

Table S1. Summary of degrees of freedom (df) and AIC values for all mixed effect model combinations to explain catch rates of nekton at marsh islands. The selected model is in bold and italicized.

<b>Mixed effects models for catch rates</b>	<b>df</b>	<b>AIC</b>
Log(area) * log(perimeter) + proportion adjacent seagrass + mean shoot density + (1 month)	8	908.98
Log(area) + log(perimeter) + proportion adjacent seagrass + mean shoot density + (1 month)	7	909.5
Log(area) + log(perimeter) + proportion adjacent seagrass + (1 month)	6	907.57
Log(area) + log(perimeter) + mean shoot density + (1 month)	6	908.69
<b><i>Log(area) + log(perimeter) + (1 month)</i></b>	<b>5</b>	<b>892.12</b>
Log(area) + (1 month)	4	906.95
Log(perimeter) + (1 month)	4	907.88

Table S2. Summary of degrees of freedom (df) and AIC values for all mixed effect model combinations to explain species richness of nekton at marsh islands. The selected model is in bold and italicized.

<b>Mixed effects models for species richness</b>	<b>df</b>	<b>AIC</b>
Log(area) * log(perimeter) + proportion adjacent seagrass + mean shoot density + (1 month)	8	500.76
Log(area) + log(perimeter) + proportion adjacent seagrass + mean shoot density + (1 month)	7	498.78
Log(area) + log(perimeter) + proportion adjacent seagrass + (1 month)	6	507.53
Log(area) + log(perimeter) + mean shoot density + (1 month)	6	497.37
Log(area) + log(perimeter) + (1 month)	5	505.99
Log(area) + (1 month)	4	504.85
Log(perimeter) + (1 month)	4	504.41
<b><i>Mean shoot density + (1 month)</i></b>	<b>4</b>	<b>493.43</b>

Table S3. Total catches of each species for each site. Included species with 10 or more observations.

Site	Back				Bogue				Core				Individuals caught per species
	BA1	BA2	BA3	BA6	BO1	BO2	BO3	BO6	CS2	CS3	CS6	CS1	
Island type	Large	Small	Medium	Medium	Large	Medium	Small	Small	Medium	Small	Large	Large	
Alpheus spp	1	--	--	--	8	4	2	--	2	2	6	1	26
Anchoa mitchilli	9	2	154	4	17	33	26	87	35	5	25	41	438
Anchoa spp	--	28	17	--	--	--	--	--	7	--	--	--	52
Bairdiella chrysoura	12	2	7	5	22	22	22	26	9	6	11	15	159
Brevoortia tyrannus	45	12	13	53	84	144	117	109	--	--	1	5	583
Callinectes sapidus >100mm	27	11	17	21	6	9	8	6	7	9	2	--	123
Callinectes sapidus <100mm	13	45	26	18	37	35	33	29	19	34	38	13	340
Cynoscion nebulosus	2	1	1	--	5	7	3	4	--	--	3	3	29
Cyprinodon variegatus	--	--	--	--	4	--	--	1	1	2	5	2	15
Farfantepenaeus aztecus	370	50	26	110	286	663	400	247	102	80	692	533	3559
Fundulus heteroclitus	43	--	--	70	39	4	7	15	12	14	58	12	274
Fundulus majalis	1	8	29	4	5	--	--	1	2	2	26	3	81
Gerreidae spp	14	15	24	27	21	8	22	36	64	76	78	132	517
Gobionellus boleosoma	2	--	--	1	1	--	2	--	6	2	1	4	19
Harengula jaguana	--	--	--	17	--	--	--	--	2	1	--	--	20
Hyporhamphus meeki	13	6	4	1	11	1	3	6	3	2	13	8	71
Lagodon rhomboides	112	54	91	271	278	486	284	311	68	45	127	64	2191
Leiostomus xanthurus	33	62	93	50	35	22	21	36	24	21	71	62	530
Litopenaeus setiferus	--	--	--	37	--	--	3	1	--	1	--	--	42
Lutjanus griseus	1	3	3	--	--	1	1	1	--	--	1	--	11
Menidia menidia	24	185	1134	121	82	32	226	252	176	126	134	74	2566
Menippe mercenaria	19	--	--	12	8	13	13	15	11	7	32	17	147
Micropogonias undulatus	25	24	9	19	9	16	20	10	6	10	3	1	152
Mugil cephalus	11	5	60	12	25	18	8	20	4	5	8	2	178
Mugil curema	--	--	9	--	278	8	7	12	--	3	13	1	331
Mugil spp	53	17	141	27	79	41	97	639	63	14	11	21	1203
Mustelus canis	6	1	1	11	--	--	--	--	1	--	4	4	28
Myrophis punctatus	--	--	--	--	2	17	--	--	--	--	3	6	28
Oligoplites saurus	1	1	1	--	--	1	5	4	--	--	--	--	13
Opisthonema oglinum	17	4	16	2	1	--	--	1	15	2	5	--	63
Opsanus tau	2	--	--	2	--	1	2	4	2	1	--	2	16
Orthopristis chrysoptera	7	2	1	17	17	10	20	7	5	15	14	5	120
Palaemonetes spp	83	3	30	318	402	454	509	241	73	95	489	703	3400
Panopeus herbstii	4	--	4	8	4	6	9	19	5	3	8	5	75
Paralichthys albiguttata	--	7	27	7	4	4	8	2	2	5	2	--	68
Paralichthys lethostigma	1	1	--	2	--	1	--	2	1	--	2	1	11
Pomatomus saltatrix	2	1	7	1	3	2	3	4	2	--	1	3	29
Portunus gibbesii	2	1	--	--	--	--	--	--	3	6	--	1	13
Rhizoprionodon terraenovae (juvenile)	4	13	4	1	--	--	1	1	3	2	3	3	35
Sciaenidae spp	--	--	--	--	--	2	4	41	--	1	--	--	48
Sciaenops ocellatus	--	--	1	3	1	2	2	--	--	1	--	--	10
Sesarma reticulatum	3	1	--	1	5	4	3	1	4	2	9	5	38
Strongylura marina	1	1	2	1	3	1	2	1	--	1	2	--	15
Symphurus plagiusa	1	1	1	1	3	2	--	--	1	2	1	1	14
Synodus spp	3	--	--	5	--	--	--	1	1	--	--	--	10
Trachinotus carolinus	--	2	2	1	4	--	--	--	--	--	1	--	10
Total nekton caught per island	967	569	1955	1261	1789	2074	1893	2193	741	603	1903	1753	17701

Figure S1. Model output for rarefaction curves showing the effects of aggregation, density and species abundance distribution. The grey shaded area shows the 95% acceptance interval for each null model. The dashed line indicates the point of no-change among treatments.

