1024 Figure S1:

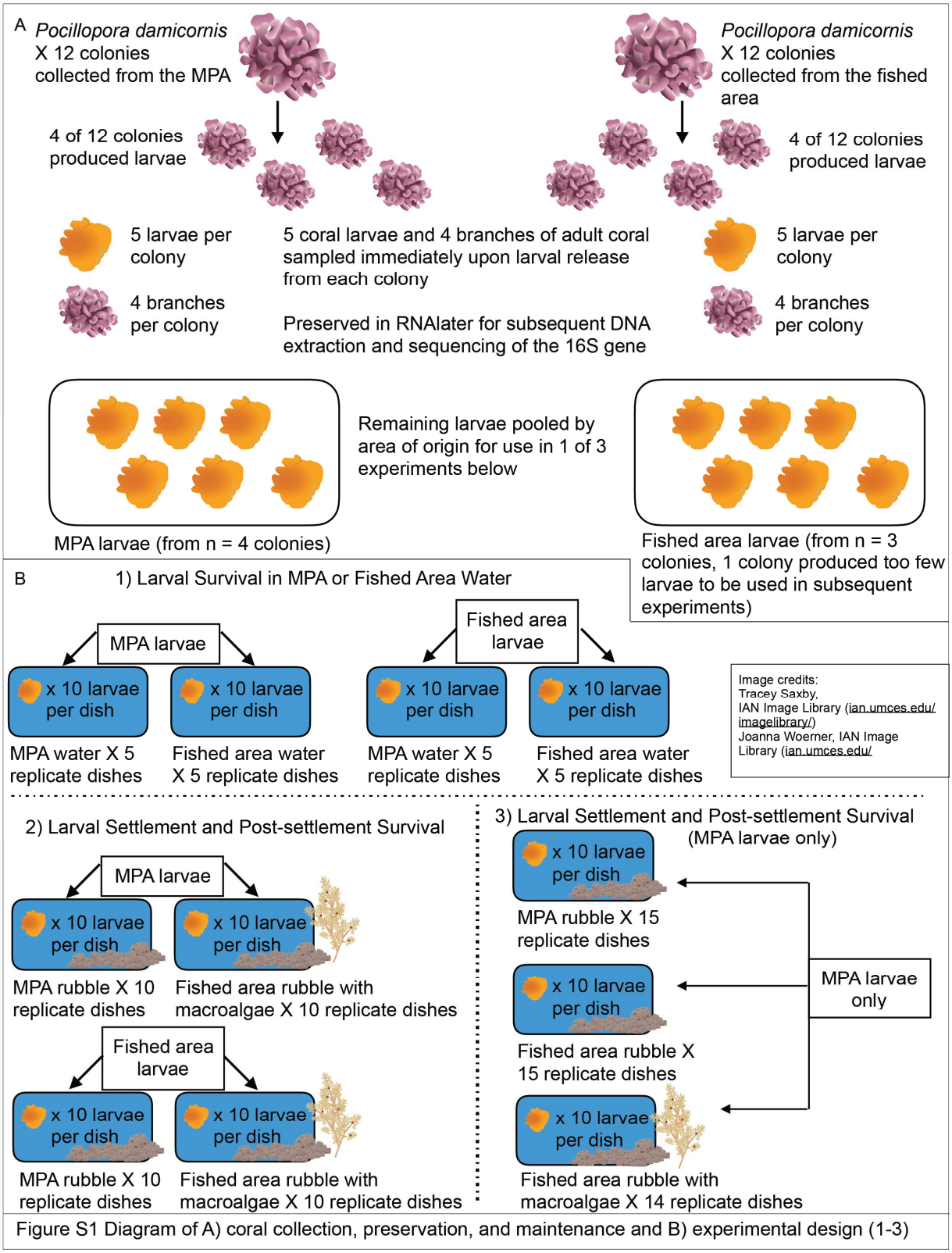

Figure S1 Diagram of A) coral collection, preservation, and maintenance and B) experimental design (1-3)

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1026 Figure S2:

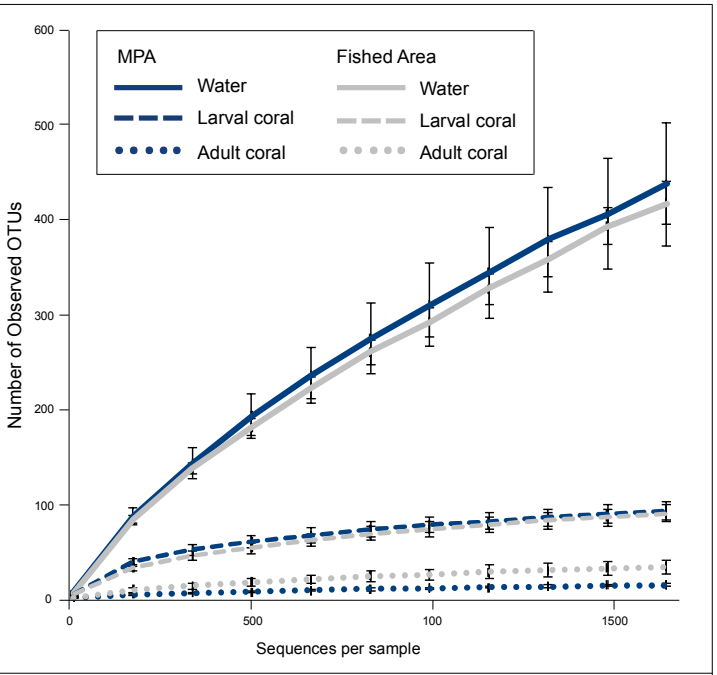

Figure S2 Rarefaction curves for water, larval coral, and adult coral samples (mean +/- standard error).

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1040 Figure S3:

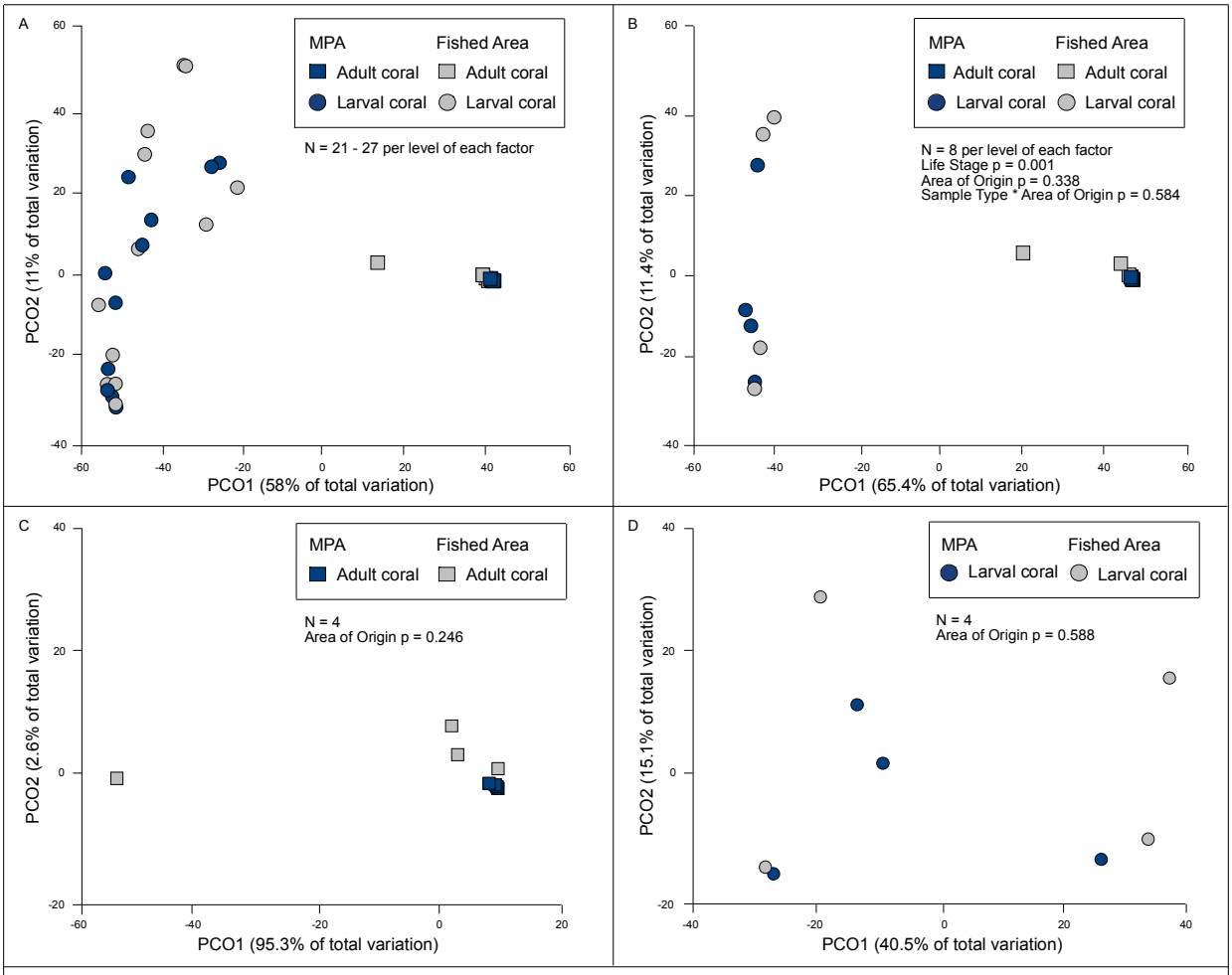

Figure S3 PCO of Bray Curtis dissimilarity matrix of coral larvae and adults from the MPA and fished area
A) PCO includes all subsamples before collapsing subsamples to generate a mean community composition for each replicate (coral colony) for adults and larvae. PCO and PERMANOVA analysis after collapsing subsamples on the mean for each replicate (coral colony) for adults and larvae (B), adults only (C), and larvae only (D).

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1043 Table 1:

Table 1. Repeated measures ANOVA on A) square root transformed settlement of larvae (originating from the MPA or fished area) on substrate from the MPA (no macroalgae) or fished area with macroalgae and B) survival of recently settled juvenile corals over 26 days on the reef. Juveniles that settled on MPA substrate were out-planted to the MPA and juveniles that settled on the fished area substrate were out-planted to the fished area.

A Source	DF	F Ratio	P
Larval Area of Origin	1	15.75	< 0.001
Substrate Type	1	5.95	0.020
Time	1	31.62	< 0.001
Larval Area of Origin*Substrate Type	1	2.10	0.156
Larval Area of Origin*Time	1	14.26	< 0.001
Substrate Type*Time	1	7.40	0.010
Larval Area of Origin*Substrate Type*Time	1	3.72	0.062

B Source	DF	F Ratio	P
Larval Area of Origin	1	8.16	0.007
Substrate Out-plant Treatment	1	46.39	< 0.001
Time	2	446.69	< 0.001
Larval Area of Origin*Substrate Out-plant Treatment	1	0.77	0.387
Larval Area of Origin*Time	2	4.67	0.013
Substrate Out-plant Treatment*Time	2	22.53	< 0.001
Larval Area of Origin*Substrate Out-plant Treatment*Time	2	1.15	0.322

Table S1:

Table S1 PERMDISPERSION distance from centroid means and pairwise comparison permutation p values

	Mean distance from centroid	Standard error
MPA adult	2.426	0.327
Fished area adult	22.453	7.065
MPA larvae	36.181	2.214
Fished area larvae	40.614	1.084

Pairwise comparisons

Group 1	Group 2	p(perm)
MPA adult	Fished area adult	0.037
MPA adult	MPA larvae	0.026
MPA adult	Fished area larvae	0.015
MPA larvae	Fished area adult	0.247
MPA larvae	Fished area larvae	0.083
Fished area adult	Fished area larvae	0.179

1053 Table S2:

Table S2A Fold Changes in Relative Abundances
In bold type font are taxa that significantly differ between adults and larvae
* taxa contributes to less than 2% of the community
** classified up to order
*** only present in coral larvae

A. Taxa enriched in adult coral	Average relative proportion abundance in adult corals (MPA + fished area adults)	Average relative proportion abundance in coral larvae (MPA + fished area larvae)	Fold change in relative proportion abundance (adult/larvae)
Endozoicimonaceae	0.90202	0.06656	12.55
Pseudoalteromonadaceae	0.01092	0.00231	3.73
Alteromonadaceae	0.04658	0.02022	1.30

B. Taxa enriched in coral larvae	Average relative proportion abundance in coral larvae (MPA + fished area larvae)	Average relative proportion abundance in adult coral (MPA + fished area adults)	Fold change in relative proportion abundance (larvae/adults)
Helicobacteraceae	0.01953	0.00008	243.13
Methylobacteriaceae	0.02044	0.00014	145.00
Thiohalorhabdaceae	0.01708	0.00013	130.38
Comamonadaceae	0.01783	0.00015	117.87
Low abundance archaea*	0.02087	0.00023	89.74
Sphingomonadaceae	0.02270	0.00033	67.79
Chromatiales**	0.35638	0.00595	58.90
Pseudomonadaceae	0.08598	0.00147	57.49
Moraxellaceae	0.06503	0.00270	23.09
Oceanospirillaceae	0.02707	0.00127	20.31
Low abundance bacteria*	0.22581	0.02555	7.84
Unassigned taxa	0.01331	0.00249	4.35
Bacillaceae***	0.01887	0.00000	

C. Taxa enriched in MPA corals	Average relative proportion abundance in MPA corals (adults & larvae)	Average relative proportion abundance fished area coral (adults & larvae)	Fold change in relative proportion abundance (MPA/fished area)
Oceanospirillaceae	0.02386	0.00448	4.33
Unassigned taxa	0.01211	0.00369	2.28
Thiohalorhabdaceae	0.01263	0.00458	1.76
Comamonadaceae	0.01140	0.00658	0.73
Methylobacteriaceae	0.01211	0.00847	0.43
Helicobacteraceae	0.01124	0.00836	0.34
Low abundance archaea*	0.01201	0.00909	0.32
Chromatiales**	0.20548	0.15684	0.31
Endozoicimonaceae	0.49837	0.47021	0.06

D. Taxa enriched in fished area corals	Average relative proportion abundance in MPA corals (adults & larvae)	Average relative proportion abundance fished area coral (adults & larvae)	Fold change in relative proportion abundance (MPA/fished area)
Bacillaceae***	0.01870	0.00017	109.00
Pseudoalteromonadaceae	0.01284	0.00039	31.92
Alteromonadaceae	0.05239	0.01441	2.64
Sphingomonadaceae	0.01674	0.00629	1.66
Moraxellaceae	0.04155	0.02618	0.59
Pseudomonadaceae	0.05182	0.03563	0.45
Low abundance bacteria*	0.13365	0.11771	0.14

Table S2B Two-Factor ANOVA or permutation ANOVA p values
In bold type font are taxa that significantly differ between adults and larvae ($p < 0.004$ for statistical significance with Bonferroni correction for multiple comparisons).
Permutation ANOVA p values are provided for taxa that are not homoscedastic. Taxa that are not homoscedastic are in italics.

	Area of origin	Life stage	Area of origin * Life stage
Low Abundance Archaea	0.8431	**0.0018**	0.6863
Low Abundance Bacteria	0.6667	**0.0006**	0.9020
Unassigned	0.5102	0.1901	0.0727
Bacillaceae	0.3220	0.3140	0.3220
Methylobacteriaceae	0.6230	**0.0010**	0.6429
Sphingomonadaceae	0.2927	**0.0002**	0.2508
Comamonadaceae	0.5389	0.0386	0.5142
Helicobacteraceae	0.6154	**0.0024**	0.5811
Alteromonadaceae	0.3820	0.5400	0.2160
Chromatiales	0.3438	**0.0004**	0.3223
Endozoicimonaceae	0.7220	**<0.0001**	0.1130
Moraxellaceae	0.3300	0.0042	0.7255
Pseudomonadaceae	0.5102	**0.0026**	0.6545
Oceanospirillaceae	0.3380	0.209	0.3060
Thiohalorhabdaceae	0.1343	0.0040	0.0808
Pseudoalteromonadaceae	0.164	0.325	0.3

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Table S3:

Table S3A One-Factor (area of origin) ANOVA or permutation ANOVA p values for adult coral

Permutation ANOVA p values are provided for taxa that are not homoscedastic. Taxa that are not homoscedastic are in italics.

	Area of origin
Low Abundance Archaea	0.537
Low Abundance Bacteria	0.243
Unassigned	0.153
Bacillaceae	Not present in adult coral
Methylobacteriaceae	0.246
Sphingomonadaceae	0.143
Comamonadaceae	0.356
Helicobacteraceae	0.356
Alteromonadaceae	0.293
Chromatiales	0.348
Endozoicimonaceae	0.265
Moraxellaceae	0.315
Pseudomonadaceae	0.344
Oceanospirillaceae	0.104
Thiohalorhabdaceae	0.237
Pseudoalteromonadaceae	0.239

Table S3B One-Factor (area of origin) ANOVA or permutation ANOVA p values for larval coral

Permutation ANOVA p values are provided for taxa that are not homoscedastic. Taxa that are not homoscedastic are in italics.

	Area of origin
Low Abundance Archaea	0.634
Low Abundance Bacteria	0.835
Unassigned	0.141
Bacillaceae	0.342
Methylobacteriaceae	0.57
Sphingomonadaceae	0.266
Comamonadaceae	0.538
Helicobacteraceae	0.576
Alteromonadaceae	0.501
Chromatiales	0.439
Endozoicimonaceae	0.255
Moraxellaceae	0.534
Pseudomonadaceae	0.614
Oceanospirillaceae	0.341
Thiohalorhabdaceae	0.159
Pseudoalteromonadaceae	0.339

1065 Table S4:

Table S4 Relative Abundances of Vibrionaceae				
Relative abundance (%) of *Vibrio shilonii* in adults and larvae at time point of larval release				
	MPA adult	MPA larvae	Fished area adult	Fished area larvae
mean	0.00	0.00	0.15	0.02
standard error	0.00	0.00	0.07	0.01
Relative abundance (%) of *Vibrio shilonii* in water collected from the MPA or fished area				
	MPA water	Fished area water		
mean	0.32	0.53		
standard error	0.12	0.14		
Relative abundance (%) of *Vibrio shilonii* in larvae maintained in MPA or fished area water for six days				
	MPA larvae maintained in MPA water	MPA Larvae maintained in fished area water	Fished area larvae maintained in MPA water	Fished area larvae maintained in fished area water
mean	0.00	0.01	4.16	0.28
standard error	0.00	0.01	4.14	0.17
Relative abundance (%) of *Vibrionaceae* in adults and larvae at time point of larval release				
	MPA adult	MPA larvae	Fished area adult	Fished area larvae
mean	0.00	0.13	0.29	1.33
standard error	0.00	0.13	0.15	0.64
Relative abundance (%) of *Vibrionaceae* in water collected from the MPA or fished area				
	MPA water	Fished area water		
mean	2.08	0.93		
standard error	0.66	0.39		
Relative abundance (%) of *Vibrionaceae* in larvae maintained in MPA or fished area water for six days				
	MPA larvae maintained in MPA water	MPA Larvae maintained in fished area water	Fished area larvae maintained in MPA water	Fished area larvae maintained in fished area water
mean	0.75	0.51	4.37	1.65
standard error	0.66	0.46	4.30	0.89

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