33.4	2.1	0.65
7/28/15 20:27	27.0	33.1	3.6	0.51
7/28/15 20:57	26.8	33.2	4.3	0.43
7/28/15 21:27	26.5	31.9	4.9	0.35
7/28/15 21:57	26.1	30.7	8.3	0.27
7/28/15 22:27	25.8	29.5	11.8	0.23
7/28/15 22:57	25.6	28.4	17.2	0.29
7/29/15 0:03	25.5	31.9	16.5	0.33
7/29/15 0:33	25.7	33.3	12.9	0.44
7/29/15 1:03	25.7	33.9	11.4	0.53
7/29/15 1:33	25.6	34.2	10.6	0.68
7/29/15 2:03	25.7	34.5	10.3	0.83
7/29/15 2:33	25.9	34.8	6.7	0.95
7/29/15 3:03	26.1	34.9	4.8	0.99
7/29/15 3:33	26.1	34.8	2.8	1.12
7/29/15 4:03	26.2	34.8	2.5	1.20
7/29/15 4:33	26.4	34.9	2.3	1.27
7/29/15 5:03	26.3	34.9	1.6	1.26
7/29/15 5:33	26.5	34.9	1.3	1.25
7/29/15 6:03	26.4	34.9	0.7	1.20
7/29/15 6:33	26.4	34.9	1.1	1.13
7/29/15 7:03	26.3	34.8	0.7	0.99
7/29/15 7:33	26.3	34.7	0.7	0.89



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