

Table S3. GOS metadata, sample location information and amino acid usage

General Genomic Information					Median ARSC					
Site name	GC (%)	Location	Collection region	Collection Location	Nearest Annual Nitrate (miMoles/L) Objectively analyzed mean	Distance from major land mass (km)	Num Of ORF Analyzed	Median Mass Per Residue	N	C:N
GS002	36.62%	Coastal ocean	North America	Gulf of Maine	3.464	186.936	435925	112.355	0.338	8.879
GS003	37.39%	Coastal ocean	North America	Browns Bank, Gulf of Maine	2.987	108.185	227142	112.362	0.345	8.692
GS004	39.61%	Coastal ocean	North America	Outside Halifax, Nova Scotia	1.191	37.591	212780	111.853	0.356	8.317
GS007	40.69%	Coastal ocean	North America	Northern Gulf of Maine	3.311	69.368	213665	111.803	0.362	8.162
GS008	45.27%	Coastal ocean	North America	Newport Harbor, RI	2.207	22.848	626826	111.114	0.397	7.286
GS009	38.26%	Coastal ocean	North America	Block Island, NY	2.207	42.729	299605	111.958	0.351	8.495
GS010	38.65%	Coastal ocean	North America	Cape May, NJ	1.399	16.883	303643	111.855	0.354	8.396
GS013	43.85%	Coastal ocean	North America	Off Nags Head, NC	1.003	20.966	669532	111.250	0.397	7.299
GS014	36.94%	Coastal ocean	North America	South of Charleston, SC	0.457	62.044	483025	112.247	0.343	8.761
GS015	36.13%	Coastal ocean	Caribbean Sea	Off Key West, FL	0.546	168.368	462767	112.244	0.341	8.823
GS019	35.52%	Coastal ocean	Caribbean Sea	Northeast of Colon	0.014	154.279	477648	112.535	0.337	8.958
GS021	39.01%	Coastal ocean	Eastern Tropic	Gulf of Panama	1.552	61.302	540820	111.797	0.362	8.238
GS027	37.26%	Coastal ocean	Galapagos	Isla Devil's Crown, Floreana Island	5.739	8.431	829079	111.985	0.347	8.616
GS028	36.13%	Coastal ocean	Galapagos	Isla Coastal ocean Floreana	5.739	8.912	683152	112.309	0.337	8.904
GS029	35.59%	Coastal ocean	Galapagos	Isla North James Bay, Santiago Island	4.634	24.825	465644	112.452	0.335	9.006
GS034	40.18%	Coastal ocean	Galapagos	Isla North Seamore Island	4.634	19.009	574300	110.922	0.374	7.836
GS035	36.38%	Coastal ocean	Galapagos	Isla Wolf Island	2.284	164.747	502197	112.325	0.339	8.856
GS036	37.27%	Coastal ocean	Galapagos	Isla Cabo Marshall, Isabella Island	2.793	19.711	302472	112.182	0.346	8.664
GS049	34.72%	Coastal ocean	Polynesia	Arch Moorea, Outside Cooks Bay	0.276	11.364	248656	112.381	0.328	9.173
GS117a	35.23%	Coastal ocean	Indian ocean	St. Anne Island, Seychelles	0.266	1086.344	876774	112.330	0.325	9.211
GS001c	35.55%	Open ocean	Sargasso Sea	Hydrostation S	0.176	1083.196	307032	112.190	0.333	9.045
GS017	35.97%	Open ocean	Caribbean Sea	Yucatan Channel	0.536	152.301	927755	112.483	0.337	8.938
GS018	36.11%	Open ocean	Caribbean Sea	Rosario Bank	0.865	264.607	523739	112.333	0.341	8.848
GS022	35.60%	Open ocean	Eastern Tropic	250 miles from Panama City	0.505	192.641	427726	112.485	0.335	8.999
GS023	35.74%	Open ocean	Eastern Tropic	30 miles from Cocos Island	1.412	472.089	473053	112.385	0.337	8.960
GS026	34.86%	Open ocean	Galapagos	Isla 134 miles NE of Galapagos	2.268	175.036	349091	112.511	0.333	9.098
GS037	36.74%	Open ocean	Eastern Tropic	Equatorial Pacific TAO Buoy	7.681	418.108	242864	111.954	0.343	8.712
GS047	40.01%	Open ocean	Tropical South	201 miles from F. Polynesia	2.611	377.256	238849	111.985	0.343	8.765
GS109	37.08%	Open ocean	Indian ocean	Indian ocean	0.392	1271.344	167702	112.484	0.325	9.262
GS110a	34.37%	Open ocean	Indian ocean	Indian ocean	0.241	1532.346	229106	112.357	0.323	9.303
GS111	34.93%	Open ocean	Indian ocean	Indian ocean	0.229	1325.620	162527	112.326	0.324	9.257
GS112a	34.79%	Open ocean	Indian ocean	Indian ocean	0.332	891.720	233918	112.371	0.322	9.310
GS113	34.55%	Open ocean	Indian ocean	Indian ocean	0.444	437.528	308947	112.337	0.325	9.247
GS114	34.81%	Open ocean	Indian ocean	500 Miles west of the Seychelles in the Indian ocean	0.166	856.434	903527	112.393	0.325	9.244
GS115	35.24%	Open ocean	Indian ocean	Indian ocean	0.204	1342.398	175647	112.383	0.328	9.164
GS116	36.06%	Open ocean	Indian ocean	Outside Seychelles, Indian ocean	0.252	1180.692	175349	112.103	0.335	8.948
GS119	33.92%	Open ocean	Indian ocean	International Water Outside of Reunion Island	0.137	382.529	167470	112.569	0.324	9.316
GS120	34.20%	Open ocean	Indian ocean	Madagascar Waters	0.132	332.114	113613	112.441	0.324	9.291
GS121	34.78%	Open ocean	Indian ocean	International water between Madagascar and South Africa	0.237	465.056	313296	112.336	0.328	9.169
GS122a	34.51%	Open ocean	Indian ocean	International waters between Madagascar and South Africa	0.268	747.454	246950	112.423	0.325	9.234
GS123	36.02%	Open ocean	Indian ocean	International water between Madagascar and South Africa	0.289	587.438	306931	112.096	0.334	8.953