

Supplementary Material

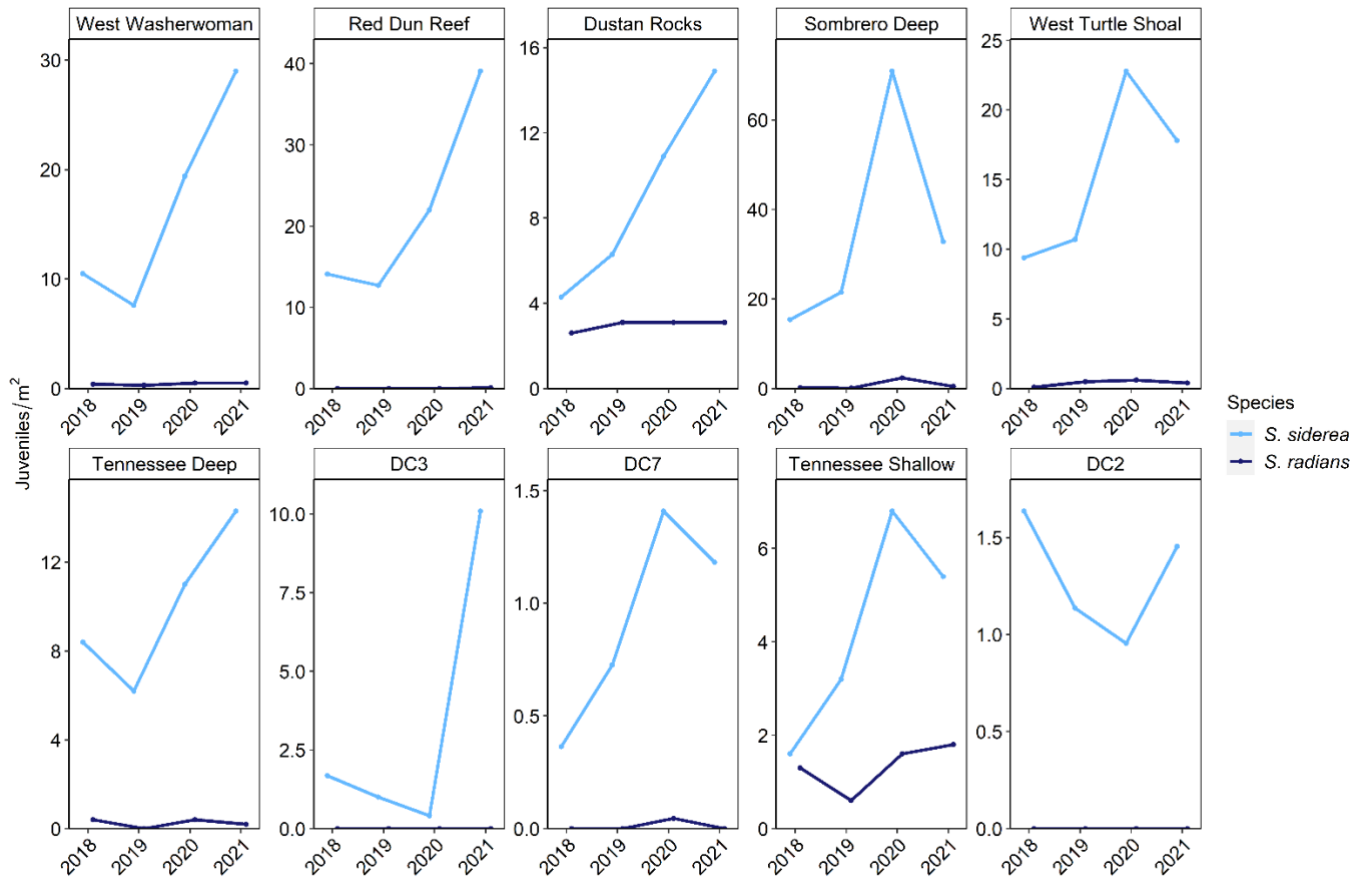


Figure S1: Juvenile densities recorded *in situ* by site during CREMP and SECREMP surveys following the recruitment boom from 2018–2021. The sites shown here are those with the ten highest siderastroid recruitment density observed on settlement tiles in 2018, organized from left to right by 2018 siderastroid recruit density on tiles (West Washerwoman was the highest-density site in the study and DC2 was the 10th-highest-density site).

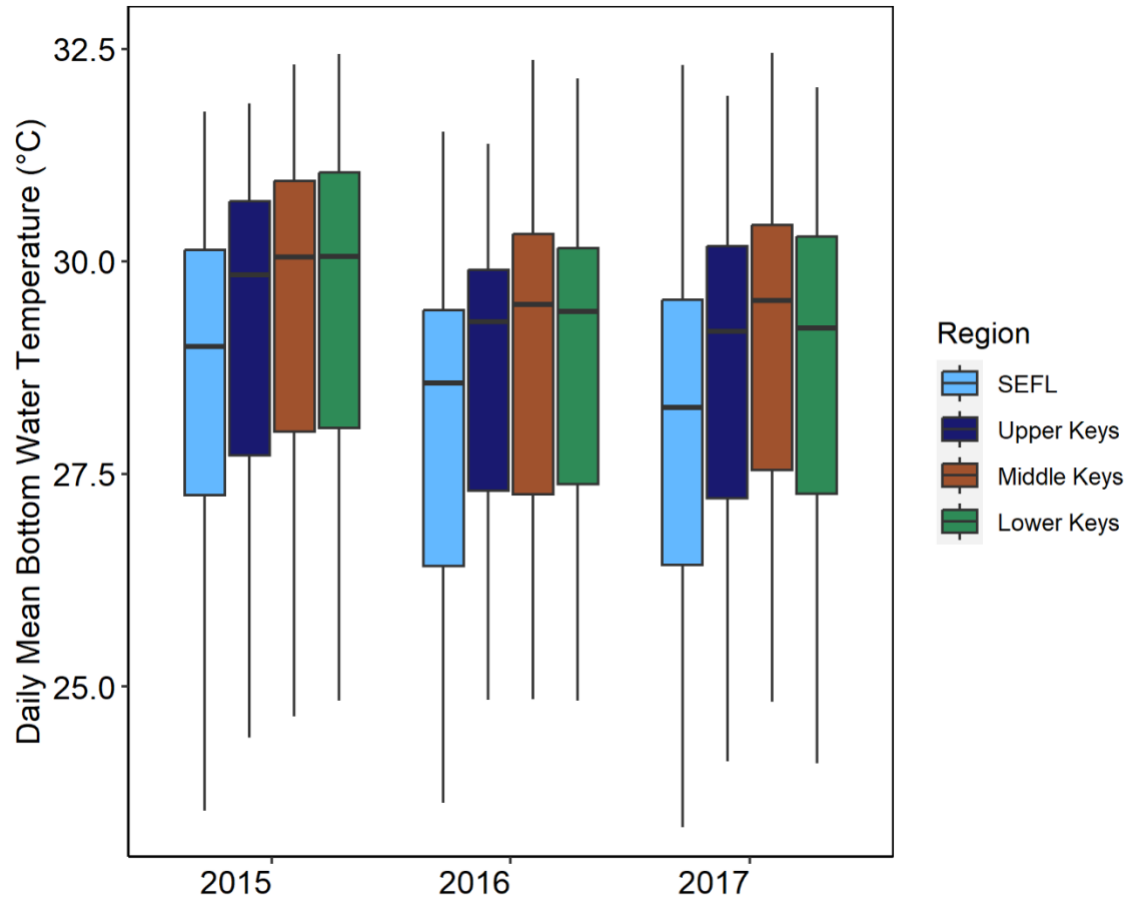


Figure S2. Daily mean bottom water temperatures (°C) at 30 sites within 4 regions of the Florida Reef Tract from the spring through summer (April – Sept, $n = 183$ d) during each yr of 2015-2017, preceding annual settlement tile retrieval in 2016-2018. Boxplots show mean daily temperatures at each site, and display the median (horizontal line), the first and third quartiles (interquartile range [IQR]), $1.5 \times$ IQR (whiskers), and outliers (black dots).

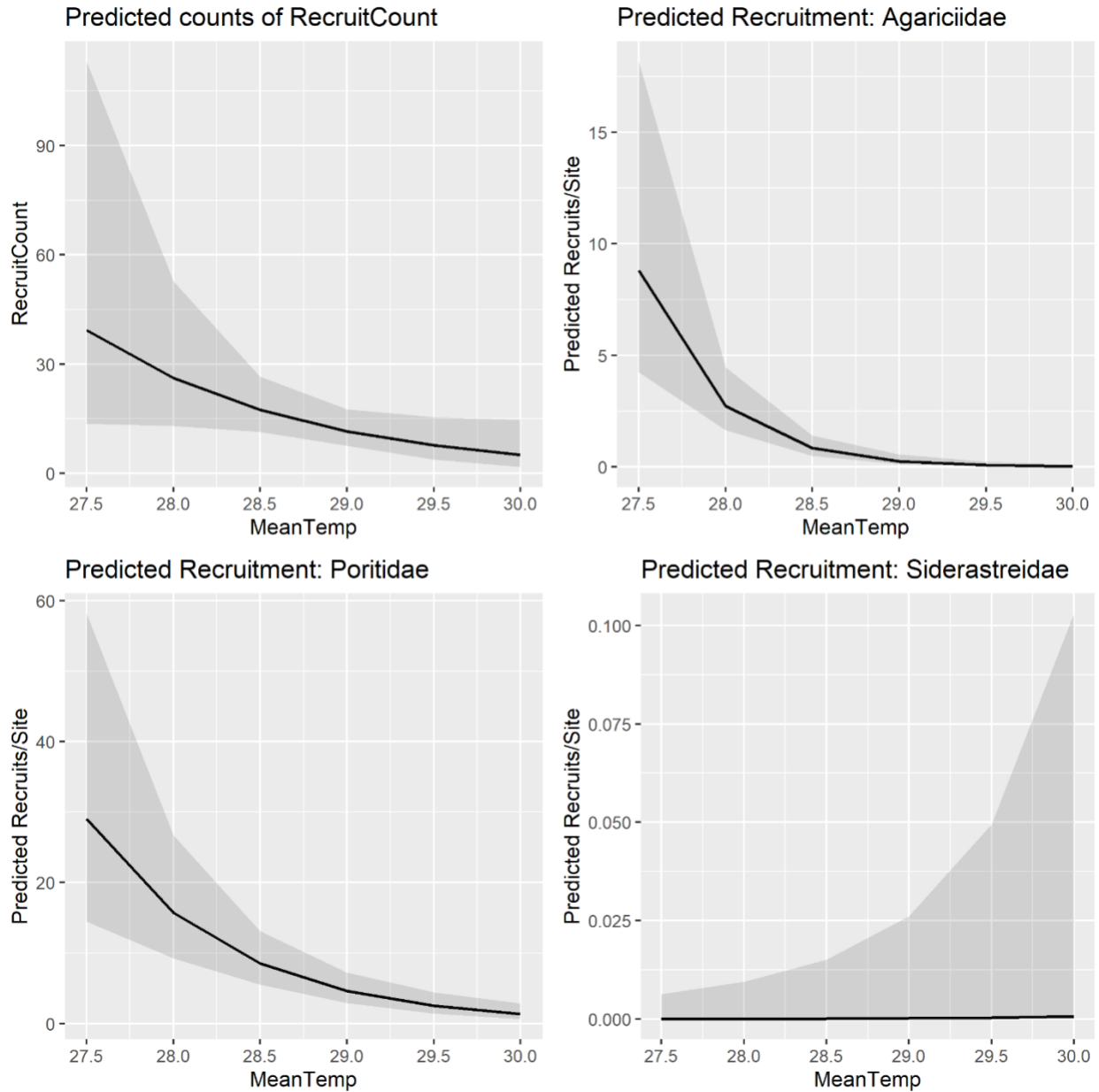


Figure S3: Marginal effects plots of predicted values for regression models examining the influence of mean daily April-Sept temperature on recruitment of each coral family for which temperature was a supported variable in the models presented in Table 1. “MeanTemp” along x-axis denotes mean daily temperature in degrees Celsius.

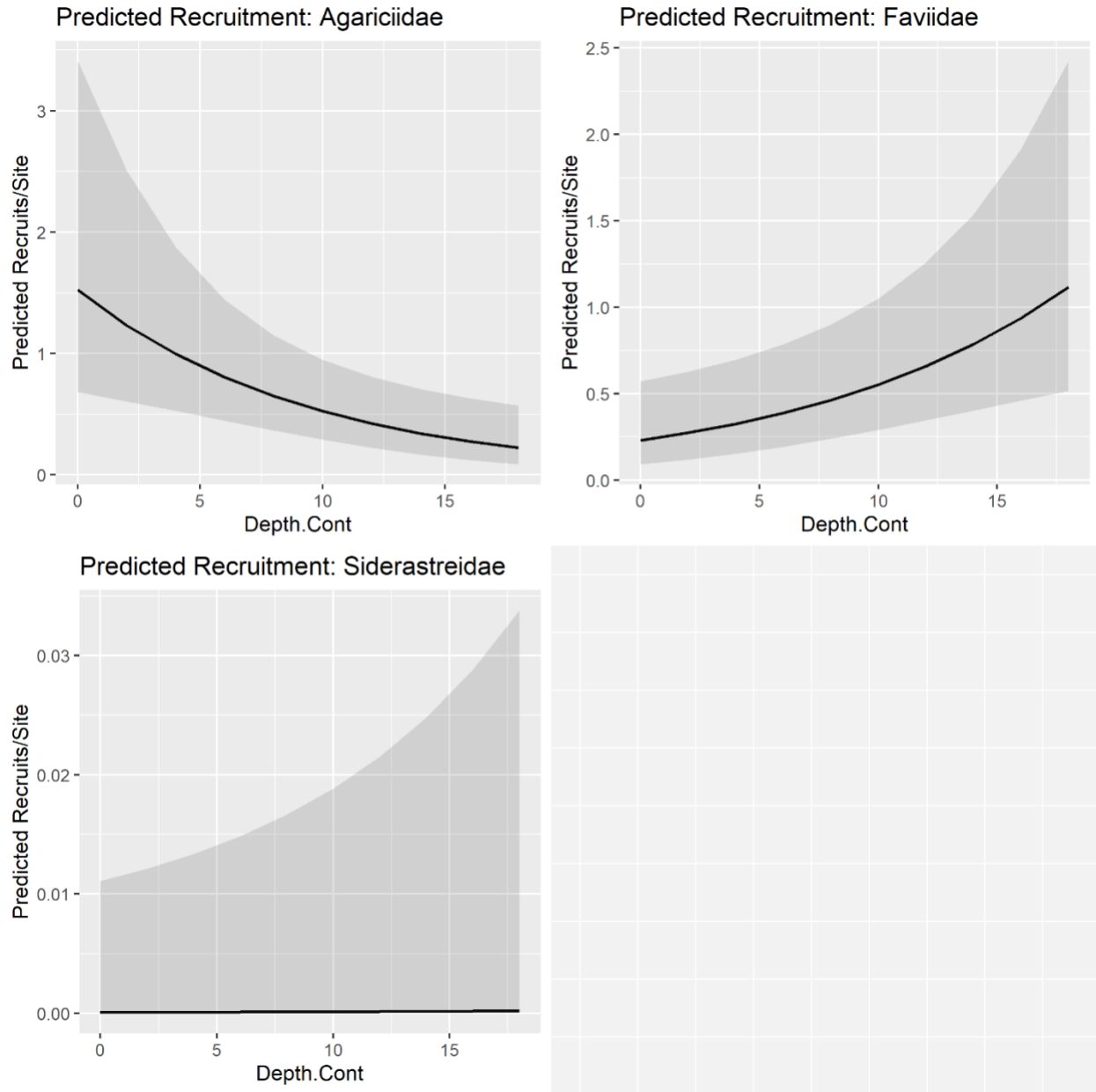


Figure S4: Marginal effects plot of predicted values for regression models examining the influence of depth on recruitment of each coral family for which temperature was a supported variable in the models presented in Table 1. “Depth.Cont” along the x axis denotes depth in meters.

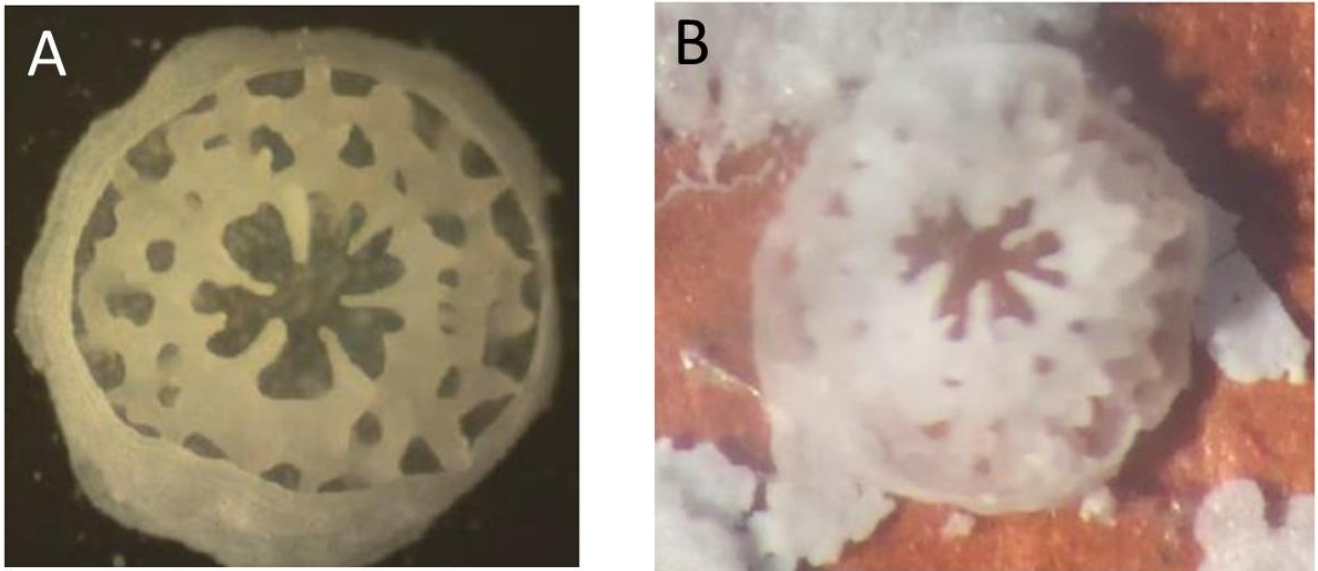


Figure S5. (A) An *Acropora* spp. recruit approximately 2 months old before mortality, reared in the lab from a known parental cross (coral husbandry credit: Margaret Miller. Photo credit: LHa). (B) The single *Acropora* spp. recruit identified on a settlement tile in this study (Photo credit: EO).

Table S1. Characteristics of study sites (listed north to south). Dates (dd/mm/yyyy) for each year (Yr 1-3) of tile deployment and retrieval are shown

Site Name	Region	Reef Type	Depth (m)	Latitude (DD)	Longitude (DD)	Yr 1 Deployment	Yr 1 Retrieval & Yr 2 Deployment	Yr 2 Retrieval & Yr 3 Deployment	Yr 3 Retrieval
BC2	Broward County	Middle reef	12.0	26.1599	-80.0825	03/04/2015	01/04/2016	09/02/2017	26/02/2018
BC3	Broward County	Outer reef	16.5	26.1586	-80.0773	30/03/2015	05/05/2016	21/03/2017	28/02/2018
BC4	Broward County	Inner reef	7.5	26.1494	-80.0894	20/03/2015	29/03/2016	08/02/2017	28/02/2018
BC1	Broward County	Nearshore	7.5	26.1479	-80.0959	19/03/2015	17/03/2016	07/02/2017	26/02/2018
DC7	Dade County	Middle reef	18.0	25.9585	-80.0938	02/04/2015	23/05/2016	27/03/2017	13/03/2018
DC6	Dade County	Nearshore	6.0	25.9516	-80.1091	01/04/2015	11/05/2016	14/03/2017	28/02/2018
DC1	Dade County	Inner reef	7.5	25.8422	-80.1040	27/04/2015	14/04/2016	13/02/2017	28/02/2018
DC3	Dade County	Outer reef	16.5	25.8421	-80.0881	24/04/2015	11/05/2016	29/03/2017	02/03/2018
DC2	Dade County	Middle reef	13.5	25.8420	-80.0951	27/04/2015	25/04/2016	14/02/2017	02/03/2018
DC8	Dade County	Nearshore	4.5	25.6785	-80.1186	17/04/2015	13/04/2016	17/02/2017	16/03/2018
DC4	Dade County	Outer reef	12.3	25.6726	-80.0884	15/04/2015	04/05/2016	28/03/2017	15/03/2018
DC5	Dade County	Inner reef	7.2	25.6518	-80.0946	23/03/2015	12/05/2016	22/03/2017	27/02/2018
Carysfort Deep	Upper Keys	Forereef deep	15.6	25.2208	-80.2099	17/03/2015	17/03/2016	13/03/2017	11/04/2018
Carysfort Shallow	Upper Keys	Forereef shallow	2.4	25.2201	-80.2105	17/03/2015	17/03/2016	13/03/2017	11/04/2018
Porter Patch	Upper Keys	Patch	4.8	25.1032	-80.3243	18/03/2015	14/03/2016	10/03/2017	11/04/2018
Admiral	Upper Keys	Patch	1.5	25.0447	-80.3948	16/03/2015	18/03/2016	12/03/2017	10/04/2018
Molasses Shallow	Upper Keys	Forereef shallow	6.6	25.0088	-80.3765	15/03/2015	15/03/2016	11/03/2017	10/04/2018
Molasses Deep	Upper Keys	Forereef deep	13.5	25.0072	-80.3756	16/03/2015	17/03/2016	25/04/2017	10/04/2018
Tennessee Deep	Middle Keys	Forereef deep	13.2	24.7527	-80.7578	19/03/2015	25/03/2016	21/03/2017	04/04/2018
Tennessee Shallow	Middle Keys	Forereef shallow	6.3	24.7450	-80.7812	19/03/2015	25/03/2016	22/03/2017	04/04/2018
West Turtle Shoal	Middle Keys	Patch	6.6	24.6993	-80.9669	20/03/2015	26/03/2016	26/04/2017	02/04/2018
Dustan Rocks	Middle Keys	Patch	4.5	24.6895	-81.0302	20/03/2015	19/03/2016	01/03/2017	02/04/2018

Sombrero Shallow	Middle Keys	Forereef shallow	5.1	24.6253	-81.1116	21/03/2015	28/03/2016	02/03/2017	31/03/2018
Sombrero Deep	Middle Keys	Forereef deep	15.0	24.6223	-81.1120	21/03/2015	28/03/2016	26/04/2017	09/04/2018
West Washerwoman	Lower Keys	Patch	7.5	24.5475	-81.5866	27/02/2015	07/04/2016	02/03/2017	07/04/2018
Red Dun Reef	Lower Keys	Patch	7.8	24.5036	-81.7677	24/02/2015	29/03/2016	21/03/2017	07/04/2018
Western Sambo Shallow	Lower Keys	Forereef shallow	4.2	24.4796	-81.7176	25/02/2015	29/03/2016	02/03/2017	05/04/2018
Western Sambo Deep	Lower Keys	Forereef deep	12.0	24.4780	-81.7171	22/03/2015	29/03/2016	02/03/2017	05/04/2018
Sand Key Shallow	Lower Keys	Forereef shallow	6.3	24.4520	-81.8775	25/02/2015	28/03/2016	22/03/2017	06/04/2018
Sand Key Deep	Lower Keys	Forereef deep	10.5	24.4517	-81.8798	23/02/2015	25/03/2016	22/03/2017	06/04/2018

Table S2: Likelihood ratio chi-square (LR Chisq), degrees of freedom (df), and p-values ($\text{Pr}(>\text{Chisq})$) from a Type II analysis of variance performed on negative binomial generalized linear models regressing year, region, and their interaction, for each group of total, family-level, and unidentified scleractinian recruit counts across 3 yr within four regions of the Florida Reef Tract. Significant p-values are in bold.

Group	Factor	LR Chisq	Df	$\text{Pr}(>\text{Chisq})$
Total scleractinian	Year	1411.56	2	<0.001
	Region	322.5931	3	<0.001
	Year \times Region	218.2988	6	<0.001
Agariciidae	Year	94.05	2	<0.001
	Region	255.34	3	<0.001
	Year \times Region	11.91	6	0.064
Poritidae	Year	65.35	2	<0.001
	Region	70.03	3	<0.001
	Year \times Region	24.27	6	<0.001
Faviidae	Year	4.31	2	0.116
	Region	26.27	3	<0.001
	Year \times Region	11.40	6	0.078
Siderastreidae	Year	1428.75	2	<0.001
	Region	196.10	3	<0.001
	Year \times Region	138.94	6	<0.001
Unidentified scleractinian	Year	1011.44	2	<0.001
	Region	129.76	3	<0.001
	Year \times Region	129.62	6	<0.001

Table S3. Number of sites within each region that significantly increased or decreased in mean recruit density from 2016 to 2017 and from 2017 to 2018. Significant differences were determined using Dunn’s post-hoc test with a Bonferroni correction.

Taxon	Region	2016 - 2017		2017 - 2018	
		Decrease (# sites)	Increase (# sites)	Decrease (# sites)	Increase (# sites)
Total Scleractinian	SEFL (n = 12)	0	1	0	7
	Upper Keys (n = 6)	0	2	0	3
	Middle Keys (n = 6)	0	1	0	6
	Lower Keys (n = 6)	0	2	0	3
	Total (n = 30)	0	6	0	19
Agariciidae	SEFL (n = 12)	0	1	0	1
	Upper Keys (n = 6)	0	4	1	1
	Middle Keys (n = 6)	1	4	0	1
	Lower Keys (n = 6)	0	2	1	2
	Total (n = 30)	1	11	2	5
Poritidae	SEFL (n = 12)	0	4	2	1
	Upper Keys (n = 6)	1	2	1	0
	Middle Keys (n = 6)	0	3	1	0
	Lower Keys (n = 6)	1	2	0	1
	Total (n = 30)	2	11	4	2
Faviidae	SEFL (n = 12)	2	1	1	0
	Upper Keys (n = 6)	0	0	1	0
	Middle Keys (n = 6)	0	0	0	1
	Lower Keys (n = 6)	0	0	0	0
	Total (n = 30)	2	1	2	1
Siderastreidae	SEFL (n = 12)	2	0	0	8
	Upper Keys (n = 6)	1	0	0	4
	Middle Keys (n = 6)	0	0	0	6
	Lower Keys (n = 6)	0	0	0	5
	Total (n = 30)	3	0	0	23

Table S4. Sum of squares (Sum Chisq), degrees of freedom (df), and p-values (Pr(>Chisq)) from a Type II analysis of variance performed on a negative binomial generalized linear model regressing yr, region, and their interaction against daily mean bottom water temperature (°C) at 30 sites within 4 regions of the Florida Reef Tract from April to September (capturing most scleractinian reproductive seasons, n=183) during each yr of 2015-2017.

Factor	Sum Sq	Df	Pr(>Chisq)
Year	1114.00	2	<0.001
Region	2207.00	3	<0.001
Year:Region	33.00	6	0.123
Residuals	53557.00	16458	