

Sampling Sites & Methods

Table S1: Characteristics of the 566 total sampling locations and the two subsets in Maryland and Virginia (A) in terms of harvest and restoration status, the Chesapeake Coastal and Marine Ecological Classification Standard (CMECS) stratum and (B) comparing restored locations to unharvested, CMECS anthropogenic, and CMECS biogenic locations.

(A)	All Tributaries	Maryland	Virginia
Total Locations	566	277	289
Harvested	34% (191/566)	37% (103/277)	30% (88/289)
Restored	19% (109/566)	15% (42/277)	23% (67/289)
Harvested and Restored	0.5% (3/566)	0	1% (3/289)
CMECS Anthropogenic	41% (233/566)	45% (126/277)	37% (107/289)
(B)			
Proportion of unharvested locations that are restored (%)	28% (106/375)	24% (42/174)	32% (64/201)
Proportion of CMECS anthropogenic locations that are restored (%)	31% (73/233)	22% (28/126)	42% (45/107)
Proportion of CMECS biogenic locations that are restored (%)	5.8% (17/297)	9.5% (14/147)	2% (3/150)

Table S2: The number of sampling locations by state (MD = Maryland, VA = Virginia), harvest type and restoration type, as well as the total sample size “N” (after processing usable images), the number of sites omitted, and the total number of locations sampled in the field.

	State	Harvested		Restored		Sample Size (N)	# Omitted	# Field Locations Sampled
		No	Yes	No	Yes			
Broad Creek	MD	2	45	47	0	47	3	50
Great Wicomico River	VA	20	22	31	11	42	8	50
Harris Creek	MD	40	10	28	22	50	0	50
Lafayette River	VA	49	0	28	21	49	1	50
Little Choptank River	MD	34	16	36	14	50	0	50
Lower York River	VA	16	34	48	2	50	0	50
Lynnhaven River	VA	49	0	31	18	49	1	50
Manokin River	MD	49	1	50	0	50	0	50
Piankatank	VA	46	3	34	15	49	1	50
Rappahannock	VA	21	29	50	0	50	0	50
St. Mary's River	MD	9	19	25	3	28	0	28
Tred Avon River	MD	40	12	49	3	52	0	52
TOTAL		375	191	456	109	565	14	580

Table S3: Abbreviations for predictors and multicollinearity between predictors by dataset: multicollinear predictors were not included in the same model

Predictor abbreviation	Predictor description	Multicollinear predictors (the dataset in which they are collinear)
restoration status	Restoration status of the geographic coordinate location based (Methods section 2.3)	CMECS stratum (full bay-wide dataset)
harvest status	Harvest status of the geographic coordinate location based (Methods section 2.3)	Salinity (Virginia dataset)
salinity	Salinity values from publicly available GIS layer from the Virginia Institute of Marine Sciences (VIMS) based on annual averages between March and November from 2001 to 2011 with a cell size of 923 m	CMECS stratum (Virginia dataset); harvest status (Virginia dataset)
CMECS stratum: CMECS_anthro, CMECS_biogenic, CMECS_none	Chesapeake Coastal and Marine Ecological Classification Standard (CMECS) stratum denoting bottom type from sonar: anthropogenic (CMECS_anthro), biogenic (CMECS_biogenic), or none (CMECS_none)	Salinity (Virginia dataset); restoration status (full bay-wide dataset)
depth	Depth at the location upon deployment of the stand with GoPro cameras	None

Results: All Tributaries**Table S4:** AIC table for models of habitat score tested for the full bay-wide dataset, in order of AIC score with the best model at the top

Predictors	K	Delta AIC	AIC Weight	Log Likelihood
salinity * harvest status + restoration status	15	0	1	-707
salinity * restoration status + harvest status	15	16.0	0	-715
restoration status + harvest status + salinity	12	17.9	0	-719
restoration status * harvest status + salinity	15	19.5	0	-717
salinity * restoration status	12	32.3	0	-726
restoration status + salinity	9	34.3	0	-730
salinity * harvest status + CMECS stratum	18	37.9	0	-723
restoration status + harvest status	9	40.6	0	-733
restoration status * harvest status	12	42.2	0	-731
salinity * CMECS stratum + harvest status	21	49.8	0	-726
salinity * harvest status	12	53.2	0	-737
restoration status	6	56.2	0	-744
CMECS stratum + harvest status + salinity	15	56.7	0	-735
harvest status + salinity	9	69.4	0	-747
salinity * CMECS stratum	18	80.0	0	-744
CMECS stratum + harvest status	12	82.5	0	-751
CMECS stratum + salinity	12	88.6	0	-754
harvest status	6	93.0	0	-762
salinity	6	106	0	-769
CMECS stratum	9	113	0	-769
Null	3	128	0	-783

Table S5: Summary of the best model of habitat scores for the full bay-wide dataset (**salinity * harvest status + restoration status**), comparing habitat scores of 0, 1, and 2 to habitat scores for 3 (the reference level).

Coefficients:					
	(Intercept)	salinity	harvest status	restoration status	
0	-1.01	0.0865	7.50	-2.66	
1	-1.56	0.143	9.51	-1.75	
2	-3.16	0.220	4.56	-0.680	
	salinity:harvest status				
0	-0.454				
1	-0.629				
2	-0.227				
Standard Errors:					
	(Intercept)	salinity	harvest status	restoration status	
0	0.919	0.0667	2.05	0.500	
1	0.813	0.0585	2.11	0.333	
2	0.823	0.0576	1.91	0.300	
	salinity:harvest status				
0	0.141				
1	0.147				
2	0.126				
Z values:					
	(Intercept)	salinity	harvest status	restoration status	
0	-1.09	1.30	3.65	-5.33	
1	-1.92	2.45	4.51	-5.25	
2	-3.84	3.82	2.39	-2.27	
	salinity:harvest status				
0	-3.21				
1	-4.27				
2	-1.80				
p values:					
	(Intercept)	salinity	harvest status	restoration status	
0	0.273	0.195	2.60E-04	9.93E-08	
1	0.0549	0.0144	6.49E-06	1.49E-07	
2	1.23E-04	1.31E-04	1.68E-02	2.32E-02	
	salinity:harvest status				
0	1.33E-03				
1	1.94E-05				
2	7.24E-02				

Table S6: Restoration status effects in the best model of habitat score in the full bay-wide dataset: *emmeans* estimates of differences in probability between restored and unrestored locations. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
Contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	0.234	0.0985	15	2.38	0.0311
Habitat score = 1					
Contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	0.151	0.0705	15	2.15	0.0484
Habitat score = 2					
Contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	-0.126	0.0634	15	-1.98	0.0659
Habitat score = 3					
Contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	-0.260	0.0427	15	-6.09	<.0001

Table S7: Harvest status effects in the best model of habitat score in the full bay-wide dataset: *emmeans* estimates of differences in probability between harvested and unharvested locations. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
Contrast (harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	-0.046	0.0319	15	-1.46	0.166
Habitat score = 1					
Contrast (harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	0.032	0.0374	15	0.842	0.413
Habitat score = 2					
Contrast (harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	-0.186	0.054	15	-3.44	0.0036
Habitat score =3					
Contrast (harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No- Yes	0.201	0.0476	15	4.22	0.0007

Maryland Results (Maryland subset of the data)

Table S8: AIC table for models of habitat score with weight > 0 for the Maryland subset of the data, in order of AIC score with the best model at the top

Predictors	K	Delta AIC	AIC Weight	Log Likelihood
restoration status + harvest status + salinity	12	0	0.31	-319
depth+ salinity+ restoration status+ harvest status	15	0.96	0.19	-317
restoration status + harvest status	9	1.18	0.17	-322
depth+ restoration status + + harvest status	12	2.54	0.09	-320
salinity *restoration status + harvest status	15	4.27	0.04	-318
CMECS stratum +restoration status + harvest status + salinity	18	4.55	0.03	-315
salinity * CMECS stratum + restoration status + harvest status	24	4.68	0.03	-309
salinity * harvest status + restoration status	15	5.1	0.02	-318
restoration status + salinity	9	5.44	0.02	-325
salinity *CMECS stratum + restoration status	21	5.52	0.02	-313
restoration status	6	6.22	0.01	-328
depth+ restoration status + + salinity	12	6.23	0.01	-322
CMECS stratum +restoration status + harvest status	15	6.33	0.01	-319
depth + restoration status	9	7.09	0.01	-325

Table S9: Summary of the best model of habitat score for the Maryland subset of the data (**location restoration status + location harvest status + salinity**), comparing habitat scores of 0, 1, and 2 to habitat scores fo 3 (the reference level).

Coefficients:					
(Intercept)	restoration status	harvest status	salinity		
0	4.36	-12.6	1.37		-0.338
1	8.37	-2.60	1.12		-0.663
2	1.60	-2.23	1.22		-0.187

Standard Errors:					
(Intercept)	restoration status	harvest status	salinity		
0	3.05	0.000251	0.440		0.249
1	3.19	0.582	0.446		0.261
2	3.67	0.791	0.522		0.298

Z values:					
(Intercept)	restoration status	harvest status	salinity		
0	1.43	-5.01E+04	3.12		-1.36
1	2.63	-4.47	2.52		-2.54
2	0.436	-2.83	2.34		-0.626

p values:					
(Intercept)	restoration status	harvest status	salinity		
0	0.1549	0.00E+00	0.00183		0.174
1	0.00860	7.87E-06	0.0118		0.0111
2	0.663	4.72E-03	0.0193		0.531

Table S10: Restoration status effects in the best model of habitat score for the Maryland subset of the data: *emmeans* estimates of differences in probability between restored and unrestored locations. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.365	0.0319	12	11.4	<.0001
Habitat score = 1					
contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.192	0.0782	12	2.45	0.0306
Habitat score = 2					
contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.048	0.0645	12	0.743	0.4716
Habitat score = 3					
contrast (Restoration status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	-0.604	0.0909	12	-6.65	<.0001

Table S11: Harvest status effects in the best model of habitat score in the Maryland subset of the data: *emmeans* estimates of differences in probability between harvested and unharvested locations. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	-0.0565	0.0317	12	-1.783	0.0998
Habitat score = 1					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	-0.0711	0.0638	12	-1.115	0.287
Habitat score = 2					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	-0.0494	0.0513	12	-0.963	0.354
Habitat score = 3					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.177	0.0723	12	2.45	0.0307

Table S12: Summary of the second-best model of habitat scores for the Maryland subset of the data (**location restoration status + location harvest status + salinity + depth**)

Coefficients:

	(Intercept)	depth	salinity	restoration status	harvest status
0	4.92	-0.12	-0.35	-14.2	1.38
1	9.76	-0.29	-0.69	-2.75	1.08
2	2.11	-0.12	-0.19	-2.30	1.23

Standard Errors:

	(Intercept)	depth	salinity	restoration status	harvest status
0	3.06	0.13	0.25	0.000059	0.44
1	3.29	0.14	0.26	0.59	0.45
2	3.67	0.16	0.30	0.80	0.53

Z scores:

	(Intercept)	depth	salinity	restoration status	harvest status
0	1.61	-0.93	-1.41	-2.40E+10	3.11
1	2.97	-2.15	-2.62	-4.66	2.40
2	0.57	-0.74	-0.65	-2.89	2.34

p values:

	(Intercept)	depth	salinity	restoration status	harvest status
0	0.108	0.351	0.159	0.00E+00	0.00188
1	0.00302	0.0318	0.00886	3.09E-06	0.0165
2	0.566	0.460	0.515	3.84E-03	0.0193

Virginia Results**Table S13:** AIC table for models of habitat score with tested for the Virginia subset of the data, in order of AIC score with the best model at the top

Predictors	K	Delta AIC	AIC Weight	Log Likelihood
CMECS stratum + harvest status	12	0	0.59	-361
CMECS stratum + harvest status + restoration status	15	2.05	0.21	-359
harvest status * restoration status + CMECS stratum	18	2.91	0.14	-356
depth + restoration status + harvest status	12	5.2	0.04	-363
harvest status + depth	9	10.2	0	-369
depth + salinity + restoration status + harvest status	15	10.5	0	-363
CMECS stratum	9	10.5	0	-369
CMECS stratum + restoration status	12	12.2	0	-367
restoration status + harvest status	9	13.6	0	-371
depth + restoration status	9	13.9	0	-371
harvest status*restoration status	12	16.1	0	-369
depth	6	17.6	0	-375
depth + restoration status + salinity	12	19.4	0	-371
harvest status	6	22.6	0	-378
restoration status	6	22.9	0	-378
depth + salinity	9	23.2	0	-376
salinity*restoration status	12	27.9	0	-375
salinity + restoration status	9	28.8	0	-378
Null	3	31.4	0	-386
salinity	6	37.3	0	-386

Table S14: Summary of the best model of habitat score for the Virginia subset of the data (CMECS stratum + location harvest status), comparing habitat scores of 0, 1, and 2 to habitat scores fo 3 (the reference level).

Coefficients:				
	(Intercept)	CMECS_biogenic	CMECS_none	harvest status
0	-1.48	1.83	1.12	0.646
1	-0.172	0.862	-0.338	0.321
2	0.558	-0.383	-0.663	1.44

Standard Errors:				
	(Intercept)	CMECS_biogenic	CMECS_none	harvest status
0	0.463	0.540	0.676	0.517
1	0.305	0.407	0.600	0.490
2	0.258	0.381	0.527	0.452

Z values:				
	(Intercept)	CMECS_biogenic	CMECS_none	harvest status
0	-3.19	3.39	1.66	1.25
1	-0.566	2.12	-0.564	0.656
2	2.16	-1.00	-1.26	3.18

p values:				
	(Intercept)	CMECS_biogenic	CMECS_none	harvest status
0	0.001	0.000705	0.0976	0.212
1	0.571	0.0340	0.572	0.512
2	0.031	0.316	0.209	0.00147

Table S15: CMECS stratum effects for the best model of habitat score in the Virginia subset of the data: *emmeans* estimates of differences in probability between CMECS strata. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
contrast (CMECS)	Estimate	Standard error	Degrees of freedom	t ratio	p value
anthropogenic vs. biogenic	-0.194	0.0407	12	-4.75	0.0013
anthropogenic vs. none	-0.154	0.0775	12	-1.98	0.159
biogenic vs. none	0.0399	0.0823	12	0.485	0.880
Habitat score = 1					
contrast (CMECS)	Estimate	Standard error	Degrees of freedom	t ratio	p value
anthropogenic vs. biogenic	-0.129	0.0502	12	-2.57	0.0597
anthropogenic vs. none	0.0153	0.068	12	0.226	0.972
biogenic vs. none	0.144	0.0702	12	2.05	0.142
Habitat score = 2					
contrast (CMECS)	Estimate	Standard error	Degrees of freedom	t ratio	p value
anthropogenic vs. biogenic	0.274	0.0592	12	4.62	0.0016
anthropogenic vs. none	0.185	0.102	12	1.82	0.205
biogenic vs. none	-0.0886	0.102	12	-0.869	0.669
Habitat score = 3					
contrast (CMECS)	Estimate	Standard error	Degrees of freedom	t ratio	p value
anthropogenic vs. biogenic	0.0486	0.0437	12	1.11	0.525
anthropogenic vs. none	-0.0469	0.0743	12	-0.631	0.806
biogenic vs. none	-0.0955	0.0738	12	-1.29	0.425

Table S16: Harvest status effects for the best model of habitat score in the Virginia subset of the data: *emmeans* estimates of differences in probability between harvested and unharvested locations. The difference subtracts the second category from the first category and absolute values are reported in the main manuscript for clarity as the category with a higher estimate is already noted in the text.

Habitat score = 0					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.02	0.0474	12	0.423	0.680
Habitat score = 1					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.0961	0.0466	12	2.06	0.0615
Habitat score = 2					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	-0.257	0.0659	12	-3.90	0.0021
Habitat score = 3					
contrast (Harvest status)	Estimate	Standard error	Degrees of freedom	t ratio	p value
No - Yes	0.141	0.0486	12	2.89	0.0136

Table S17: Summary of the second-best model of habitat scores for the Virginia subset of the data (**CMECS stratum + harvest status + restoration status**), comparing habitat scores of 0, 1, and 2 to habitat scores fo 3 (the reference level).

Coefficients:						
	(Intercept)	CMECS_biogenic	CMECS_none	restoration status	harvest status	
0	-1.018	1.431	1.296	-1.12	0.540	
1	0.149	0.587	-0.242	-0.674	0.227	
2	0.690	-0.504	-0.634	-0.240	1.40	
Standard Errors:						
	(Intercept)	CMECS_biogenic	CMECS_none	restoration status	harvest status	
0	0.525	0.580	0.698	0.662	0.521	
1	0.389	0.457	0.608	0.505	0.496	
2	0.348	0.427	0.531	0.435	0.462	
Z values:						
	(Intercept)	CMECS_biogenic	CMECS_none	restoration status	harvest status	
0	-1.9391406	2.47	1.86	-1.69	1.04	
1	0.3832495	1.29	-0.398	-1.33	0.458	
2	1.9820474	-1.18	-1.20	-0.552	3.03	
p values:						
	(Intercept)	CMECS_biogenic	CMECS_none	restoration status	harvest status	
0	0.05248422	0.0136	0.0633	0.0901	0.300	
1	0.70153481	0.199	0.690	0.182	0.647	
2	0.04747394	0.238	0.232	0.581	0.00243	

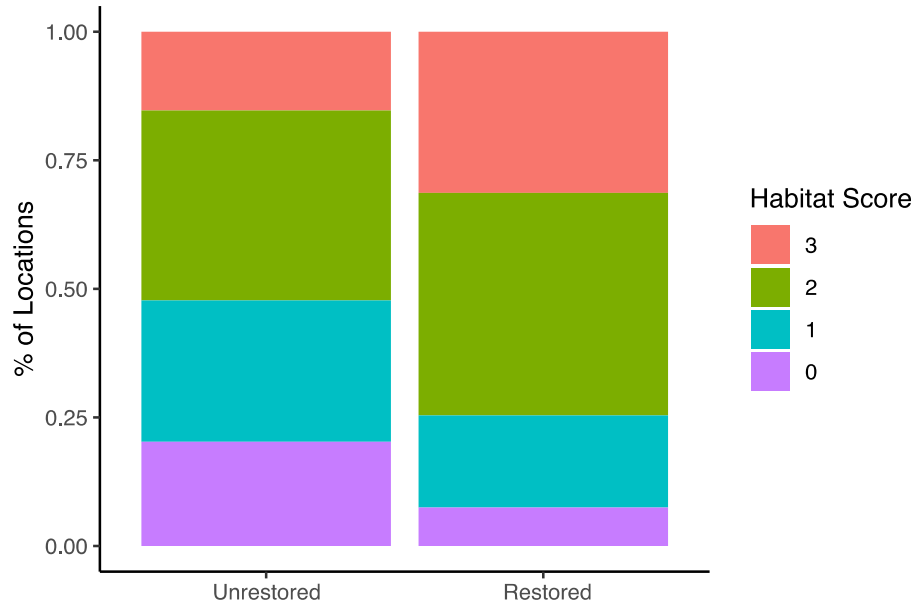


Figure S1: Habitat scores as a function of restoration status in Virginia (competing model but not statistically significant)

Change over Time

Table S18: AIC table for models testing the probability of habitat scores of 0 relative to habitat scores of 3 from Maryland sites with data from 2017, 2019 and 2021. Models that failed to converge or produced Hessian singularities are omitted.

	K	Delta AIC	AIC Weight
harvest	3	0	0.86
harvest + year	5	3.93	0.12
harvest * year	7	7.88	0.02
CMECS stratum	3	27.6	0
CMECS stratum + year	5	31.5	0
CMECS stratum * year	7	35.5	0
depth	3	44.9	0
null	2	46.4	0
salinity	3	50.3	0
year	4	50.3	0
depth + year	5	52.2	0
salinity + year	5	54.3	0
depth * year	7	56.2	0

Table S19: Summary of the best model for habitat scores of 0 relative to habitat scores of 3 in Maryland sites using data from 2017, 2019 and 2021

Fixed effects				
	Estimate	Standard Error	Z value	p value
(Intercept)	-13.4	3	-4.46	8.38E-06
Harvest status (Yes)	25.7	4.50	5.72	1.10E-08
Random effects				
	Groups	Name	Variance	Std.Dev.
	location	(Intercept)	2.83E03	53.2

Table S20: AIC table for models testing the probability of habitat scores of 1 relative to habitat scores of 3 from Maryland sites with data from 2017, 2019 and 2021: The three best models are highlighted in gray because they are all within 2AIC. The best model is in bold, but the other two contribute to the total weight. We tested the “three categories” (harvested vs. restored sanctuary vs. unrestored sanctuary) instead of the interaction of harvest status and restoration status because there were no restored harvested reefs. Models that failed to converge or produced Hessian singularities are omitted. The highlighted models were nested, allowing for a comparison using the Likelihood Ratio Test (LRT) (package lmtest) (Zeileis and Hothorn 2002).

	K	Delta AIC	AIC Weight
restoration * year	7	0	0.44
restoration + year	5	0.41	0.36
three categories +year	6	1.78	0.18
restoration	3	7.13	0.01
three categories	4	8.41	0.01
harvest * year	7	30.7	0
harvest + year	5	34.0	0
CMECS stratum + year	5	62.7	0
depth * year	7	64.4	0
null	2	65.8	0
CMECS stratum *	7	66.0	0
year			
CMECS stratum	3	67.1	0
salinity	3	67.7	0
depth	3	67.8	0

Table S21: Summary of the best model for habitat scores of 1 relative to habitat scores of 3 in Maryland sites using data from 2017, 2019 and 2021

Fixed effects				
	Estimate	Standard Error	Z value	p value
(Intercept)	10.7	2.14	5.02	5.21E-07
Restoration status (Yes)	-18.2	3.34	-5.46	4.91E-08
Year 2019	-3.21	1.37	-2.35	0.0189
Year 2021	-3.34	1.36	-2.46	0.0138
Random effects				
	Groups	Name	Variance	Standard Deviation
	location	(Intercept)	99.0	9.95

Table S22: AIC table for models testing the probability of habitat scores of 0 relative to habitat scores of 3 from Maryland sites with data from 2017, 2019 and 2021. We tested the “three categories” (harvested vs. restored sanctuary vs. unrestored sanctuary) instead of the interaction of harvest status and restoration status because there were no restored harvested reefs. Models that failed to converge or produced Hessian singularities are omitted.

	K	Delta AIC	AIC Weight
harvest * year	7	0	0.59
three categories + year	6	1.59	0.27
three categories	4	3.68	0.09
restoration + year	5	5.33	0.04
restoration	3	8.95	0.01
harvest	3	11.3	0
year	4	27.3	0
salinity + year	5	29.2	0
depth + year	5	29.3	0
CMECS stratum + year	5	29.3	0
depth * year	7	30.9	0
null	2	36.1	0
salinity	3	37.7	0
depth	3	38.1	0
CMECS stratum	3	38.1	0

Table S23: Summary of the best model for habitat scores of 2 relative to habitat scores of 3 in Maryland sites using data from 2017, 2019 and 2021

Fixed effects				
	Estimate	Standard Error	Z value	p value
(Intercept)	-10.3	2.47	-4.19	2.82E-05
Harvest (Yes)	33.1	6.37	5.20	1.98E-07
Year 2019	-9.98	3.73	-2.67	0.00752
Year 2021	-19.8	7.14	-2.77	0.00553
Harvest (Yes): Year 2019	-3.70	4.96	-0.745	0.456
Harvest (Yes): Year 2021	8.14	7.44	1.10	0.273
Random effects				
	Groups	Name	Variance	Standard Deviation
	location	(Intercept)	860.9	29.34

Table S24: Harvested Locations: Transition matrices for habitat scores from 2017 to 2019 and 2019 to 2021, with blue highlighted boxes indicating the locations that remained the same score between years.

		2019 Score			
2017 Score		0	1	2	3
0		8	4	0	0
1		8	18	1	0
2		1	3	5	3
3		0	0	0	1

		2021 Score			
2019 Score		0	1	2	3
0		5	12	0	0
1		4	16	3	2
2		0	1	4	1
3		0	0	2	2

Table S25: Unrestored Sanctuary Locations: Transition matrices for habitat scores from 2017 to 2019 and 2019 to 2021. Blue boxes indicate locations remaining the same score between years.

2017 Score		0	1	2	3
0		2	1	0	0
1		1	7	3	2
2		0	0	0	1
3		0	0	0	3

		2021 Score			
2019 Score		0	1	2	3
0		2	1	0	0
1		1	5	1	1
2		0	2	0	1
3		0	4	0	2

Table S26: Restored Sanctuary Locations: Transition matrices for habitat scores from 2017 to 2019 and 2019 to 2021. Blue boxes indicate locations remaining the same score between years.

		2019 Score			
2017 Score		0	1	2	3
0		0	0	0	0
1		0	2	0	2
2		0	0	0	1
3		0	0	0	17

		2021 Score			
2019 Score		0	1	2	3
0		0	0	0	0
1		0	1	0	1
2		0	0	0	0
3		0	0	0	20

Table S27: 2017 to 2021 transitions in habitat scores for harvested, unrestored sanctuary, and restored sanctuary locations

HARVESTED

	2021 Score			
2017 Score	0	1	2	3
0	5	7	0	0
1	4	20	1	2
2	0	2	8	2
3	0	0	0	1

UNRESTORED SANCTUARY

	2021 Score			
2017 Score	0	1	2	3
0	2	1	0	0
1	1	8	1	3
2	0	1	0	0
3	0	2	0	1

RESTORED SANCTUARY

	2021 Score			
2017 Score	0	1	2	3
0	0	0	0	0
1	0	1	0	3
2	0	0	0	1
3	0	0	0	17