

Supplementary Material for
Indo-Pacific coral reef sponge diversity declines under predicted future ocean conditions

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Supplemental references

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Figure S1 In situ images of 76 sponge OTUs and 9 species. All sponges recruited on experimental mesocosm ARMS throughout the two-year experiment. OTUs are grouped by lowest taxonomic ranking according to 28S and COI sequences and morphological assessment of their skeleton. Color within the frames depicts three dominant sponge classes (Calcarea (blue), Demospongiae (green) and Homoscleromorpha (pink)).

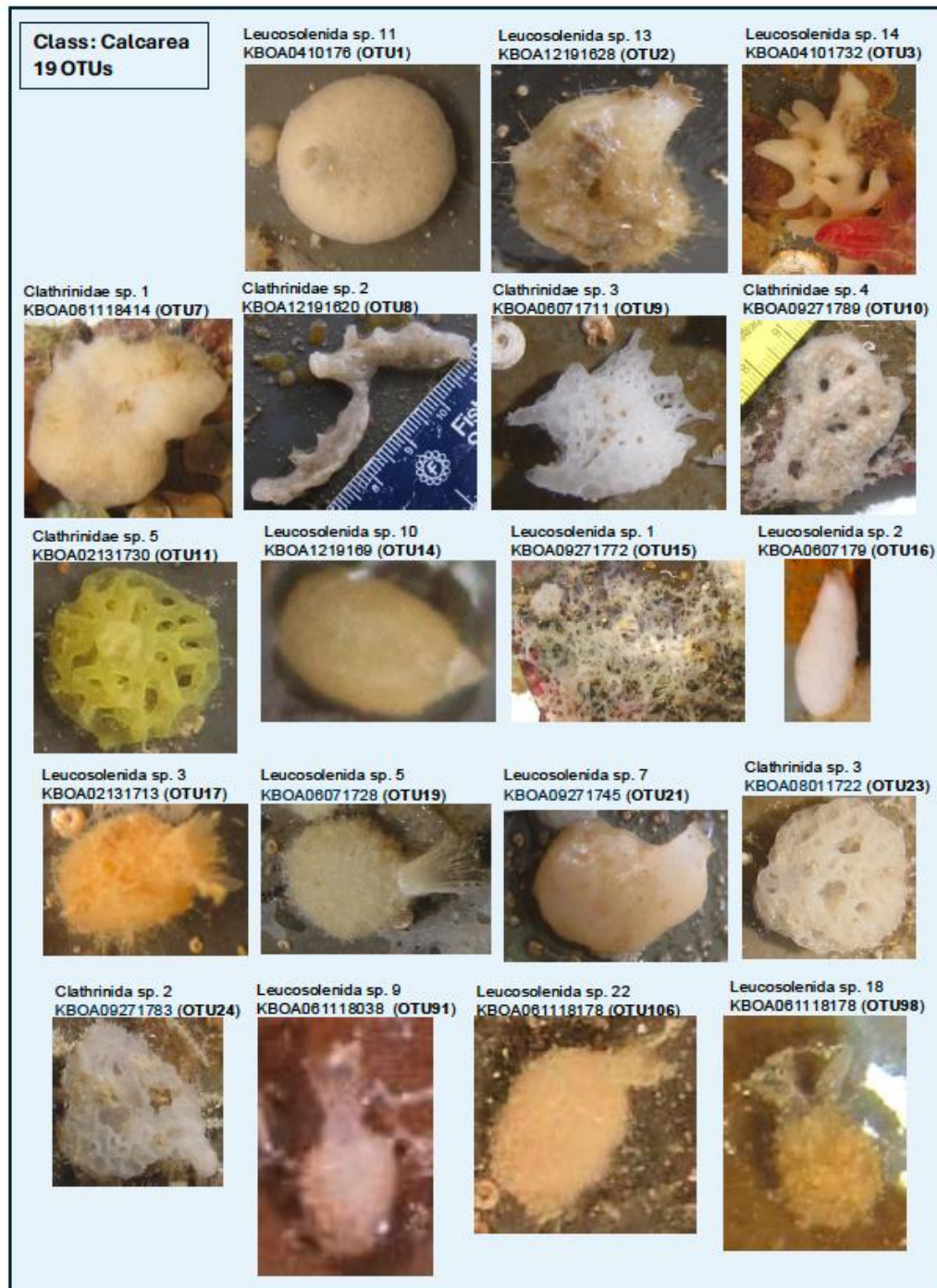


Figure S1 (continued)



Figure S1 (continued)

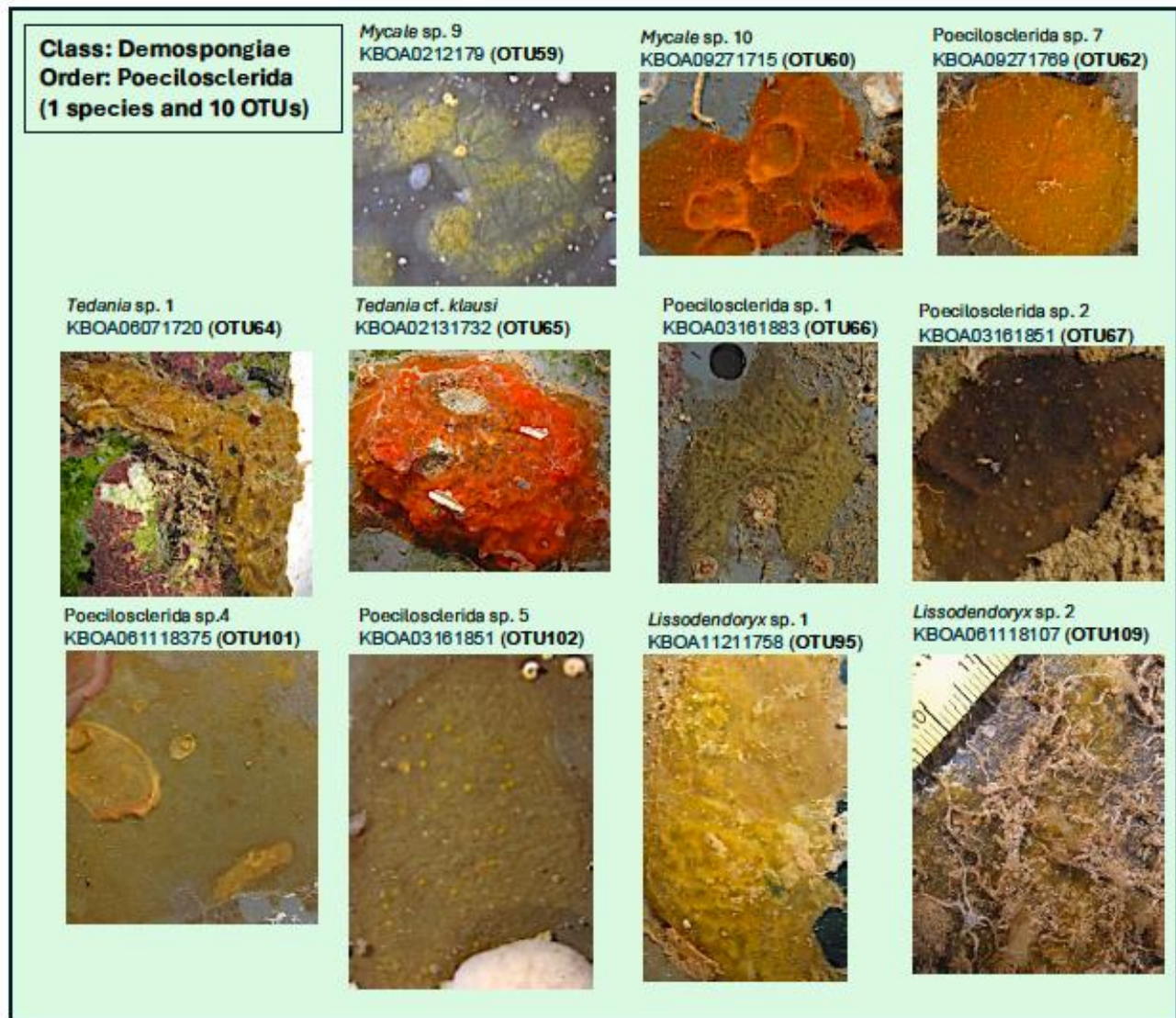


Figure S1 (continued)

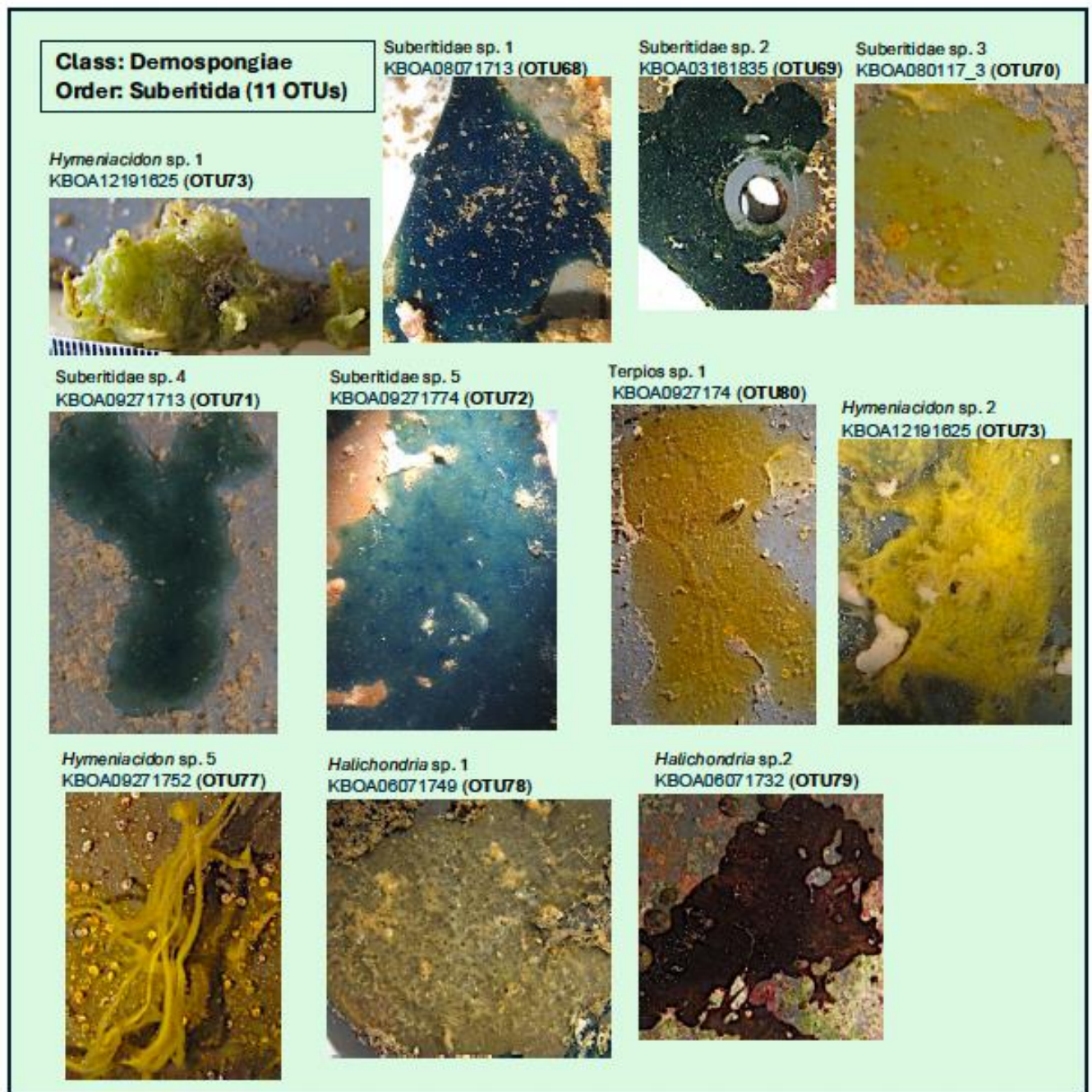


Figure S1 (continued)

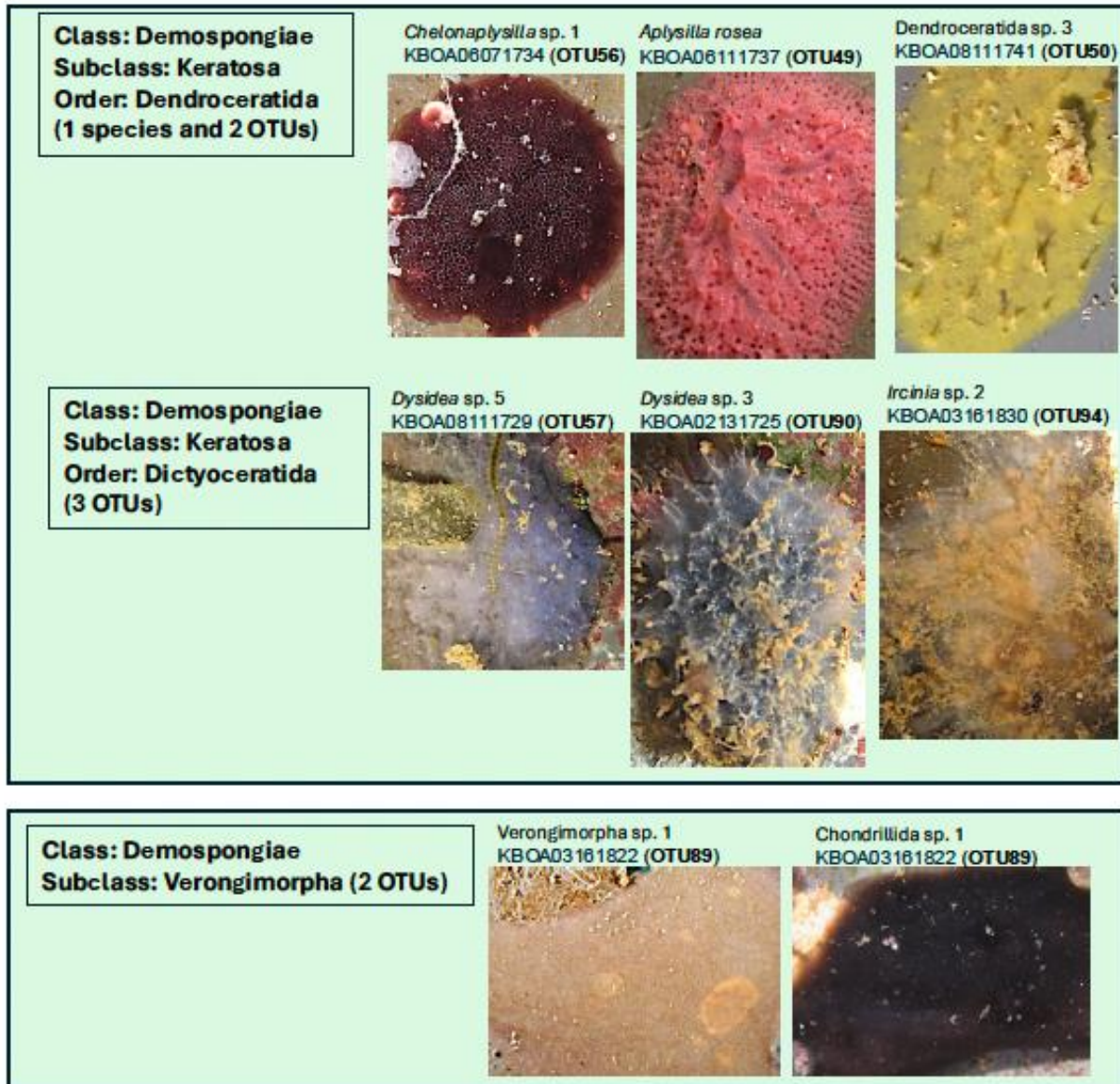


Figure S1 (continued)

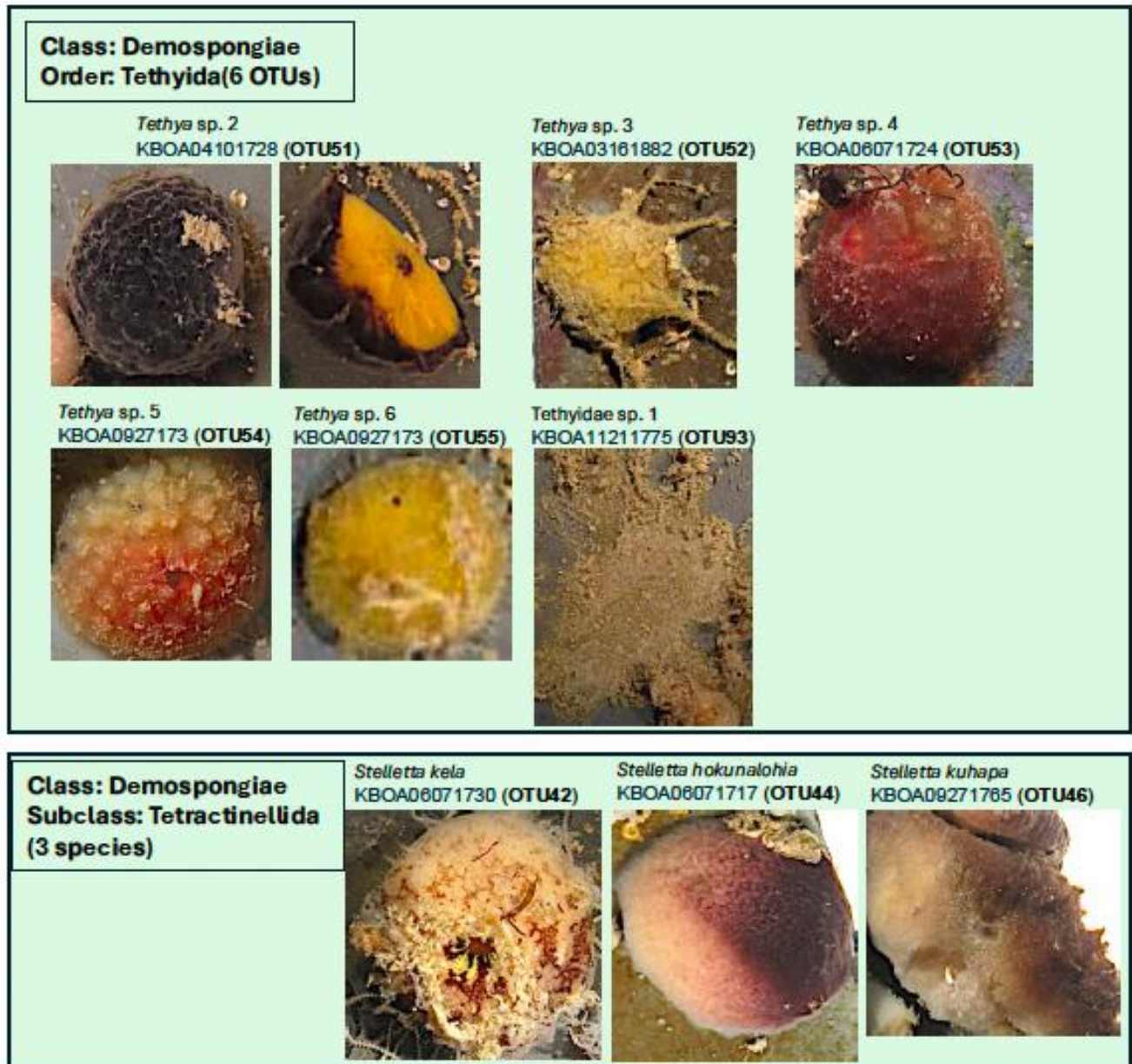


Figure S1 (continued)

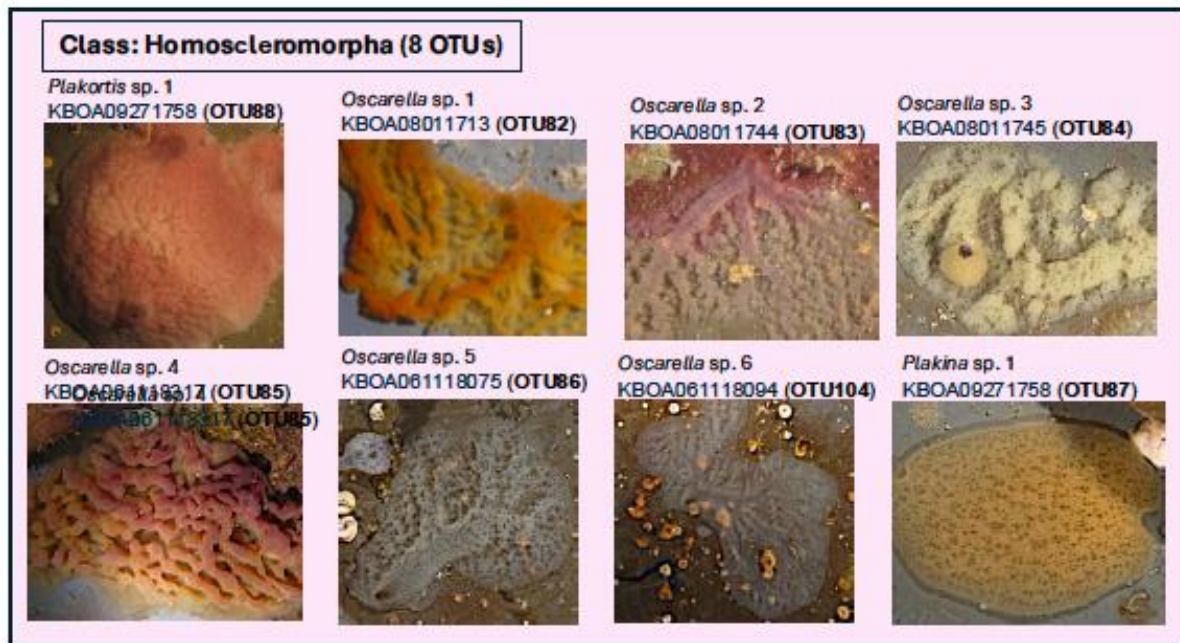


Figure S2: Proportion of sponge abundance. Sponge proportion is depicted by (a) class and order (b).

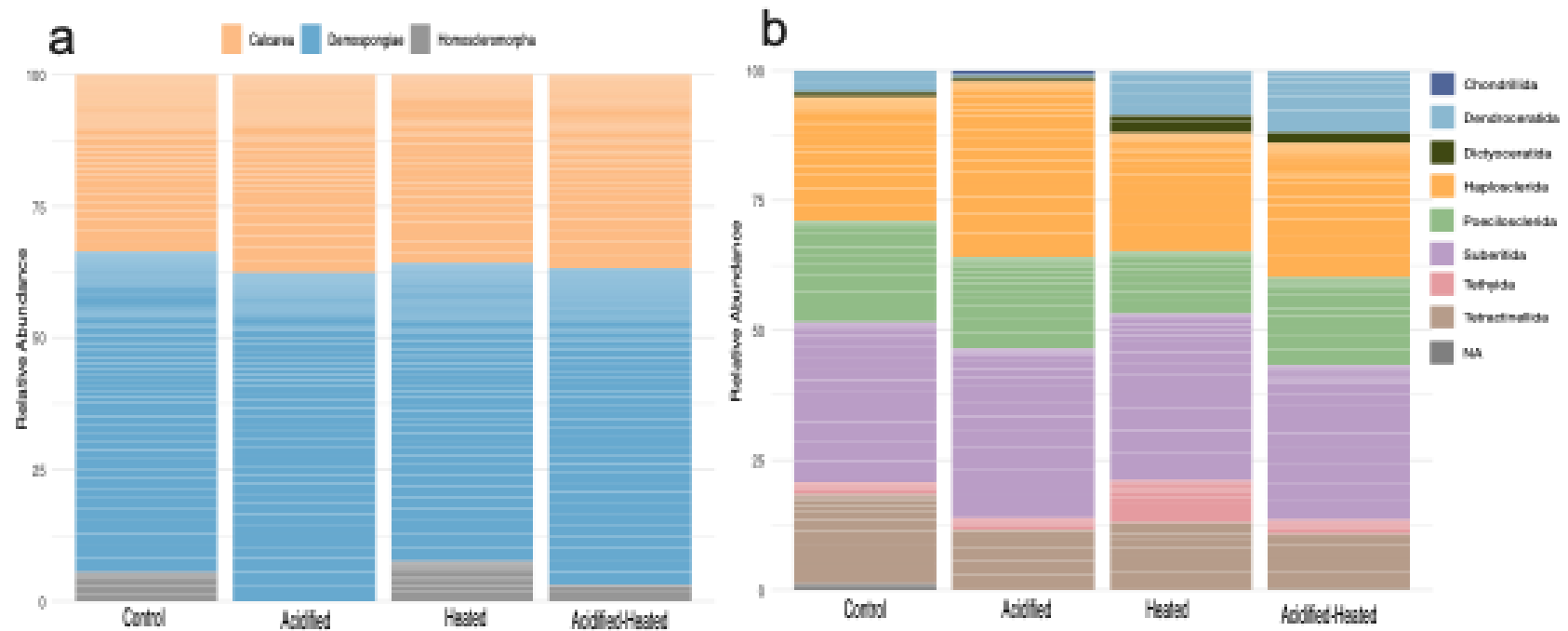


Figure S3: Boxplots of the cumulative mean abundance. Median values are shown as bars for each treatment; boxes show the upper and lower quartile; whiskers indicate the least and greatest value, excluding outliers. Mean values are shown as black circles and red circles are outliers.

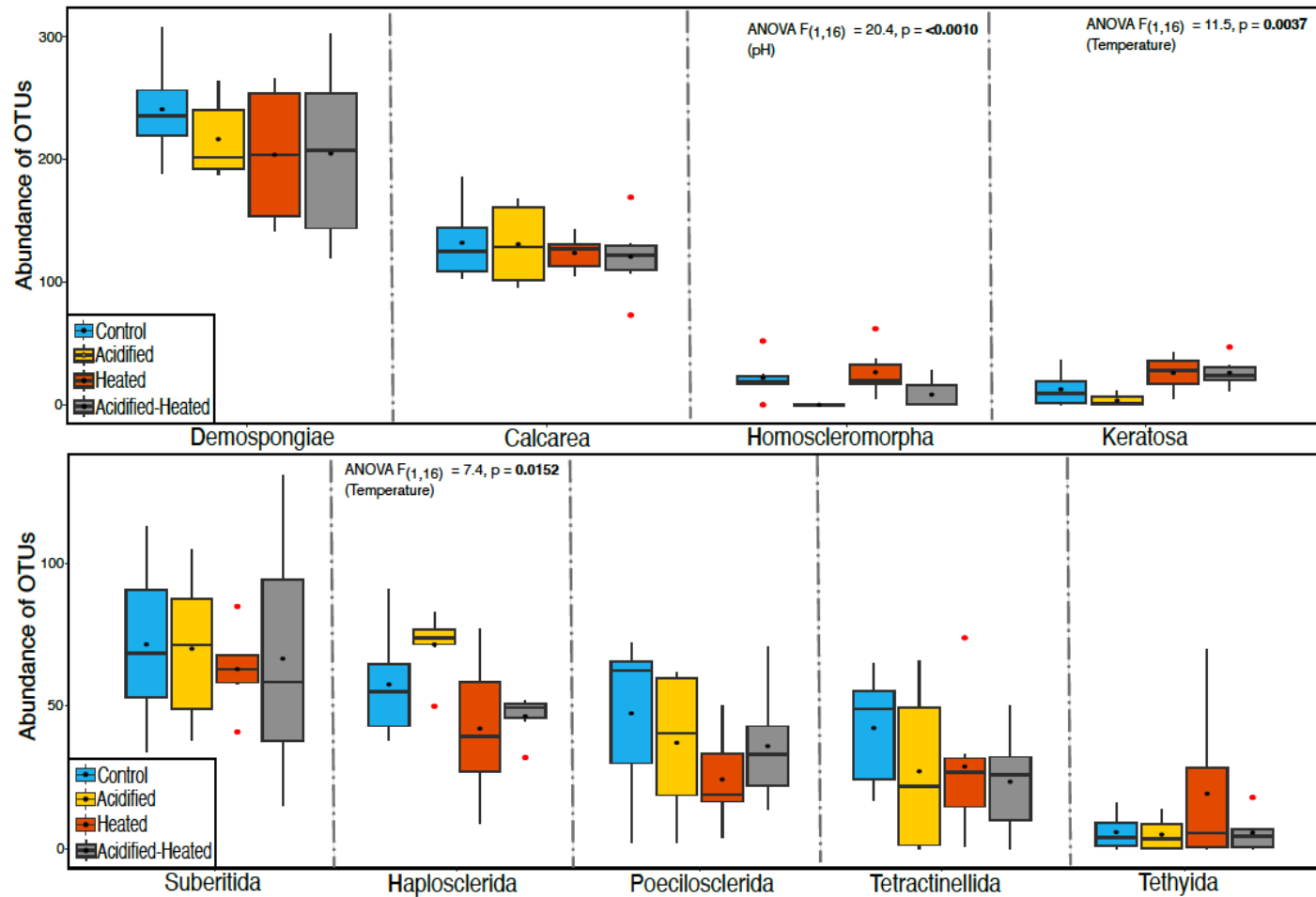
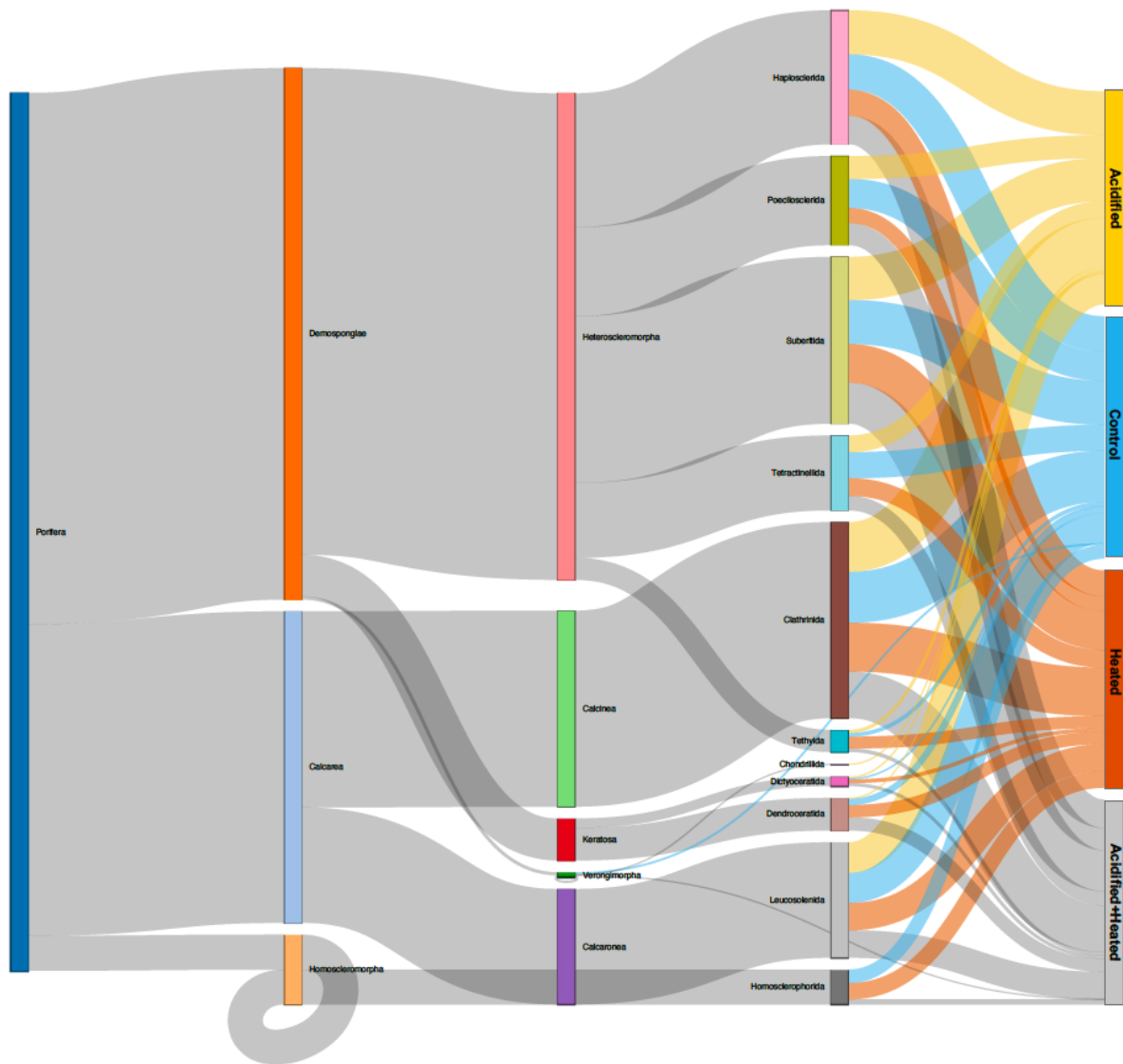


Figure S4. Sankey plot of the cumulative abundance of sponges. Plot shows the distribution of the cumulative abundance of sponges between treatments among major taxonomic groups



Supplementary tables

Table S1 List of all vouchers collected throughout the 2-year monitoring period from mesocosm and reef ARMS. Vouchers missing sequence data were matched morphologically with OTUs provided with sequence data. Voucher information for OTU9, OTU11, OTU14, OTU24, OTU26, OTU37, OTU38, OTU45 and OTU49 can be found in Vicente et al., 2022 Table S4.

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA12191629	-	2016-12-19	Control	23	Ancorinidae sp. 1	OTU42	MW059040	-
KBOA0213171	-	2017-02-13	Control	9	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA0213172	-	2017-02-13	Control	9	Leucosolenida sp. 1	OTU1	-	-
KBOA0213173	-	2017-02-13	Control	9	<i>Oscarella</i> sp. 5	OTU86	-	no accession number but sequence available
KBOA0213174	-	2017-02-13	Control	9	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA0213175	-	2017-02-13	Control	9	<i>Oscarella</i> sp. 5	OTU86	-	no accession number but sequence available
KBOA0213176	-	2017-02-13	Control	9	<i>Haliclona</i> sp. 1	OTU27	-	no accession number but sequence available
KBOA0213177	-	2017-02-13	Control	9	Clathrinidae sp. 4	OTU10	-	MW016094
KBOA0213178	-	2017-02-13	Control	9	Haplosclerida sp. 1	OTU29	-	-
KBOA0213179	UF 4027	2017-02-13	Control	9	<i>Mycale</i> sp. 9	OTU59	-	MW016241
KBOA02131710	-	2017-02-13	Control	37	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA02131711	-	2017-02-13	Control	37	Halichondria sp. 2	OTU79	-	MW016128
KBOA02131712	-	2017-02-13	Control	37	Leucosolenida sp. 13	OTU2	-	no accession number but sequence available
KBOA02131713	UF 4014	2017-02-13	Control	37	Leucosolenida sp. 3	OTU17	-	MW016216
KBOA02131714	UF 4017	2017-02-13	Control	37	Leucosolenida sp. 13	OTU2	-	MW016202
KBOA02131715	-	2017-02-13	Control	10	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA02131716	-	2017-02-13	Control	10	Leucosolenida sp. 7	OTU21	-	-
KBOA02131717	-	2017-02-13	Control	10	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA02131718	-	2017-02-13	Control	37	Leucosolenida sp. 1	OTU1	-	-
KBOA02131719	-	2017-02-13	Control	17	Haplosclerida sp. 1	OTU29	-	MW016148
KBOA02131720	-	2017-02-13	Control	17	<i>Haliclona</i> sp. 1	OTU27	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA02131721	-	2017-02-13	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA02131723	-	2017-02-13	Control	23	<i>Leucosolenida</i> sp. 5	OTU19	-	-
KBOA02131724	-	2017-02-13	Control	23	<i>Poecilosclerida</i> sp. 7	OTU62	-	-
KBOA02131725	-	2017-02-13	Control	26	<i>Dysidea</i> sp. 3	OTU90	-	MW016118
KBOA02131726	-	2017-02-13	Control	26	<i>Haplosclerida</i> sp. 2	OTU30	-	MW016161
KBOA0410171	-	2017-04-10	Control	23	<i>Hymeniacidon</i> sp. 1	OTU73	-	MW016172, MT452531 no accession number but sequence available
KBOA0410172	-	2017-04-10	Control	23	<i>Callyspongia</i> sp. 1	OTU35	-	-
KBOA0410173	-	2017-04-10	Control	26	<i>Hymeniacidon</i> sp. 2	OTU74	MW059078	-
KBOA0410174	-	2017-04-10	Control	37	<i>Ancorinidae</i> sp. 1	OTU42	-	MW016374
KBOA0410175	-	2017-04-10	Control	37	<i>Haliclona</i> sp. 2	OTU28	-	MW016138 no accession number but sequence available
KBOA0410176	-	2017-04-10	Control	37	<i>Leucosolenida</i> sp. 11	OTU1	-	-
KBOA0410177	-	2017-04-10	Control	37	<i>Ancorinidae</i> sp. 1	OTU42	-	-
KBOA0410178	-	2017-04-10	Control	37	<i>Haplosclerida</i> sp. 10	OTU41	-	-
KBOA0410179	-	2017-04-10	Control	10	<i>Suberitidae</i> sp. 2	OTU69	-	MW016301
KBOA04101710	-	2017-04-10	Control	10	<i>Poecilosclerida</i> sp. 7	OTU62	-	-
KBOA04101711	-	2017-04-10	Control	17	<i>Clathrinidae</i> sp. 4	OTU10	-	no accession number but sequence available
KBOA04101712	-	2017-04-10	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	MW016174
KBOA06071728	UF 4018	2017-06-07	Control	23	<i>Leucosolenida</i> sp. 5	OTU19	-	MW016218
KBOA06071729	-	2017-06-07	Control	23	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA06071730	UF 3970	2017-06-07	Control	23	<i>Ancorinidae</i> sp. 1	OTU42	-	MW016372
KBOA06071731	-	2017-06-07	Control	23	<i>Callyspongia</i> sp. 1	OTU35	MW059070	-
KBOA06071732	-	2017-06-07	Control	37	<i>Halichondria</i> sp. 2	OTU79	-	MW016129
KBOA06071733	-	2017-06-07	Control	9	<i>Oscarella</i> sp. 3	OTU84	-	-
KBOA06071734	-	2017-06-07	Control	9	<i>Chelonaplysilla</i> sp. 1	OTU56	MW143252	MW016069
KBOA06071735	-	2017-06-07	Control	9	<i>Ancorinidae</i> sp. 1	OTU42	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA06071736	UF 3962	2017-06-07	Control	26	<i>Haliclona</i> sp. 4	OTU32	MW143254	MW016146
KBOA08011745	UF 4038	2017-08-01	Control	9	<i>Oscarella</i> sp. 3	OTU84	-	MW016251
KBOA08011746	UF 3959	2017-08-01	Control	9	Haplosclerida sp. 2	OTU30	-	MW016163
KBOA08011747	UF 3997	2017-08-01	Control	9	Clathrinidae sp. 2	OTU8	-	MW016090
KBOA08011748	-	2017-08-01	Control	26	<i>Haliclona</i> sp. 14	OTU32	-	-
KBOA08011749	UF 3949	2017-08-01	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	MW016176
KBOA09271785	-	2017-09-27	Control	9	<i>Oscarella</i> sp. 3	OTU84	-	-
KBOA09271786	-	2017-09-27	Control	10	Leucoselenida sp. 7	OTU21	-	no accession number but sequence available
KBOA09271787	-	2017-09-27	Control	23	Leucoselenida sp. 7	OTU21	-	no accession number but sequence available
KBOA09271788	UF 4007	2017-09-27	Control	23	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA09271789	-	2017-09-27	Control	26	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA11211763	-	2017-01-12	Control	37	<i>Haliclona</i> sp. 11	OTU96	-	-
KBOA11211764	-	2017-01-12	Control	37	Ancorinidae sp. 1	OTU42	-	-
KBOA11211765	-	2017-01-12	Control	9	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA11211767	-	2017-01-12	Control	9	Ancorinidae sp. 1	OTU42	-	-
KBOA11211768	-	2017-01-12	Control	10	Suberitidae sp. 1	OTU68	-	-
KBOA11211769	-	2017-01-12	Control	10	Suberitidae sp. 2	OTU69	-	-
KBOA11211770	-	2017-01-12	Control	10	Poecilosclerida sp. 7	OTU62	-	-
KBOA11211771	-	2017-01-12	Control	10	Poecilosclerida sp. 7	OTU62	-	-
KBOA11211772	-	2017-01-12	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA11211773	-	2017-01-12	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA11211774	-	2017-01-12	Control	17	Ancorinidae sp. 1	OTU44	-	-
KBOA01191874	-	2018-01-19	Control	9	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA01191875	-	2018-01-19	Control	9	Haplosclerida sp. 2	OTU30	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA01191876	-	2018-01-19	Control	9	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA01191877	-	2018-01-19	Control	9	<i>Leucosolenida</i> sp. 7	OTU21	-	-
KBOA01191879	-	2018-01-19	Control	9	<i>Ircinia</i> sp. 2	OTU94	-	-
KBOA01191880	-	2018-01-19	Control	23	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA01191881	-	2018-01-19	Control	23	<i>Poecilosclerida</i> sp. 7	OTU62	-	-
KBOA01191882	-	2018-01-19	Control	23	<i>Suberitidae</i> sp. 2	OTU69	-	-
KBOA01191883	-	2018-01-19	Control	23	<i>Clathrinidae</i> sp. 4	OTU10	-	-
KBOA01191884	-	2018-01-19	Control	23	<i>Suberitidae</i> sp. 1	OTU68	-	-
KBOA01191885	-	2018-01-19	Control	10	<i>Haplosclerida</i> sp. 1	OTU29	-	-
KBOA01191886	-	2018-01-19	Control	10	<i>Clathrinidae</i> sp. 4	OTU10	-	-
KBOA01191887	-	2018-01-19	Control	10	<i>Haplosclerida</i> sp. 1	OTU29	-	-
KBOA01191888	-	2018-01-19	Control	10	<i>Suberitidae</i> sp. 1	OTU68	-	-
KBOA01191889	-	2018-01-19	Control	10	<i>Suberitidae</i> sp. 2	OTU69	-	-
KBOA01191890	-	2018-01-19	Control	10	<i>Ancorinidae</i> sp. 3	OTU44	-	-
KBOA01191891	-	2018-01-19	Control	17	<i>Oscarella</i> sp. 6	OTU104	-	-
KBOA01191892	-	2018-01-19	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA01191893	-	2018-01-19	Control	17	<i>Ancorinidae</i> sp. 2	OTU43	-	-
KBOA01191894	-	2018-01-19	Control	17	<i>Suberitidae</i> sp. 1	OTU68	-	-
KBOA01191895	-	2018-01-19	Control	17	<i>Clathrinidae</i> sp. 4	OTU10	-	-
KBOA01191896	-	2018-01-19	Control	17	<i>Oscarella</i> sp. 6	OTU104	-	-
KBOA01191897	-	2018-01-19	Control	17	<i>Clathrinidae</i> sp. 4	OTU10	-	-
KBOA01191898	-	2018-01-19	Control	37	<i>Verongimorpha</i> sp. 1	OTU89	-	-
KBOA01191899	-	2018-01-19	Control	37	<i>Ancorinidae</i> sp. 3	OTU44	-	-
KBOA011918100	-	2018-01-19	Control	26	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA011918101	-	2018-01-19	Control	26	<i>Ancorinidae</i> sp. 1	OTU42	-	-
KBOA011918102	-	2018-01-19	Control	26	<i>Tethya</i> sp. 3	OTU52	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA03161825	-	2018-03-16	Control	9	<i>Tethya</i> sp. 6	OTU55	-	no accession number but sequence available
KBOA03161826	-	2018-03-16	Control	9	<i>Hymeniacidon</i> sp. 1	OTU73	-	no accession number but sequence available
KBOA03161827	-	2018-03-16	Control	9	<i>Verongimorpha</i> sp. 1	OTU89	-	-
KBOA03161828	-	2018-03-16	Control	9	<i>Oscarella</i> sp. 5	OTU86	-	-
KBOA03161829	-	2018-03-16	Control	9	<i>Poecilosclerida</i> sp. 7	OTU62	-	-
KBOA03161830	-	2018-03-16	Control	9	<i>Ircinia</i> sp. 2	OTU94	-	MW016184
KBOA03161831	-	2018-03-16	Control	9	<i>Leucosolenida</i> sp. 2	OTU16	-	no accession number but sequence available
KBOA03161832	-	2018-03-16	Control	9	<i>Leucosolenida</i> sp. 7	OTU21	-	no accession number but sequence available
KBOA03161833	-	2018-03-16	Control	23	<i>Haplosclerida</i> sp. 2	OTU30	-	no accession number but sequence available
KBOA03161834	-	2018-03-16	Control	23	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA03161835	-	2018-03-16	Control	23	<i>Suberitidae</i> sp. 2	OTU69	-	MW016300
KBOA03161836	-	2018-03-16	Control	23	<i>Suberitidae</i> sp. 1	OTU68	-	no accession number but sequence available
KBOA03161837	-	2018-03-16	Control	17	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA03161838	-	2018-03-16	Control	17	<i>Ancorinidae</i> sp. 3	OTU44	-	no accession number but sequence available
KBOA03161839	-	2018-03-16	Control	26	<i>Ancorinidae</i> sp. 1	OTU42	-	-
KBOA03161840	-	2018-03-16	Control	26	<i>Leucosolenida</i> sp. 11	OTU1	-	no accession number but sequence available
KBOA03161841	-	2018-03-16	Control	26	<i>Tethya</i> sp. 5	OTU54	-	no accession number but sequence available
KBOA03161842	-	2018-03-16	Control	26	<i>Tethya</i> sp. 5	OTU54	-	no accession number but sequence available
KBOA03161843	-	2018-03-16	Control	26	<i>Tethya</i> sp. 5	OTU54	-	-
KBOA03161844	-	2018-03-16	Control	10	<i>Suberitidae</i> sp. 1	OTU68	-	no accession number but sequence available
KBOA03161845	-	2018-03-16	Control	10	<i>Haplosclerida</i> sp. 1	OTU29	-	no accession number but sequence available

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA03161846	-	2018-03-16	Control	10	Leucosolenida sp. 7	OTU21	-	-
KBOA03161847	-	2018-03-16	Control	10	Ancorinidae sp. 1	OTU42	-	-
KBOA03161848	-	2018-03-16	Control	10	<i>Tethya</i> sp. 5	OTU54	-	no accession number but sequence available
KBOA03161849	-	2018-03-16	Control	10	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA03161850	-	2018-03-16	Control	10	Ancorinidae sp. 1	OTU42	-	no accession number but sequence available
KBOA03161851	-	2018-03-16	Control	37	Poecilosclerida sp. 5	OTU102	-	MW016288
KBOA03161852	-	2018-03-16	Control	37	<i>Haliclona</i> sp. 11	OTU96	-	-
KBOA03161853	-	2018-03-16	Control	37	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA03161854	-	2018-03-16	Control	37	<i>Tethya</i> sp. 6	OTU55	-	MW016347
KBOA03161855	-	2018-03-16	Control	37	<i>Tethya</i> sp. 6	OTU55	-	-
KBOA03161856	-	2018-03-16	Control	37	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA03161857	-	2018-03-16	Control	37	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA061118072	-	2018-06-11	Control	9	<i>Ircinia</i> sp. 2	OTU94	MW059080	-
KBOA061118074	-	2018-06-11	Control	9	<i>Oscarella</i> sp. 3	OTU84	MW059082	-
KBOA061118075	-	2018-06-11	Control	9	<i>Oscarella</i> sp. 5	OTU86	MW144988	MW016256
KBOA061118076	-	2018-06-11	Control	9	Clathrinida sp. 1	OTU23	-	no accession number but sequence available
KBOA061118077	-	2018-06-11	Control	9	Verongimorpha sp. 1	OTU89	MW144983	MW016353
KBOA061118078	-	2018-06-11	Control	9	<i>Oscarella</i> sp. 5	OTU86	MW059085	MW016257
KBOA061118079	-	2018-06-11	Control	9	Verongimorpha sp. 1	OTU89	MW144984	MW016354
KBOA061118084	-	2018-06-11	Control	10	Poecilosclerida sp. 7	OTU621	-	-
KBOA061118085	-	2018-06-11	Control	10	Suberitidae sp. 1	OTU68	-	no accession number but sequence available
KBOA061118086	-	2018-06-11	Control	10	Suberitidae sp. 1	OTU68	-	no accession number but sequence available

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA061118090	-	2018-06-11	Control	10	Ancorinidae sp. 1	OTU42	-	MW016373
KBOA061118091	-	2018-06-11	Control	17	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA061118094	-	2018-06-11	Control	17	<i>Oscarella</i> sp. 6	OTU104	MW059088	MW016260
KBOA061118096	-	2018-06-11	Control	17	Leucosolenida sp. 7	OTU21	-	no accession number but sequence available
KBOA061118097	-	2018-06-11	Control	17	<i>Oscarella</i> sp. 6	OTU104	-	MW016261
KBOA061118098	-	2018-06-11	Control	23	<i>Oscarella</i> sp. 3	OTU84	MW059083	-
KBOA061118099	-	2018-06-11	Control	23	Ancorinidae sp. 1	OTU42	-	no accession number but sequence available
KBOA061118101	-	2018-06-11	Control	23	Leucosolenida sp. 1	OTU15	-	no accession number but sequence available
KBOA061118107	-	2018-06-11	Control	23	<i>Lissodendoryx</i> sp. 2	OTU109	MW144975	MW016228
KBOA061118109	-	2018-06-11	Control	23	<i>Oscarella</i> sp. 3	OTU84	MW059084	-
KBOA061118110	-	2018-06-11	Control	23	<i>Cladocroce</i> sp. 1	OTU97	MW059049	-
KBOA061118112	-	2018-06-11	Control	26	<i>Dysidea</i> sp. 3	OTU90	-	-
KBOA061118113	-	2018-06-11	Control	26	<i>Haliclona</i> sp. 4	OTU32	MW059063	-
KBOA061118115	-	2018-06-11	Control	26	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA061118116	-	2018-06-11	Control	26	<i>Oscarella</i> sp. 6	OTU104	-	MW016259
KBOA061118119	-	2018-06-11	Control	26	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA061118120	-	2018-06-11	Control	26	<i>Haliclona</i> sp. 1	OTU27	MW059059	-
KBOA061118122	-	2018-06-11	Control	37	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA061118123	-	2018-06-11	Control	37	<i>Oscarella</i> sp. 2	OTU83	-	MW016247
KBOA061118124	-	2018-06-11	Control	37	<i>Haliclona</i> sp. 11	OTU96	-	-
KBOA061118127	-	2018-06-11	Control	37	<i>Tethya</i> sp. 4	OTU53	MW059107	-
KBOA061118128	-	2018-06-11	Control	37	Poecilosclerida sp. 5	OTU102	MW059094	MW016289

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA061118129	-	2018-06-11	Control	37	<i>Oscarella</i> sp. 2	OTU83	-	MW016248
KBOA02131740	UF 3989	2017-02-13	Control	23	Leucosolenida sp. 13	OTU2	-	MW016203
KBOA11211766	-	2016-12-19	Control	9	Ancorinidae sp. 1	OTU42	-	-
KBOA1219161	-	2016-12-19	Heated	22	Leucosolenida sp. 11	OTU1	-	MW016199
KBOA1219162	-	2016-12-19	Heated	22	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA1219165	-	2016-12-19	Heated	8	Suberitidae sp. 1	OTU68	MW059095	-
KBOA1219167	UF 3966	2016-12-19	Heated	34	Clathrinidae sp. 1	OTU7	-	MW016086
KBOA1219169	-	2016-12-19	Heated	34	Leucosolenida sp. 10	OTU14	-	MW016196
KBOA12191610	-	2016-12-19	Heated	34	<i>Haliclona</i> sp. 3	OTU31	MW059061 no accession number but sequence available	MW016145
KBOA12191611	-	2016-12-19	Heated	34	Leucosolenida sp. 10	OTU15	-	-
KBOA12191612	-	2016-12-19	Heated	31	Leucosolenida sp. 11	OTU1	- no accession number but sequence available	no accession number but sequence available
KBOA12191613	-	2016-12-19	Heated	31	Ancorinidae sp. 3	OTU44	-	-
KBOA12191614	-	2016-12-19	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	MW059079	-
KBOA02131741	-	2017-02-13	Heated	31	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA02131742	-	2017-02-13	Heated	31	Leucosolenida sp. 11	OUT1	-	-
KBOA02131743	-	2017-02-13	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA02131744	-	2017-02-13	Heated	8	Ancorinidae sp. 1	OTU42	-	-
KBOA02131745	-	2017-02-13	Heated	8	<i>Plakina</i> sp. 1	OTU87	-	-
KBOA02131746	-	2017-02-13	Heated	8	<i>Tethya</i> sp. 2	OTU51	-	-
KBOA02131747	-	2017-02-13	Heated	3	<i>Haliclona</i> sp. 24	OTU26	-	-
KBOA02131748	-	2017-02-13	Heated	22	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA06071749	UF 3951	2017-06-07	Heated	34	<i>Halichondria</i> sp. 1	OTU78	MW059056	MW016126
KBOA08011738	UF 4041	2017-08-01	Heated	8	<i>Plakina</i> sp. 1	OTU87	-	MW016264
KBOA08011739	UF 3980	2017-08-01	Heated	8	<i>Tethya</i> sp. 2	OTU51	-	no accession number but sequence available
KBOA08011742	-	2017-08-01	Heated	31	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA08011743	-	2017-08-01	Heated	31	<i>Chelonaplysilla</i> sp. 1	OTU56	-	-
KBOA08011744	UF 4036	2017-08-01	Heated	31	<i>Oscarella</i> sp. 2	OTU83	-	MW016249
KBOA09271751	-	2017-09-27	Heated	3	Leucosolenida sp. 7	OTU21	-	no accession number but sequence available
KBOA09271752	UF 3950	2017-09-27	Heated	3	<i>Hymeniacidon</i> sp. 5	OTU77	-	MW016180
KBOA09271753	UF 3967	2017-09-27	Heated	3	Haplosclerida sp. 8	OTU38	MW143255	MW016168
KBOA09271754	UF 4037	2017-09-27	Heated	3	<i>Oscarella</i> sp. 3	OTU84	-	MW016252
KBOA09271755	UF 3971	2017-09-27	Heated	8	Ancorinidae sp. 2	OTU42	-	MW016037
KBOA09271756	-	2017-09-27	Heated	18	Chalinidae sp. 1	OTU25	-	MW016063
KBOA09271757	-	2017-09-27	Heated	18	<i>Oscarella</i> sp. 4	OTU85	-	no accession number but sequence available
KBOA09271758	-	2017-09-27	Heated	22	<i>Plakortis</i> sp. 1	OTU88	MW059092	MW016271
KBOA09271759	-	2017-09-27	Heated	22	<i>Oscarella</i> sp. 4	OTU85	-	-
KBOA09271761	-	2017-09-27	Heated	22	<i>Dysidea</i> sp. 5	OTU57	-	-
KBOA09271762	UF 3999	2017-09-27	Heated	22	Clathrinidae sp. 3	OTU9	-	MW016092
KBOA09271763	-	2017-09-27	Heated	22	Clathrinidae sp. 3	OTU9	-	MW016093
KBOA09271764	UF 3972	2017-09-27	Heated	31	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA09271765	UF 3978	2017-09-27	Heated	31	Ancorinidae sp. 5	OTU46	-	MW016047
KBOA09271766	-	2017-09-27	Heated	31	Ancorinidae sp. 3	OTU44	no accession number but sequence available	no accession number but sequence available
KBOA09271767	-	2017-09-27	Heated	31	Leucosolenida sp. 2	OTU16	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA09271768	UF 3947	2017-09-27	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA09271769	UF 4031	2017-09-27	Heated	31	<i>Poecilosclerida</i> sp. 7	OTU62	-	MW016292
KBOA09271770	-	2017-09-27	Heated	31	Clathrinidae sp. 4	OTU10	-	-
KBOA09271771	-	2017-09-27	Heated	31	<i>Chelonaplysilla</i> sp. 1	OTU56	-	-
KBOA09271772	UF 4009	2017-09-27	Heated	31	<i>Leucosolenida</i> sp. 1	OTU15	-	MW016193
KBOA09271773	UF 3977	2017-09-27	Heated	31	Ancorinidae sp. 5	OTU46	-	MW016048
KBOA09271774	UF 3942	2017-09-27	Heated	34	Suberitidae sp. 5	OTU72	MW059098	MW016308
KBOA09271775	UF 3958	2017-09-27	Heated	34	<i>Haliclona</i> sp. 3	OTU31	-	MW016144
KBOA11211726	-	2017-11-21	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA11211727	-	2017-11-21	Heated	31	<i>Oscarella</i> sp. 3	OUT84	-	-
KBOA11211728	-	2017-11-21	Heated	31	Clathrinidae sp. 4	OTU10	-	-
KBOA11211729	-	2017-11-21	Heated	31	Ancorinidae sp. 3	OTU44	-	-
KBOA11211730	-	2017-11-21	Heated	8	Chalinidae sp. 1	OUT25	-	-
KBOA11211731	-	2017-11-21	Heated	8	<i>Tethya</i> sp. 2	OTU51	-	-
KBOA11211732	-	2017-11-21	Heated	8	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA11211733	-	2017-11-21	Heated	8	<i>Poecilosclerida</i> sp. 1	OTU66	-	-
KBOA11211734	-	2017-11-21	Heated	8	Chalinidae sp. 1	OTU25	-	-
KBOA11211735	-	2017-11-21	Heated	8	<i>Leucosolenida</i> sp. 1	OTU15	-	-
KBOA11211737	-	2017-11-21	Heated	34	<i>Haliclona</i> sp. 3	OTU31	-	no accession number but sequence available
KBOA11211738	-	2017-11-21	Heated	34	<i>Chalinidae</i> sp. 1	OTU25	-	-
KBOA011918103	-	2018-01-19	Heated	34	<i>Suberitidae</i> sp. 5	OTU72	-	-
KBOA011918104	-	2018-01-19	Heated	8	<i>Tethya</i> sp. 5	OTU54	-	-
KBOA011918105	-	2018-01-19	Heated	8	<i>Suberitidae</i> sp. 1	OTU68	-	-
KBOA011918106	-	2018-01-19	Heated	8	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA011918107	-	2018-01-19	Heated	8	<i>Tethya</i> sp. 5	OTU54	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA011918109	-	2018-01-19	Heated	8	Ancorinidae sp. 3	OTU44	-	-
KBOA011918110	-	2018-01-19	Heated	18	Suberitidae sp. 1	OTU68	-	-
KBOA011918111	-	2018-01-19	Heated	18	<i>Halichondria</i> sp. 1	OTU78	-	-
KBOA011918112	-	2018-01-19	Heated	18	Poecilosclerida sp. 2	OTU67	-	-
KBOA011918113	-	2018-01-19	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA03161873	-	2018-03-16	Heated	8	Chalinidae sp. 1	OTU25	-	no accession number but sequence available
KBOA03161874	-	2018-03-16	Heated	3	<i>Hymeniacidon</i> sp. 5	OTU77	-	MW016179
KBOA03161875	-	2018-03-16	Heated	31	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA03161876	-	2018-03-16	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA03161877	-	2018-03-16	Heated	31	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA03161878	-	2018-03-16	Heated	18	<i>Tethya</i> sp. 3	OTU52	-	-
KBOA03161879	-	2018-03-16	Heated	18	Poecilosclerida sp. 2	OTU67	-	-
KBOA03161880	-	2018-03-16	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	no accession number but sequence available
KBOA03161881	-	2018-03-16	Heated	34	Dendroceratida sp. 3	OTU50	-	-
KBOA061118137	-	2018-06-11	Heated	3	<i>Mycale</i> sp. 9	OTU59	-	-
KBOA061118138	-	2018-06-11	Heated	3	Leucosolenida sp. 5	OTU19	-	-
KBOA061118140	-	2018-06-11	Heated	22	<i>Oscarella</i> sp. 4	OTU85	-	no accession number but sequence available
KBOA061118141	-	2018-06-11	Heated	22	<i>Oscarella</i> sp. 3	OTU84	-	MW016250
KBOA061118146	-	2018-06-11	Heated	22	<i>Oscarella</i> sp. 3	OTU84	-	-
KBOA061118147	-	2018-06-11	Heated	22	<i>Oscarella</i> sp. 4	OTU85	-	-
KBOA061118154	-	2018-06-11	Heated	8	<i>Plakina</i> sp. 1	OTU87	-	-
KBOA061118158	-	2018-06-11	Heated	8	<i>Tethya</i> sp. 2	OTU51	MW059104	-
KBOA061118169	-	2018-06-11	Heated	18	<i>Halichondria</i> sp. 1	OTU78	MW059057	MW016127

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA061118175	-	2018-06-11	Heated	34	Leucosolenida sp. 1	OTU1	-	no accession number but sequence available
KBOA061118178	-	2018-06-11	Heated	34	Leucosolenida sp. 22	OTU106	-	MW016215
KBOA061118179	-	2018-06-11	Heated	34	Clathrinidae sp. 3	OTU9	-	-
KBOA061118180	-	2018-06-11	Heated	34	<i>Gelliodes wilsoni</i>	OTU40	MW059054	-
KBOA061118181	-	2018-06-11	Heated	34	Haplosclerida sp. 10	OTU41	-	MW016151
KBOA061118182	-	2018-06-11	Heated	34	<i>Oscarella</i> sp. 2	OTU83		no accession number but sequence available
KBOA061118185	-	2018-06-11	Heated	34	Clathrinidae sp. 3	OTU9	-	-
KBOA061118188	-	2018-06-11	Heated	31	Ancorinidae sp. 5	OTU46	-	MW016045
KBOA061118189	-	2018-06-11	Heated	31	Ancorinidae sp. 1	OTU42	-	no accession number but sequence available
KBOA061118190	-	2018-06-11	Heated	31	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA061118196	-	2018-06-11	Heated	31	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA12191615	-	2016-12-19	Heated	3	<i>Haliclona</i> sp. 24	OTU26	MW059067 no accession number but sequence available	MW016143
KBOA12191616	-	2016-12-19	Heated	3	Ancorinidae sp. 3	OTU44	-	-
KBOA12191617	-	2016-12-19	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	PQ124964
KBOA12191618	-	2016-12-19	Acidified	39	<i>Haliclona</i> sp. 2	OTU28	MW059060	MW016139
KBOA12191619	-	2016-12-19	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	MW016134
KBOA12191620	-	2016-12-19	Acidified	39	Clathrinidae sp. 2	OTU8	-	MW016091
KBOA12191621	UF 3994	2016-12-19	Acidified	1	Leucosolenida sp. 7	OTU21	-	MW016223
KBOA12191622	-	2016-12-19	Acidified	36	<i>Haliclona</i> sp. 1	OTU27	no accession number but sequence available	no accession number but sequence available
KBOA12191623	-	2016-12-19	Acidified	36	Leucosolenida sp. 13	OTU2	-	no accession number but sequence available

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA02131728	UF 3986	2017-02-13	Acidified	1	Leucosolenida sp. 11	OTU1	-	MW016197
KBOA02131729	-	2017-02-13	Acidified	1	Haplosclerida sp. 2	OTU30	-	-
KBOA02131730	-	2017-02-13	Acidified	1	Clathrinidae sp. 5	OTU11	-	MW016097
KBOA02131731	-	2017-02-13	Acidified	39	Poecilosclerida sp. 7	OTU62	-	-
KBOA02131732	-	2017-02-13	Acidified	36	<i>Tedania cf. klausi</i>	OTU65	-	-
KBOA02131733	-	2017-02-13	Acidified	36	Leucosolenida sp. 13	OTU2	-	no accession number but sequence available
KBOA02131734	-	2017-02-13	Acidified	36	<i>Tedania cf. klausi</i>	OTU65	MW059100	MW016326
KBOA02131735	-	2017-02-13	Acidified	15	Ancorinidae sp. 5	OTU46	-	MW016042
KBOA02131737	UF 4008	2017-02-13	Acidified	1	Clathrinidae sp. 5	OTU11		no accession number but sequence available
KBOA04101722	-	2017-04-10	Acidified	15	Ancorinidae sp. 5	OTU46	-	-
KBOA04101723	-	2017-04-10	Acidified	15	Clathrinidae sp. 2	OTU8	-	-
KBOA04101724	-	2017-04-10	Acidified	39	<i>Tedania</i> sp. 1	OTU64	-	-
KBOA04101725	-	2017-04-10	Acidified	39	Poecilosclerida sp. 7	OTU62	-	-
KBOA04101727	-	2017-04-10	Acidified	25	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA06071711	UF 4000	2018-06-11	Acidified	1	Clathrinidae sp. 3	OTU9	-	no accession number but sequence available
KBOA06071712	-	2018-06-11	Acidified	1	Clathrinidae sp. 4	OTU10	-	-
KBOA06071713	-	2018-06-11	Acidified	1	Suberitidae sp. 1	OTU68	-	no accession number but sequence available
KBOA06071714	-	2018-06-11	Acidified	7	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA06071715	UF 4022	2018-06-11	Acidified	7	Leucosolenida sp. 7	OTU21		MW016221
KBOA06071716	-	2018-06-11	Acidified	15	Clathrinidae sp. 4	OTU10	-	-
KBOA06071717	-	2018-06-11	Acidified	15	Ancorinidae sp. 3	OTU44	-	MW016039
KBOA06071718	-	2018-06-11	Acidified	15	Ancorinidae sp. 3	OTU44	-	MW016041
KBOA06071719	-	2018-06-11	Acidified	39	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA06071720	UF 4032	2018-06-11	Acidified	39	<i>Tedania</i> sp. 1	OTU64	MW144979	MW016329

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA06071721	-	2018-06-11	Acidified	39	Leucosolenida sp. 2	OTU16	-	-
KBOA06071722	-	2018-06-11	Acidified	25	Ancorinidae sp. 3	OTU44	-	-
KBOA06071723	UF 3941	2018-06-11	Acidified	25	Suberitidae sp. 2	OTU69	MW144976	MW016302
KBOA06071724	-	2018-06-11	Acidified	25	<i>Tethya</i> sp. 4	OTU53	MW059106	MW016341
KBOA06071725	-	2018-06-11	Acidified	36	Ancorinidae sp. 3	OTU44	-	-
KBOA06071726	-	2018-06-11	Acidified	36	<i>Tedania</i> cf. <i>klausii</i>	OTU65	-	-
KBOA06071727	-	2018-06-11	Acidified	36	<i>Tedania</i> cf. <i>klausii</i>	OTU65	-	-
KBOA08011735	-	2017-08-01	Heated	3	Haplosclerida sp. 8	OTU38	MW059074	-
KBOA08011736	-	2017-08-01	Heated	3	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA08011737	-	2017-08-01	Heated	3	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA08011740	UF 3955	2017-08-01	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	MW016133
KBOA08011741	-	2017-08-01	Heated	18	Dendroceratida sp. 3	OTU50	MW059051	MW016107
KBOA08011750	UF 3975	2017-08-01	Acidified	15	Ancorinidae sp. 5	OTU46	-	MW016043
KBOA09271723	-	2017-09-27	Acidified	15	Ancorinidae sp. 3	OTU44	-	-
KBOA09271724	-	2017-09-27	Acidified	15	Ancorinidae sp. 5	OTU46	-	MW016044
KBOA09271726	-	2017-09-27	Acidified	15	Suberitidae sp. 1	OTU68	-	MW016299
KBOA09271727	UF 3961	2017-09-27	Acidified	15	<i>Haliclona</i> sp. 4	OTU32	-	MW016147
KBOA09271728	-	2017-09-27	Acidified	15	Clathrinidae sp. 4	OTU10	-	-
KBOA09271729	UF 3974	2017-09-27	Acidified	15	Ancorinidae sp. 3	OTU44	-	-
KBOA09271730	-	2017-09-27	Acidified	15	Clathrinidae sp. 2	OTU8	-	-
KBOA09271731	-	2017-09-27	Acidified	15	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA09271732	UF 3976	2017-09-27	Acidified	15	Ancorinidae sp. 5	OTU46	-	MW016046
KBOA09271733	-	2017-09-27	Acidified	25	<i>Tethya</i> sp. 3	OTU52	-	-
KBOA09271734	UF 4004	2017-09-27	Acidified	25	Clathrinidae sp. 4	OTU10	-	MW016095

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA09271735	UF 4003	2017-09-27	Acidified	25	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA09271736	UF 4005	2017-09-27	Acidified	25	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA09271737	-	2017-09-27	Acidified	36	Poecilosclerida sp. 7	OTU62	-	-
KBOA09271739	UF 4002	2017-09-27	Acidified	36	Clathrinidae sp. 3	OTU9	-	no accession number but sequence available
KBOA09271740	-	2017-09-27	Acidified	36	<i>Tedania cf. klausi</i>	OTU65	-	-
KBOA09271741	UF 3966	2017-09-27	Acidified	36	Haplosclerida sp. 7	OTU37	MW059073	MW016167
KBOA09271742	UF 3985	2017-09-27	Acidified	39	Chondrillida sp. 1	OTU58	-	MW016074
KBOA09271743	UF 3995	2017-09-27	Acidified	1	Leucosolenida sp. 7	OTU21	-	MW016222
KBOA09271745	-	2017-09-27	Acidified	1	Leucosolenida sp. 7	OTU21	-	no accession number but sequence available
KBOA09271746	UF 4006	2017-09-27	Acidified	1	Clathrinidae sp. 4	OTU10	-	MW016096
KBOA09271747	UF 3946	2017-09-27	Acidified	7	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA09271749	-	2017-09-27	Acidified	7	Clathrinidae sp. 4	OTU10	-	no accession number but sequence available
KBOA11211721	-	2017-11-21	Heated	3	<i>Tethya</i> sp. 5	OTU54	-	-
KBOA11211722	-	2017-11-21	Heated	3	<i>Oscarella</i> sp. 5	OTU86	-	-
KBOA11211723	-	2017-11-21	Heated	3	Ancorinidae sp. 3	OTU44	-	-
KBOA11211724	-	2017-11-21	Heated	3	<i>Hymeniacidon</i> sp. 5	OTU77	-	-
KBOA11211725	-	2017-11-21	Heated	3	Suberitidae sp. 1	OTU68	-	-
KBOA11211736	-	2017-11-21	Heated	18	Haplosclerida sp. 3	OTU33	-	-
KBOA11211739	-	2017-11-21	Heated	18	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA11211740	-	2017-11-21	Heated	18	Poecilosclerida sp. 2	OTU67	-	-
KBOA11211741	-	2017-11-21	Heated	18	<i>Halichondria</i> sp. 1	OTU78	-	-
KBOA11211762	-	2017-11-21	Acidified	25	Suberitidae sp. 1	OTU68	-	-
KBOA11211775	-	2017-11-21	Acidified	7	Tethyidae sp. 1	OTU93	-	MW016351

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA11211776	-	2017-11-21	Acidified	7	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA11211777	-	2017-11-21	Acidified	7	Clathrinidae sp. 2	OTU8	-	-
KBOA11211778	-	2017-11-21	Acidified	7	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA11211779	-	2017-11-21	Acidified	1	Suberitidae sp. 1	OTU68	-	-
KBOA11211780	-	2017-11-21	Acidified	15	Ancorinidae sp. 5	OTU46	-	-
KBOA11211781	-	2017-11-21	Acidified	15	Ancorinidae sp. 3	OTU44	-	-
KBOA11211782	-	2017-11-21	Acidified	39	<i>Chondrilla</i> sp. 1	OTU58	-	-
KBOA11211783	-	2017-11-21	Acidified	39	Leucosolenida sp. 5	OTU19	-	-
KBOA11211784	-	2017-11-21	Acidified	36	Haplosclerida sp. 7	OTU37	-	-
KBOA01191852	-	2018-01-19	Acidified	1	Clathrinidae sp. 4	OTU10	-	-
KBOA01191853	-	2018-01-19	Acidified	1	Leucosolenida sp. 7	OTU21	-	-
KBOA01191854	-	2018-01-19	Acidified	1	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA01191855	-	2018-01-19	Acidified	7	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA01191856	-	2018-01-19	Acidified	7	Suberitidae sp. 1	OTU68	-	-
KBOA01191857	-	2018-01-19	Acidified	7	Haplosclerida sp. 3	OTU33	-	-
KBOA01191858	-	2018-01-19	Acidified	7	Tethyidae sp. 1	OTU93	-	-
KBOA01191859	-	2018-01-19	Acidified	7	<i>Hymeniacidon</i> sp. 2	OTU74	-	-
KBOA01191860	-	2018-01-19	Acidified	15	Ancorinidae sp. 3	OTU44	-	-
KBOA01191861	-	2018-01-19	Acidified	15	Leucosolenida sp. 1	OTU15	-	-
KBOA01191862	-	2018-01-19	Acidified	15	Ancorinidae sp. 3	OTU44	-	-
KBOA01191863	-	2018-01-19	Acidified	15	Ancorinidae sp. 5	OTU46	-	-
KBOA01191864	-	2018-01-19	Acidified	15	Clathrinidae sp. 4	OTU10	-	-
KBOA01191865	-	2018-01-19	Acidified	25	Suberitidae sp. 1	OTU68	-	-
KBOA01191866	-	2018-01-19	Acidified	25	<i>Dysidea</i> sp. 5	OTU57	-	-
KBOA01191867	-	2018-01-19	Acidified	36	<i>Hymeniacidon</i> sp. 2	OTU74	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA01191868	-	2018-01-19	Acidified	36	Suberitidae sp. 1	OTU68	-	-
KBOA01191869	-	2018-01-19	Acidified	36	Ancorinidae sp. 1	OTU42	-	-
KBOA01191870	-	2018-01-19	Acidified	36	Haplosclerida sp. 7	OTU37	-	-
KBOA01191871	-	2018-01-19	Acidified	39	<i>Mycale</i> sp. 9	OTU59	-	-
KBOA01191872	-	2018-01-19	Acidified	39	Suberitidae sp. 1	OTU68	-	-
KBOA01191873	-	2018-01-19	Acidified	39	<i>Chondrilla</i> sp. 1	OTU58	-	-
KBOA03161858	-	2018-03-16	Acidified	1	Suberitidae sp. 1	OTU68	-	-
KBOA03161859	-	2018-03-16	Acidified	1	<i>Haliclona</i> sp. 2	OTU28	-	MW016137
KBOA03161860	-	2018-03-16	Acidified	7	Tethyidae sp. 1	OTU93	-	MW016349
KBOA03161861	-	2018-03-16	Acidified	7	<i>Haliclona</i> sp. 2	OTU28	-	no accession number but sequence available
KBOA03161862	-	2018-03-16	Acidified	7	Haplosclerida sp. 13	OTU111	-	MW016156
KBOA03161863	-	2018-03-16	Acidified	7	Clathrinidae sp. 2	OTU8	-	no accession number but sequence available
KBOA03161864	-	2018-03-16	Acidified	39	<i>Haliclona</i> sp. 1	OTU27	-	no accession number but sequence available
KBOA03161865	-	2018-03-16	Acidified	39	<i>Mycale</i> sp. 9	OTU59	-	MW016242
KBOA03161866	-	2018-03-16	Acidified	15	<i>Hymeniacidon</i> sp. 2	OTU74	-	no accession number but sequence available
KBOA03161867	-	2018-03-16	Acidified	15	Ancorinidae sp. 5	OTU46	-	no accession number but sequence available
KBOA03161868	-	2018-03-16	Acidified	36	Ancorinidae sp. 1	OTU42	-	no accession number but sequence available
KBOA03161869	-	2018-03-16	Acidified	36	Haplosclerida sp. 7	OTU37	-	-
KBOA03161870	-	2018-03-16	Acidified	36	<i>Tedania</i> cf. <i>klausii</i>	OTU65	-	-
KBOA03161871	-	2018-03-16	Acidified	25	<i>Ircinia</i> sp. 2	OTU94	-	MW016185
KBOA03161872	-	2018-03-16	Acidified	25	<i>Tethya</i> sp. 5	OTU54	-	no accession number but sequence available
KBOA061118010	-	2018-06-11	Acidified	1	Leucosolenida sp. 5	OTU19	-	-
KBOA01191868	-	2018-01-19	Acidified	36	Suberitidae sp. 1	OTU68	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA03161869	-	2018-03-16	Acidified	36	Haplosclerida sp. 7	OTU37	-	-
KBOA03161870	-	2018-03-16	Acidified	36	<i>Tedania cf. klausi</i>	OTU65	-	-
KBOA03161871	-	2018-03-16	Acidified	25	<i>Ircinia</i> sp. 2	OTU94	-	MW016185
KBOA03161872	-	2018-03-16	Acidified	25	<i>Tethya</i> sp. 5	OTU54	-	no accession number but sequence available
KBOA061118010	-	2018-06-11	Acidified	1	Leucosolenida sp. 5	OTU19	-	-
KBOA061118015	-	2018-06-11	Acidified	1	Leucosolenida sp. 1	OTU1	-	MW016198
KBOA061118016	-	2018-06-11	Acidified	1	Leucosolenida sp. 5	OTU19	-	-
KBOA061118017	-	2018-06-11	Acidified	1	Poecilosclerida sp. 4	OTU101	-	MW016286
KBOA061118018	-	2018-06-11	Acidified	15	<i>Haliclona</i> sp. 4	OTU32	-	MW059062
KBOA061118019	-	2018-06-11	Acidified	15	Ancorinidae sp. 5	OTU46	-	-
KBOA061118023	-	2018-06-11	Acidified	15	Leucosolenida sp. 18	OTU98	-	MW016207
KBOA061118026	-	2018-06-11	Acidified	7	Leucosolenida sp. 1	OTU1	-	MW016192
KBOA061118028	-	2018-06-11	Acidified	7	Clathrinida sp. 1	OTU23	-	MW016081
KBOA061118031	-	2018-06-11	Acidified	7	Leucosolenida sp. 11	OTU1	-	no accession number but sequence available
KBOA061118032	-	2018-06-11	Acidified	7	Tethyidae sp. 1	OTU93	MW144987	MW016350
KBOA061118033	-	2018-06-11	Acidified	7	Haplosclerida sp. 21	OTU103	-	MW016169
KBOA061118038	-	2018-06-11	Acidified	36	Leucosolenida sp. 9	OTU91	-	MW016225
KBOA061118039	-	2018-06-11	Acidified	36	Leucosolenida sp. 9	OTU91	-	MW016226
KBOA061118042	-	2018-06-11	Acidified	36	Haplosclerida sp. 7	OTU37	MW059072	-
KBOA061118045	-	2018-06-11	Acidified	36	Leucosolenida sp. 1	OTU1	-	no accession number but sequence available
KBOA061118049	-	2018-06-11	Acidified	39	<i>Tethya</i> sp. 4	OTU53	MW144981	-
KBOA061118050	-	2018-06-11	Acidified	39	<i>Tethya</i> sp. 2	OTU51	-	-
KBOA061118051	-	2018-06-11	Acidified	39	<i>Chondrilla</i> sp. 1	OTU58	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA061118054	-	2018-06-11	Acidified	39	<i>Ircinia</i> sp. 2	OTU94	MW144974	-
KBOA061118058	-	2018-06-11	Acidified	39	<i>Chondrilla</i> sp. 1	OTU58	MW144969	MW016073
KBOA061118062	-	2018-06-11	Acidified	25	<i>Tethya</i> sp. 2	OTU51	MW144982	
KBOA061118066	-	2018-06-11	Acidified	25	<i>Ircinia</i> sp. 2	OTU94	-	MW016186
KBOA061118067	-	2018-06-11	Acidified	25	Clathrinidae sp. 3	OTU9	-	no accession number but sequence available
KBOA061118068	-	2018-06-11	Acidified	25	Leucosolenida sp. 9	OTU91	-	no accession number but sequence available
KBOA12191624	-	2016-12-19	Acidified + Heated	16	<i>Hymeniacidon</i> sp. 1	OTU73	MW059077	MW016173
KBOA12191625	UF 3944	2016-12-19	Acidified + Heated	16	<i>Hymeniacidon</i> sp. 1	OTU73	-	no accession number but sequence available
KBOA12191626	-	2016-12-19	Acidified + Heated	16	<i>Haliclona</i> sp. 24	OTU26	-	no accession number but sequence available
KBOA12191627	-	2016-12-19	Acidified + Heated	20	Haplosclerida sp. 2	OTU30	MW059069	MW016164
KBOA12191628	UF 2990	2016-12-19	Acidified + Heated	33	Leucosolenida sp. 13	OTU2	-	no accession number but sequence available
KBOA04101713	UF 3983	2017-04-10	Acidified + Heated	6	<i>Chelonaphysilla</i> sp. 1	OTU56	-	-
KBOA04101714	-	2017-04-10	Acidified + Heated	4	Ancorinidae sp. 3	OTU44	-	no accession number but sequence available
KBOA04101715	-	2017-04-10	Acidified + Heated	4	<i>Tethya</i> sp. 3	OTU52	-	-
KBOA04101716	-	2017-04-10	Acidified + Heated	16	Poecilosclerida sp. 1	OTU66	MW059093	MW016273
KBOA04101717	-	2017-04-10	Acidified + Heated	24	<i>Aplysilla rosea</i>	OTU49	-	-
KBOA04101719	-	2017-04-10	Acidified + Heated	20	Poecilosclerida sp. 7	OTU62	-	-
KBOA04101720	-	2017-04-10	Acidified + Heated	20	Dysidea sp. 5	OTU57	-	-
KBOA04101721	-	2017-04-10	Acidified + Heated	20	Clathrinidae sp. 4	OTU10	-	-
KBOA06071710	-	2017-06-07	Acidified + Heated	4	Haplosclerida sp. 1	OTU29	MW144972	MW016149
KBOA06071737	UF 3979	2017-06-07	Acidified + Heated	21	<i>Aplysilla rosea</i>	OTU49	-	MW016050
KBOA06071738	UF 3960	2017-06-07	Acidified + Heated	33	Haplosclerida sp. 2	OTU30	MW059068	MW016162
KBOA06071739	UF 3952	2017-06-07	Acidified + Heated	4	<i>Halichondria</i> sp. 2	OTU78	-	MW016130

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA06071740	-	2017-06-07	Acidified + Heated	4	<i>Hymeniacidon</i> sp. 2	OTU74	MW143251	MW016175
KBOA06071741	UF 3981	2017-06-07	Acidified + Heated	4	<i>Tethya</i> sp. 3	OTU52	MW144980	MW016339
KBOA06071742	UF 4019	2017-06-07	Acidified + Heated	20	<i>Leucosolenida</i> sp. 5	OTU19	-	MW016220
KBOA06071743	UF 3904	2017-06-07	Acidified + Heated	20	<i>Plakina</i> sp. 1	OUT87	MW059089	MW016262
KBOA06071744	-	2017-06-07	Acidified + Heated	20	<i>Plakina</i> sp. 1	OTU 87	-	MW016264
KBOA06071745	-	2017-06-07	Acidified + Heated	20	<i>Dysidea</i> sp. 5	OTU57	-	MW016119
KBOA06071746	UF 3973	2017-06-07	Acidified + Heated	16	<i>Ancorinidae</i> sp. 3	OTU44	-	MW016040
KBOA08011719	-	2017-08-01	Acidified + Heated	4	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA08011720	-	2017-08-01	Acidified + Heated	4	<i>Poecilosclerida</i> sp. 7	OTU62	-	-
KBOA08011721	-	2017-08-01	Acidified + Heated	4	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA08011722	UF 4024	2017-08-01	Acidified + Heated	16	<i>Clathrinida</i> sp. 1	OTU23	-	MW016082
KBOA08011723	UF 4015	2017-08-01	Acidified + Heated	16	<i>Leucosolenida</i> sp. 13	OTU2	-	-
KBOA08011724	-	2017-08-01	Acidified + Heated	16	<i>Clathrinidae</i> sp. 4	OTU10	-	-
KBOA08011725	UF 4034	2017-08-01	Acidified + Heated	16	<i>Poecilosclerida</i> sp. 1	OTU66	-	MW016274
KBOA08011726	-	2017-08-01	Acidified + Heated	16	<i>Poecilosclerida</i> sp. 1	OTU66	-	-
KBOA08011727	-	2017-08-01	Acidified + Heated	16	<i>Chalinidae</i> sp. 1	OTU25	-	MW016062
KBOA08011728	UF 3963	2017-08-01	Acidified + Heated	20	<i>Haplosclerida</i> sp. 3	OTU33	-	MW016165
KBOA08011729	UF 3984	2017-08-01	Acidified + Heated	20	<i>Dysidea</i> sp. 5	OTU57	-	MW016120
KBOA08011730	-	2017-08-01	Acidified + Heated	20	<i>Plakina</i> sp. 1	OUT87	-	-
KBOA08011731	-	2017-08-01	Acidified + Heated	20	<i>Plakina</i> sp. 1	OUT87	-	-
KBOA08011732	-	2017-08-01	Acidified + Heated	20	<i>Tethya</i> sp. 3	OTU52	-	MW016340
KBOA08011733	-	2017-08-01	Acidified + Heated	20	<i>Ancorinidae</i> sp. 3	OTU44	-	-
KBOA08011734	-	2017-08-01	Acidified + Heated	24	<i>Aplysilla rosea</i>	OTU49	-	-
KBOA08011738	UF 4041	2017-08-01	Acidified + Heated	8	<i>Plakina</i> sp. 1	OTU 87	-	MW016264
KBOA08011739	UF 3980	2017-08-01	Acidified + Heated	8	<i>Tethya</i> sp. 2	OTU51	-	-
KBOA08011742	-	2017-08-01	Acidified + Heated	31	<i>Ancorinidae</i> sp. 5	OTU46	-	-

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HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA08011743	-	2017-08-01	Acidified + Heated	31	<i>Chelonaplysilla</i> sp. 1	OTU56	-	-
KBOA08011744	UF 4036	2017-08-01	Acidified + Heated	31	<i>Oscarella</i> sp. 2	OTU83	-	MW016249
KBOA09271776	-	2017-09-27	Acidified + Heated	16	Chalinidae sp. 1	OTU25	-	-
KBOA09271777	UF 3988	2017-09-27	Acidified + Heated	16	Leucosolenida sp. 13	OTU2	-	-
KBOA09271778	-	2017-09-27	Acidified + Heated	24	Clathrinidae sp. 4	OTU10	-	-
KBOA09271779	UF 4040	2017-09-27	Acidified + Heated	24	<i>Oscarella</i> sp. 5	OTU86	-	MW016258
KBOA09271780	-	2017-09-27	Acidified + Heated	24	Clathrinidae sp. 4	OTU10	-	-
KBOA09271781	-	2017-09-27	Acidified + Heated	20	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA09271782	-	2017-09-27	Acidified + Heated	20	<i>Plakina</i> sp. 1	OTU 87	-	-
KBOA09271783	UF 4025	2017-09-27	Acidified + Heated	20	Clathrinida sp. 2	OTU24	-	MW016083
KBOA09271784	UF 3969	2017-09-27	Acidified + Heated	33	Haplosclerida sp. 10	OTU41	-	MW016152
KBOA11211742	-	2017-01-12	Acidified + Heated	4	Suberitidae sp. 2	OTU69	-	-
KBOA11211743	-	2017-01-12	Acidified + Heated	4	Ancorinidae sp. 3	OTU44	-	-
KBOA11211744	-	2017-01-12	Acidified + Heated	4	<i>Tethya</i> sp. 3	OTU52	-	-
KBOA11211745	-	2017-01-12	Acidified + Heated	4	Ancorinidae sp. 3	OTU44	-	-
KBOA11211746	-	2017-01-12	Acidified + Heated	20	<i>Tethya</i> sp. 2	OTU51	-	-
KBOA11211747	-	2017-01-12	Acidified + Heated	20	Ancorinidae sp. 3	OTU44	-	-
KBOA11211748	-	2017-01-12	Acidified + Heated	20	Poecilosclerida sp. 1	OTU66	-	-
KBOA11211749	-	2017-01-12	Acidified + Heated	33	Haplosclerida sp. 2	OTU30	-	-
KBOA11211750	-	2017-01-12	Acidified + Heated	33	Clathrinidae sp. 5	OTU11	-	-
KBOA11211751	-	2017-01-12	Acidified + Heated	16	<i>Lissodendoryx</i> sp. 1	OTU95	-	-
KBOA11211752	-	2017-01-12	Acidified + Heated	16	Clathrinidae sp. 4	OTU10	-	-
KBOA11211753	-	2017-01-12	Acidified + Heated	16	Suberitidae sp. 1	OTU68	-	-
KBOA11211754	-	2017-01-12	Acidified + Heated	16	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA11211755	-	2017-01-12	Acidified + Heated	16	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA11211756	-	2017-01-12	Acidified + Heated	16	Suberitidae sp. 1	OTU68	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA11211757	-	2017-01-12	Acidified + Heated	16	Clathrinidae sp. 4	OTU10	-	-
KBOA11211758	-	2017-01-12	Acidified + Heated	16	<i>Lissodendoryx</i> sp. 1	OTU95	-	MW016227
KBOA11211759	-	2017-01-12	Acidified + Heated	16	Chalinidae sp. 1	OTU25	-	-
KBOA11211760	-	2017-01-12	Acidified + Heated	16	Clathrinidae sp. 2	OTU8	-	-
KBOA11211761	-	2017-01-12	Acidified + Heated	16	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA01191821	-	2018-01-19	Acidified + Heated	21	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA01191822	-	2018-01-19	Acidified + Heated	21	Leucosolenida sp. 9	OTU91	-	MW016224
KBOA01191823	-	2018-01-19	Acidified + Heated	21	Clathrinida sp. 1	OTU23	-	MW016080
KBOA01191824	-	2018-01-19	Acidified + Heated	21	<i>Terpios</i> sp. 1	OTU80	-	-
KBOA01191825	-	2018-01-19	Acidified + Heated	21	<i>Terpios</i> sp. 1	OTU80	-	-
KBOA01191826	-	2018-01-19	Acidified + Heated	4	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA01191827	-	2018-01-19	Acidified + Heated	4	Suberitidae sp. 2	OTU69	-	-
KBOA01191828	-	2018-01-19	Acidified + Heated	4	<i>Hymeniacidon</i> sp. 1	OTU73	-	-
KBOA01191829	-	2018-01-19	Acidified + Heated	4	Ancorinidae sp. 3	OTU44	-	-
KBOA01191830	-	2018-01-19	Acidified + Heated	16	Chalinidae sp. 1	OTU25	-	-
KBOA01191831	-	2018-01-19	Acidified + Heated	16	Suberitidae sp. 1	OTU68	-	-
KBOA01191832	-	2018-01-19	Acidified + Heated	16	Leucosolenida sp. 13	OTU2	-	-
KBOA01191833	-	2018-01-19	Acidified + Heated	16	Leucosolenida sp. 13	OTU2	-	-
KBOA01191834	-	2018-01-19	Acidified + Heated	16	Leucosolenida sp. 13	OTU2	-	-
KBOA01191835	-	2018-01-19	Acidified + Heated	16	Chalinidae sp. 1	OTU25	-	-
KBOA01191836	-	2018-01-19	Acidified + Heated	16	Poecilosclerida sp. 1	OTU66	-	-
KBOA01191837	-	2018-01-19	Acidified + Heated	16	Leucosolenida sp. 13	OTU2	-	-
KBOA01191838	-	2018-01-19	Acidified + Heated	16	<i>Haliclona</i> sp. 2	OTU28	-	-
KBOA01191839	-	2018-01-19	Acidified + Heated	20	Clathrinidae sp. 4	OTU10	-	-
KBOA01191840	-	2018-01-19	Acidified + Heated	20	Leucosolenida sp. 13	OTU2	-	-
KBOA01191841	-	2018-01-19	Acidified + Heated	20	Ancorinidae sp. 3	OTU44	-	-

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA01191842	-	2018-01-19	Acidified + Heated	20	Leucosolenida sp. 13	OTU2	-	-
KBOA01191843	-	2018-01-19	Acidified + Heated	20	Ancorinidae sp. 3	OTU44	-	-
KBOA01191844	-	2018-01-19	Acidified + Heated	24	<i>Oscarella</i> sp. 5	OTU86	-	-
KBOA01191846	-	2018-01-19	Acidified + Heated	33	Ancorinidae sp. 3	OTU44	-	-
KBOA01191847	-	2018-01-19	Acidified + Heated	33	Suberitidae sp. 1	OTU68	-	-
KBOA01191848	-	2018-01-19	Acidified + Heated	33	<i>Haliclona</i> sp. 1	OTU27	-	-
KBOA01191849	-	2018-01-19	Acidified + Heated	33	Ancorinidae sp. 3	OTU44	-	-
KBOA01191850	-	2018-01-19	Acidified + Heated	33	Ancorinidae sp. 3	OTU44	-	-
KBOA03161882	-	2018-03-16	Acidified + Heated	20	<i>Tethya</i> sp. 3	OTU52	-	-
KBOA03161883	-	2018-03-16	Acidified + Heated	20	Poecilosclerida sp. 1	OTU66	-	-
KBOA03161884	-	2018-03-16	Acidified + Heated	21	<i>Terpios</i> sp. 1	OTU80	-	MW016330
KBOA03161885	-	2018-03-16	Acidified + Heated	4	Leucosolenida sp. 10	OTU14	-	MW016194
KBOA03161886	-	2018-03-16	Acidified + Heated	16	Leucosolenida sp. 1	OTU1	-	MW016191
KBOA03161887	-	2018-03-16	Acidified + Heated	16	Clathrinidae sp. 2	OTU8	-	-
KBOA03161888	-	2018-03-16	Acidified + Heated	16	Clathrinidae sp. 3	OTU9	-	-
KBOA03161889	-	2018-03-16	Acidified + Heated	16	Clathrinidae sp. 3	OTU9	-	-
KBOA061118211	-	2018-06-11	Acidified + Heated	16	Leucosolenida sp. 1	OTU1	-	-
KBOA061118213	-	2018-06-11	Acidified + Heated	16	Leucosolenida sp. 5	OTU19	-	MW016219
KBOA061118220	-	2018-06-11	Acidified + Heated	20	Clathrinidae sp. 4	OTU10	-	-
KBOA061118221	-	2018-06-11	Acidified + Heated	20	Ancorinidae sp. 3	OTU44	-	-
KBOA061118225	-	2018-06-11	Acidified + Heated	20	Leucosolenida sp. 10	OTU14	-	-
KBOA061118230	-	2018-06-11	Acidified + Heated	21	Leucosolenida sp. 9	OTU91	-	-
KBOA061118231	-	2018-06-11	Acidified + Heated	21	Clathrinidae sp. 3	OTU9	-	-
KBOA061118234	-	2018-06-11	Acidified + Heated	21	Clathrinida sp. 1	OTU23	-	-
KBOA061118235	-	2018-06-11	Acidified + Heated	21	Leucosolenida sp. 10	OTU14	-	MW016195
KBOA061118241	-	2018-06-11	Acidified + Heated	24	<i>Oscarella</i> sp. 5	OTU86	-	MW059086

Table S1 continued

HIMB voucher	UF voucher	Sampling date	Treatment	ARMS Unit	Species	OTU	COI acc no. / or seq available	28S rRNA acc no. / or seq available
KBOA061118242	-	2018-06-11	Acidified + Heated	24	<i>Oscarella</i> sp. 5	OTU86	-	MW059087

Table S2. Taxonomy of sponge OTUs based on COI and 28S rRNA sequence identity. Tables was adapted from Table S5 in Vicente et al. 2022

OTU	Phylum	Class	Subclass	Order	Suborder	Family	Genus	Species (from Vicente et al., 2022)	Species recently updated
OTU25	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae		Chalinidae sp. 1	-
OTU26	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 24	-
OTU27	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 1	Haliclona (Reniera) kahoe (Vicente et al., 2025)
OTU28	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 2	Haliclona (Reniera) laubenfelsi (Bettcher et al., 2024)
OTU29	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 1	-
OTU30	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 2	-
OTU31	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 3	-
OTU32	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 4	-
OTU33	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 3	-
OTU35	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Callyspongiidae	Callyspongia	Callyspongia sp. 1	-
OTU37	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 7	-
OTU38	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 8	Haliclona (Rhizoniera) pahua (Vicente et al. 2025)
OTU40	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Niphatidae	Gelliodes	Gelliodes wilsoni	Gelliodes conulosa (Vicente et al. 2025)
OTU41	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 10	-
OTU96	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Haliclona	Haliclona sp. 11	Haliclona (Gellius) loe (Vicente et al., 2025)
OTU97	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida		Chalinidae	Cladocroce	Cladocroce sp. 1	-
OTU103	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 21	-
OTU59	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Mycalidae	Mycale	Mycale sp. 9	-
OTU60	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Mycalidae	Mycale	Mycale sp. 10	-
OTU62	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 7	-
OTU64	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Tedanidae	Tedania	Tedania sp. 1	-
OTU65	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Tedanidae	Tedania	Tedania cf. klausii	-
OTU66	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 1	-

Table S2 continued

OTU	Phylum	Class	Subclass	Order	Suborder	Family	Genus	Species (from Vicente et al., 2022)	Species recently updated
OTU67	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 2	-
OTU95	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Coelosphaeridae	Lissodendoryx	Lissodendoryx sp. 1	-
OTU101	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 4	-
OTU102	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 5	-
OTU109	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Coelosphaeridae	Lissodendoryx	Lissodendoryx sp. 2	-
OTU112	Porifera	Demospongiae	Heteroscleromorpha	Suberitida				Suberitida sp. 3	-
OTU68	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae		Suberitidae sp. 1	-
OTU69	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae		Suberitidae sp. 2	-
OTU70	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae		Suberitidae sp. 3	-
OTU71	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae		Suberitidae sp. 4	-
OTU72	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae		Suberitidae sp. 5	-
OTU73	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Halichondriidae	Hymeniacidon	Hymeniacidon sp. 1	-
OTU74	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Halichondriidae	Hymeniacidon	Hymeniacidon sp. 2	-
OTU77	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Halichondriidae	Hymeniacidon	Hymeniacidon sp. 5	-
OTU78	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Halichondriidae	Halichondria	Halichondria sp. 1	-
OTU79	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Halichondriidae	Halichondria	Halichondria sp. 2	-
OTU66	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 1	-
OTU67	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida				Poecilosclerida sp. 2	-
OTU95	Porifera	Demospongiae	Heteroscleromorpha	Poecilosclerida		Coelosphaeridae	Lissodendoryx	Lissodendoryx sp. 1	-
OTU80	Porifera	Demospongiae	Heteroscleromorpha	Suberitida		Suberitidae	Terpios	Terpios sp. 1	-
OTU42	Porifera	Demospongiae	Heteroscleromorpha	Tetractinellida	Astrophorina	Ancorinidae		Ancorinidae sp. 1	Stelletta kela (Nunley et al., 2025)
OTU44	Porifera	Demospongiae	Heteroscleromorpha	Tetractinellida	Astrophorina	Ancorinidae		Ancorinidae sp. 3	Stelletta hokunalohia (Nunley et al., 2025)
OTU46	Porifera	Demospongiae	Heteroscleromorpha	Tetractinellida	Astrophorina	Ancorinidae		Ancorinidae sp. 5	Stelletta kuhapa (Nunley et al., 2025)
OTU93	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae		Tethyidae sp. 1	-

Table S2 continued

OTU	Phylum	Class	Subclass	Order	Suborder	Family	Genus	Species (from Vicente et al., 2022)	Species recently updated
OTU51	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae	Tethya	Tethya sp. 2	-
OTU52	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae	Tethya	Tethya sp. 3	-
OTU53	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae	Tethya	Tethya sp. 4	-
OTU54	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae	Tethya	Tethya sp. 5	-
OTU55	Porifera	Demospongiae	Heteroscleromorpha	Tethyida		Tethyidae	Tethya	Tethya sp. 6	-
OTU50	Porifera	Demospongiae	Keratosa	Dendroceratida				Dendroceratida sp. 3	-
OTU57	Porifera	Demospongiae	Keratosa	Dictyoceratida		Dysideidae	Dysidea	Dysidea sp. 5	-
OTU90	Porifera	Demospongiae	Keratosa	Dictyoceratida		Dysideidae	Dysidea	Dysidea sp. 3	-
OTU94	Porifera	Demospongiae	Keratosa	Dictyoceratida		Irciniidae	Ircinia	Ircinia sp. 2	-
OTU49	Porifera	Demospongiae	Keratosa	Dendroceratida		Darwinellidae	Aplysilla	Aplysilla rosea	-
OTU56	Porifera	Demospongiae	Keratosa	Dendroceratida		Darwinellidae	Chelonaplysilla	Chelonaplysilla sp. 1	-
OTU58	Porifera	Demospongiae	Verongimorpha	Chondrillida				Chondrillida sp. 1	-
OTU89	Porifera	Demospongiae	Verongimorpha					Verongimorpha sp. 1	-
OTU15	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 1	-
OTU16	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 2	-
OTU17	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 3	-
OTU19	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 5	-
OTU21	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 7	-
OTU91	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 9	-
OTU14	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 10	-
OTU1	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 11	-
OTU2	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 13	-
OTU3	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 14	-
OTU98	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 18	-
OTU106	Porifera	Calcarea	Calcaronea	Leucosolenida				Leucosolenida sp. 22	-

Table S2 continued

OTU	Phylum	Class	Subclass	Order	Suborder	Family	Genus	Species (from Vicente et al., 2022)	Species recently updated
OTU7	Porifera	Calcarea	Calcinea	Clathrinida		Clathrinidae		Clathrinidae sp. 1	-
OTU8	Porifera	Calcarea	Calcinea	Clathrinida		Clathrinidae		Clathrinidae sp. 2	-
OTU9	Porifera	Calcarea	Calcinea	Clathrinida		Clathrinidae		Clathrinidae sp. 3	-
OTU10	Porifera	Calcarea	Calcinea	Clathrinida		Clathrinidae		Clathrinidae sp. 4	-
OTU11	Porifera	Calcarea	Calcinea	Clathrinida		Clathrinidae		Clathrinidae sp. 5	-
OTU23	Porifera	Calcarea	Calcinea	Clathrinida				Clathrinida sp. 1	-
OTU24	Porifera	Calcarea	Calcinea	Clathrinida				Clathrinida sp. 2	-
OTU82	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 1	-
OTU83	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 2	-
OTU84	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 3	-
OTU85	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 4	-
OTU86	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 5	-
OTU87	Porifera	Homoscleromorpha		Homosclerophorida		Plakinidae	Plakina	Plakina sp. 1	-
OTU88	Porifera	Homoscleromorpha		Homosclerophorida		Plakinidae	Plakortis	Plakortis sp. 1	-
OTU104	Porifera	Homoscleromorpha		Homosclerophorida		Oscarellidae	Oscarella	Oscarella sp. 6	-
OTU204	Porifera	Demospongiae	Heteroscleromorpha	Haplosclerida				Haplosclerida sp. 20	-

Table S3. Permutational Analysis of Variance (PERMANOVA) and pairwise PERMANOVA based on Bray-Curtis distances among sponge communities between treatments. PERMANOVAs were also performed for communities within treatments separated by pH and temperature as independent factors.

PERMANOVA	Pairwise comparison	Df	SS	R2	F value	p-value
Temperature	-	1	0.2588	0.0986	2.6762	0.0010
pH	-	1	0.1618	0.0616	1.6736	0.0180
Temperature*pH	-	1	0.1884	0.0718	1.9484	0.0030
Temperature*pH (Header)	-	4	0.4695	0.1788	1.2137	0.1109
Treatments	-	3	0.6091	0.2319	2.0994	0.0010
Treatments (Header)	-	4	0.4695	0.1788	1.2137	0.0809
Residuals	-	16	1.5473	0.5893	-	-
Total	-	23	2.6258	1.0000	-	-
	Control-Acidified	-	-	0.1345	1.5536	0.0910
	Control-Heated	-	-	0.1670	2.0049	0.0300
	Control-Acified+Heated	-	-	0.2034	2.5540	0.0140
	Control-Heated Acidified-	-	-	0.1406	1.6355	0.0300
	Acidified+Heated	-	-	0.1989	2.4824	0.0060
	Heated- Acidified+Heated	-	-	0.1604	1.9111	0.0140

Table S4. Permutational Analysis of Multivariate Dispersion (PERMDISP) based on Bray-Curtis distances between treatments. Degrees of freedom (DF), sum of squares (SS). Significance is based on $p < 0.05$.

PERMADISP	Pairwise comparison	Df	SS	R2	F value	p-value
Treatments	-	3	0.0011	0.0004	0.1725	0.9137
Residuals	-	20	0.0444	0.0022	-	-
-	Control-Acidified	-	-	-	2.0546	0.1770
-	Ambient-Heated	-	-	-	0.2753	0.6190
-	Ambient-Acified+Heated	-	-	-	2.3453	0.1550
-	Acidified-Heated	-	-	-	2.7512	0.1170
-	Acidified-Acidified-Heated	-	-	-	0.0118	0.8700
-	Acidified+Heated	-	-	-	2.9661	0.0900
pH	-	1	-	-	3.0281	0.0950
Residuals	-	22	-	-	-	-
Temperature	-	1	-	-	0.4263	0.5390
Residuals	-	22	-	-	-	-

Table S5: A two-way ANOVA on the effects of elevated temperature (T), acidification (pH) and their interaction (T x pH) on sponge abundance.

Sponge groups	Factors	Df	SS	MS	F	Pr(>F)
All Porifera	pH	1	6868.17	6868.17	2.93	0.1063
	T	1	4428.17	4428.17	1.89	0.1883
	T x pH	1	1120.67	1120.67	0.48	0.4993
	T*pH (Header)	4	38950.33	9737.58	4.15	<0.0010
	residuals	16	37516	2344.75	-	-
Demospongiae	pH	1	816.67	816.67	0.43	0.5218
	T	1	3552.67	3552.67	1.87	0.1908
	T x pH	1	962.67	962.67	0.51	0.4872
	T*pH (Header)	4	28138.00	7034.50	3.70	0.0258
	residuals	16	30453.33	1903.33	-	-
Calcarea	pH	1	26.04	26.04	0.05	0.8266
	T	1	513.38	513.38	0.98	0.3374
	T x pH	1	5.04	5.04	0.01	0.9231
	T*pH (Header)	4	7695.50	1923.88	3.67	0.0265
	residuals	16	8398.00	524.88	-	-
Homoscleromorpha	pH	1	31.2867	31.2867	20.4404	<0.0010
	T	1	3.7523	3.7523	2.4515	0.1370
	T x pH	1	0.9653	0.9653	0.6307	0.4387
	T*pH (Header)	4	0.9578	0.2395	0.1564	0.9572
	residuals	16	24.4901	1.5306	-	-
Keratosa	pH	1	121.50	121.50	0.72	0.4092
	T	1	1944.00	1944.00	11.49	0.0037
	T x pH	1	130.67	130.67	0.77	0.3925
	T*pH (Header)	4	169.00	42.25	0.25	0.9056
	residuals	16	2706.67	169.17	NA	NA
Suberitida	pH	1	7.04	7.04	0.01	0.9186
	T	1	222.04	222.04	0.34	0.5680
	T x pH	1	40.04	40.04	0.06	0.8076
	T*pH (Header)	4	7987.50	1996.88	3.06	0.0476
	residuals	16	10454.00	653.38	-	-

Table S5 continued

Sponge groups	Factors	Df	SS	MS	F	Pr(>F)
Poecilosclerida	pH	1	2.67	2.67	0.00	0.9478
	T	1	888.17	888.17	1.47	0.2424
	T x pH	1	726.00	726.00	1.20	0.2887
	T*pH (Header)	4	1595.00	398.75	0.66	0.6277
	residuals	16	9644.67	602.79	-	-
Haplosclerida	pH	1	504.17	504.17	1.50	0.2384
	T	1	2480.67	2480.67	7.38	0.0152
	T x pH	1	140.17	140.17	0.42	0.5276
	T*pH (Header)	4	615.00	153.75	0.46	0.7658
	residuals	16	5378.00	336.13	-	-
Poecilosclerida	pH	1	2.67	2.67	0.00	0.9478
	T	1	888.17	888.17	1.47	0.2424
	T x pH	1	726.00	726.00	1.20	0.2887
	T*pH (Header)	4	1595.00	398.75	0.66	0.6277
	residuals	16	9644.67	602.79	-	-
Tetractinellida	pH	1	630.37	630.37	1.00	0.3314
	T	1	442.04	442.04	0.70	0.4139
	T x pH	1	145.04	145.04	0.23	0.6374
	T*pH (Header)	4	1340.50	335.13	0.53	0.7131
	residuals	16	10050.00	628.13	-	-
Tethyida	pH	1	315.37	315.37	2.11	0.1659
	T	1	301.04	301.04	2.01	0.1752
	T x pH	1	247.04	247.04	1.65	0.2171
	T*pH (Header)	4	2177.50	544.38	3.64	0.0272
	residuals	16	2394.00	149.63	-	-

Table S6: Mean abundance of sponges separated by most abundant sponge groups in present and future temperature and pH conditions. Mean values are reported as mean $\pm$ SE.

Classification	Temperautre		pH	
	Present	Future	Present	Future
Calcarea	131.4 $\pm$ 8.8	122.2 $\pm$ 6.7	125.8 $\pm$ 9.0	127.8 $\pm$ 6.6
Demospongiae	228.5 $\pm$ 10.8	204.2 $\pm$ 18.4	222.2 $\pm$ 15.1	210.5 $\pm$ 15.88
Homoscleromorpha	11.0 $\pm$ 4.7	17.4 $\pm$ 5.4	24.3 $\pm$ 5.2	4.2 $\pm$ 2.8
Keratos	8.1 $\pm$ 3.2	26.1 $\pm$ 3.7	19.3 $\pm$ 4.38	14.8 $\pm$ 4.3
Suberitida	70.9 $\pm$ 7.7	64.8 $\pm$ 9.0	67.3 $\pm$ 5.2	68.4 $\pm$ 10.0
Haplosclerida	64.7 $\pm$ 4.9	44.3 $\pm$ 5.1	49.9 $\pm$ 6.6	59.1 $\pm$ 4.6
Poecilosclerida	42.3 $\pm$ 7.8	30.2 $\pm$ 5.4	35.9 $\pm$ 7.4	36.6 $\pm$ 6.5
Tetractinellida	34.8 $\pm$ 7.4	26.2 $\pm$ 6.1	35.6 $\pm$ 6.6	25.3 $\pm$ 6.8
Tethyida	5.4 $\pm$ 1.7	12.5 $\pm$ 6	12.6 $\pm$ 6.0	5.3 $\pm$ 1.7

Additional References

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