

The following appendices accompany the article

Nekton populations, long-term wetland loss, and the effect of recent habitat restoration in Galveston Bay, Texas, USA

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Appendix 1. Specifications of aerial images used for GIS analysis. The 1982, 1987, 1990, and 1992 images were obtained from the EROS Data Center, Sioux Falls, South Dakota. The 1985 photo was scanned from 2 hard copy prints on loan from the U.S. Army Corps of Engineers (COE), Galveston District. This image was constructed by merging, with some interpretation, the 2 scanned images. No metadata were available for this 1985 image. CIR: color infrared; NHAP: National High Altitude Photography; NAPP: National Aerial Photography Program; TNRIS: Texas Natural Resources Information System; USGS: US Geological Survey. The 2005 image was also used to determine the coverage of seagrass in the study area

Year	Source	Date	Type	Scale
1982	NHAP	26-Jan-1982	CIR 9" color positive film	1:80000
1985	COE	Unknown	CIR Print	1:12000
1987	USGS (Recon archive)	11-Nov-1987	CIR 9" color positive film	1:63000
1990	NAPP	11-Feb-1990	CIR 9" color positive film	1:24000
1992	USGS (Recon archive)	30-Nov-1992	CIR 9" color positive film	1:65000
1995	TNRIS	Unknown	CIR 9" color positive film	1:40000
2005	Aerial Viewpoint	27-Jul-2005	CIR 9" color positive film	1:15000

Appendix 2. List of fishes and decapod crustaceans identified from samples taken at Galveston Island State Park between 1982 and 1992. Taxa are listed in descending order of abundance within major categories (fishes and crustaceans)

Common name	Scientific name	Total number
Fishes		
Pinfish	<i>Lagodon rhomboides</i> (Linnaeus, 1766)	4420
Bay anchovy	<i>Anchoa mitchilli</i> (Valenciennes, 1848)	3387
Naked goby	<i>Gobiosoma bosc</i> (Lacepède, 1800)	3280
Gulf menhaden	<i>Brevoortia patronus</i> Goode, 1878	1736
Inland silverside	<i>Menidia beryllina</i> (Cope, 1867)	1433
Spot	<i>Leiostomus xanthurus</i> Lacepède, 1802	1315
Blackcheek tonguefish	<i>Symphurus plagiusa</i> (Linnaeus, 1766)	884
Spotted seatrout	<i>Cynoscion nebulosus</i> (Cuvier, 1830)	769
Darter goby	<i>Ctenogobius boleosoma</i> (Jordan and Gilbert, 1882)	671
Gulf killifish	<i>Fundulus grandis</i> Baird and Girard, 1853	380
Atlantic croaker	<i>Micropogonias undulatus</i> (Girard, 1854)	352
Striped mullet	<i>Mugil cephalus</i> Linnaeus, 1758	212
Red drum	<i>Sciaenops ocellatus</i> (Linnaeus, 1766)	194
Speckled worm eel	<i>Myrophis punctatus</i> Lütken, 1852	143
Southern flounder	<i>Paralichthys lethostigma</i> Jordan and Gilbert, 1884	131
Freshwater goby	<i>Ctenogobius shufeldti</i> (Jordan and Eigenmann, 1887)	94
Diamond killifish	<i>Adinia xenica</i> (Jordan and Gilbert, 1882)	75
Sheepshead minnow	<i>Cyprinodon variegatus</i> Lacepède, 1803	71
Lined sole	<i>Achirus lineatus</i> (Linnaeus, 1758)	63
Sheepshead	<i>Archosargus probatocephalus</i> (Walbaum, 1792)	57
Pigfish	<i>Orthopristis chrysoptera</i> (Linnaeus, 1766)	54
Silver perch	<i>Bairdiella chrysoura</i> (Lacepède, 1802)	51
Gulf pipefish	<i>Syngnathus scovelli</i> (Evermann and Kendall, 1896)	51
Bay whiff	<i>Citharichthys spilopterus</i> Günther, 1862	45
Gulf toadfish	<i>Opsanus beta</i> (Goode and Bean, 1880)	43
Chain pipefish	<i>Syngnathus louisianae</i> Günther, 1870	29
Unidentified mojarra	<i>Eucinostomus</i> spp.	28
Longnose killifish	<i>Fundulus similis</i> (Baird and Girard, 1853)	27
Green goby	<i>Microgobius thalassinus</i> (Jordan and Gilbert, 1883)	26
Bayou killifish	<i>Fundulus pulvereus</i> (Evermann, 1892)	25
Atlantic spadefish	<i>Chaetodipterus faber</i> (Broussonet, 1782)	21
Flagfin mojarra	<i>Eucinostomus melanopterus</i> (Bleeker, 1863)	18
Spotfin mojarra	<i>Eucinostomus argenteus</i> Baird and Girard, 1855	16
Least puffer	<i>Sphoeroides parvus</i> Shipp and Yerger, 1969	14
Clown goby	<i>Microgobius gulosus</i> (Girard, 1858)	12
Ladyfish	<i>Elops saurus</i> Linnaeus, 1766	11
Silver jenny	<i>Eucinostomus gula</i> (Quoy and Gaimard, 1824)	10
Rainwater killifish	<i>Lucania parva</i> (Baird and Girard, 1855)	9
Inshore lizardfish	<i>Synodus foetens</i> (Linnaeus, 1766)	9
Violet goby	<i>Gobioides broussoneti</i> Lacepède, 1800	8
Star drum	<i>Stellifer lanceolatus</i> (Holbrook, 1855)	8
Code goby	<i>Gobiosoma robustum</i> Ginsburg, 1933	8
Hardhead catfish	<i>Ariopsis felis</i> (Linnaeus, 1766)	7
Bighead searobin	<i>Prionotus tribulus</i> Cuvier, 1829	7
Black drum	<i>Pogonias cromis</i> (Linnaeus, 1766)	6
Bluefish	<i>Pomatomus saltatrix</i> (Linnaeus, 1766)	5
Dusky pipefish	<i>Syngnathus floridae</i> (Jordan and Gilbert, 1882)	4
Mottled mojarra	<i>Eucinostomus lefroyi</i> (Goode, 1874)	4
Marbled puffer	<i>Sphoeroides dorsalis</i> Longley, 1934	3
Skilletfish	<i>Gobiesox strumosus</i> Cope, 1870	3
White mullet	<i>Mugil curema</i> Valenciennes, 1836	2
Sailfin molly	<i>Poecilia latipinna</i> (Lesueur, 1821)	2
Shrimp eel	<i>Ophichthus gomesii</i> (Castelnau, 1855)	2
Western mosquitofish	<i>Gambusia affinis</i> (Baird and Girard, 1853)	1
Sand seatrout	<i>Cynoscion arenarius</i> Giinsburg, 1930	1
Hogchoker	<i>Trinectes maculatus</i> (Bloch and Schneider, 1801)	1
Unidentified scorpionfish	<i>Scorpaena</i> spp.	1
Leatherjack	<i>Oligoplites saurus</i> (Bloch and Schneider, 1801)	1
Lyre goby	<i>Evorthodus lyricus</i> (Girard, 1858)	1
Highfin goby	<i>Gobionellus oceanicus</i> (Pallas, 1770)	1
Green sunfish	<i>Lepomis cyanellus</i> Rafinesque, 1819	1
Rough silverside	<i>Membras martinica</i> (Valenciennes, 1835)	1
Crustaceans		
Daggerblade grass shrimp	<i>Palaemonetes pugio</i> Holthuis, 1949	109396
Brown shrimp	<i>Farfantepenaeus aztecus</i> (Ives, 1891)	33968
White shrimp	<i>Litopenaeus setiferus</i> (Linnaeus, 1767)	19252
Blue crab	<i>Callinectes sapidus</i> Rathbun, 1896	19111
Marsh grass shrimp	<i>Palaemonetes vulgaris</i> (Say, 1818)	3487
Brackish grass shrimp	<i>Palaemonetes intermedius</i> Holthuis, 1949	2354
Pink shrimp	<i>Farfantepenaeus duorarum</i> (Burkenroad, 1939)	2079
Thin-striped hermit	<i>Clibanarius vittatus</i> (Bosc, 1802)	1214
Bigclaw snapping shrimp	<i>Alpheus heterochaelis</i> Say, 1818	776
Atlantic marsh fiddler	<i>Uca pugnax</i> (Smith, 1870)	219
Atlantic mud crab	<i>Panopeus herbstii</i> H. Milne Edwards, 1834	165
Heavy marsh crab	<i>Sesarma reticulatum</i> (Say, 1817)	151
Green porcelain crab	<i>Petrolisthes armatus</i> (Gibbes, 1850)	63
Squareback mud crab	<i>Sesarma cinereum</i> (Bosc, 1802)	34
Gulf stone crab	<i>Menippe adina</i> Williams and Felder, 1986	29
Ridgeback mud crab	<i>Panopeus turgidus</i> Rathbun, 1930	27
Arrow shrimp	<i>Tozeuma carolinense</i> Kingsley, 1878	13
Gulf marsh fiddler	<i>Uca longisignalis</i> Salmon and Atsaiades, 1968	13
Harris mud crab	<i>Rhithropanopeus harrisi</i> (Gould, 1841)	12
Gulf grassflat crab	<i>Dsypanopeus texana</i> (Stimpson, 1859)	11
Flatback mud crab	<i>Eurypanopeus depressus</i> (Smith, 1869)	8
Longnose spider crab	<i>Libinia dubia</i> H. Milne Edwards, 1834	7
Banded porcelain crab	<i>Petrolisthes galathinus</i> (Bosc, 1802)	6
Estuarine ghost shrimp	<i>Callinassa jamaicensis</i> Schmitt, 1935	6
Mudflat fiddler	<i>Uca rapax</i> (Smith, 1870)	4
Lobate mud crab	<i>Eurypanopeus abbreviatus</i> (Stimpson, 1860)	3
Tube pea crab	<i>Pinnixa chaetoptera</i> Stimpson, 1860	3
(no common name)	<i>Pinnixa cristata</i> Rathbun, 1900	3
Unidentified ghost shrimp	<i>Callinassa</i> spp.	2
Zostera shrimp	<i>Hippolyte zostericola</i> (Smith, 1873)	2
Flatclaw hermit	<i>Pagurus pollicaris</i> Say, 1817	2
Longwrist hermit	<i>Pagurus longicarpus</i> Say, 1817	2
Roughneck shrimp	<i>Trachypenaeus constrictus</i> (Stimpson, 1871)	1
Estuarine longeye shrimp	<i>Ogyrides alphaerostris</i> (Kingsley, 1880)	1
Ohio shrimp	<i>Macrobrachium ohione</i> (Smith, 1874)	1
Brown grass shrimp	<i>Leander tenuicornis</i> (Say, 1818)	1

Appendix 3. Monthly mean densities (ind. m⁻²) and SE (1 standard error) of animals commonly collected (i.e. >0.5% of total fishes or >0.6% of total crustaceans) between 1982 and 1992 in each habitat type (marsh: *Spartina alterniflora* marsh edge; SNB: shallow nonvegetated bottom) at Galveston Island State Park. Ratio of mean densities in habitat types (Marsh:SNB) is shown for each month, except when the mean density in either habitat type was zero. Results of paired *t*-tests examining differences in mean densities between habitat types for each month are also given when p-values were <0.05. *: probability value for the paired *t*-test was significant after alpha was adjusted, as described by Rice (1989). Number of samples (N) used to estimate each mean is also shown

Species	Habitat type	January		February		March		April		May		June		July		August		September		October		November		December	
		Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
Total fishes	Marsh	0.2	(0.05)	1.2	(0.25)	3.4	(0.53)	6.3	(0.78)	5.2	(0.63)	4.0	(0.44)	3.6	(0.51)	4.1	(0.49)	11.4	(3.01)	6.7	(0.52)	3.4	(0.34)	1.1	(0.29)
	SNB	0.3	(0.10)	1.3	(0.38)	4.5	(0.71)	7.2	(2.79)	4.2	(0.66)	2.4	(0.32)	1.9	(0.36)	2.7	(0.46)	7.1	(3.19)	3.8	(0.53)	1.7	(0.26)	0.6	(0.11)
	Marsh:SNB p-value	0.6		0.9		0.8		0.9		1.2		1.7	0.0003	1.9	0.0057	1.5	0.0191	1.6		1.7	0.0006	1.9	0.0001*	1.9	
Pinfish	Marsh	0.0	(0.03)	0.5	(0.18)	2.8	(0.51)	5.6	(0.73)	2.9	(0.28)	1.5	(0.22)	0.4	(0.07)	0.1	(0.04)	0.3	(0.05)	0.0	(0.01)	0.1	(0.05)	0.5	(0.26)
	SNB	0.0	(0.05)	0.1	(0.02)	0.8	(0.15)	1.9	(0.48)	0.3	(0.05)	0.2	(0.03)	0.1	(0.03)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.02)
	Marsh:SNB p-value	1.0		9.0	0.0091	3.6	0.0002	2.9	0.0001*	10.8	0.0001*	8.1	0.0001*	4.3	0.0001*	9.7	0.0110	13.9	0.0001*	2.2		32.3	0.0074	9.4	
Bay anchovy	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.1	(0.13)	0.1	(0.08)	0.0	(0.03)	0.0	(0.01)	0.1	(0.05)	3.2	(2.86)	0.0	(0.03)	0.1	(0.06)	0.0	(0.00)
	SNB	0.0	(0.00)	0.0	(0.01)	0.3	(0.19)	0.0	(0.02)	0.5	(0.21)	1.1	(0.26)	0.6	(0.16)	1.3	(0.39)	5.0	(3.21)	2.0	(0.52)	0.5	(0.17)	0.0	(0.01)
	Marsh:SNB p-value			0.0		0.0		4.1		0.2		0.0	0.0001*	0.0	0.0007	0.0	0.0021	0.6		0.0	0.0003	0.1	0.0005	0.0	
Naked goby	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.6	(0.17)	0.9	(0.14)	1.4	(0.27)	4.0	(0.51)	4.3	(0.53)	1.9	(0.29)	0.1	(0.04)
	SNB	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.02)	0.0	(0.01)	0.1	(0.03)	0.1	(0.03)	0.2	(0.07)	0.5	(0.11)	0.4	(0.07)	0.2	(0.06)	0.1	(0.02)
	Marsh:SNB p-value			0.0		2.1		1.3		3.0		5.4	0.0053	8.6	0.0001*	8.6	0.0001*	8.2	0.0001*	11.9	0.0001*	8.2	0.0001*	2.8	0.0264
Gulf menhaden	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.02)	0.1	(0.03)	0.2	(0.14)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.02)	0.0	(0.00)
	SNB	0.0	(0.00)	0.4	(0.33)	0.7	(0.30)	3.4	(2.72)	2.1	(0.62)	0.1	(0.06)	0.1	(0.07)	0.0	(0.01)	0.1	(0.04)	0.0	(0.00)	0.0	(0.02)	0.0	(0.00)
	Marsh:SNB p-value			0.0		0.0	0.0251	0.0		0.1	0.0029	0.0		0.0		0.7		0.2		0.0		0.7		0.0	
Inland silverside	Marsh	0.0	(0.00)	0.0	(0.00)	0.1	(0.05)	0.1	(0.04)	1.4	(0.50)	0.7	(0.27)	0.8	(0.43)	0.3	(0.10)	0.6	(0.17)	0.1	(0.05)	0.0	(0.02)	0.0	(0.01)
	SNB	0.1	(0.07)	0.1	(0.05)	0.0	(0.02)	0.2	(0.14)	0.4	(0.12)	0.3	(0.19)	0.4	(0.17)	0.1	(0.05)	0.1	(0.05)	0.1	(0.04)	0.3	(0.17)	0.1	(0.04)
	Marsh:SNB p-value	0.0		0.0		1.9		0.4		3.5		2.4		2.2		2.7		7.0	0.0012	2.3		0.2		0.2	
Spot	Marsh	0.1	(0.03)	0.0	(0.01)	0.2	(0.07)	0.2	(0.07)	0.1	(0.02)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.00)	0.0	(0.01)	0.0	(0.00)	0.0	(0.01)
	SNB	0.1	(0.04)	0.3	(0.10)	2.0	(0.55)	1.1	(0.16)	0.5	(0.05)	0.3	(0.04)	0.2	(0.09)	0.1	(0.04)	0.1	(0.02)	0.2	(0.09)	0.0	(0.01)	0.0	(0.01)
	Marsh:SNB p-value	1.4		0.0	0.0094	0.1	0.0019	0.1	0.0001*	0.2	0.0001*	0.0	0.0001*	0.0		0.1	0.0058	0.0	0.0010	0.1	0.0472	0.0	0.0035	1.0	
Blackcheek tonguefish	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.00)	0.0	(0.00)	0.1	(0.02)	0.0	(0.02)	0.2	(0.04)	0.6	(0.09)	0.8	(0.13)	0.2	(0.05)	0.0	(0.01)
	SNB	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.02)	0.1	(0.02)	0.2	(0.03)	0.4	(0.12)	0.6	(0.09)	0.5	(0.08)	0.2	(0.04)	0.1	(0.05)
	Marsh:SNB p-value					0.5		0.0	0.0190	0.0		0.7		0.2	0.0011	0.4		1.0		1.6	0.0114	1.1		0.1	0.0365
Spotted seatrout	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.2	(0.05)	0.6	(0.11)	0.8	(0.14)	0.9	(0.10)	0.4	(0.06)	0.2	(0.04)	0.0	(0.01)
	SNB	0.0	(0.00)	0.0	(0.01)	0.1	(0.06)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.1	(0.02)	0.1	(0.02)	0.1	(0.02)	0.1	(0.02)	0.0	(0.01)	0.0	(0.01)
	Marsh:SNB p-value			0.0		0.0		1.0		1.3		10.0	0.0001*	7.4	0.0001*	11.9	0.0001*	9.1	0.0001*	21.9	0.0001*	5.3	0.0020	0.4	
Darter goby	Marsh	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.02)	0.0	(0.03)	0.4	(0.08)	0.7	(0.12)	0.5	(0.11)	0.4	(0.10)	0.0	(0.01)
	SNB	0.0	(0.00)	0.0	(0.01)	0.0	(0.00)	0.0	(0.02)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.2	(0.06)	0.2	(0.06)	0.2	(0.06)	0.1	(0.04)	0.0	(0.03)
	Marsh:SNB p-value			1.0				1.0				2.3		2.7		1.9	0.0346	4.3	0.0002	2.2	0.0212	2.4	0.0263	0.2	
Gulf killifish	Marsh	0.0	(0.00)	0.1	(0.03)	0.0	(0.02)	0.0	(0.01)	0.1	(0.03)	0.2	(0.04)	0.3	(0.09)	0.2	(0.04)	0.2	(0.04)	0.1	(0.05)	0.2	(0.07)	0.1	(0.05)
	SNB	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)
	Marsh:SNB p-value													36.2	0.0007	13.3	0.0003							0.0	(0.00)
Atlantic croaker	Marsh	0.0	(0.02)	0.3	(0.15)	0.1	(0.04)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.1	(0.08)	0.0	(0.02)	0.0	(0.02)	0.0	(0.01)	0.0	(0.01)
	SNB	0.0	(0.02)	0.3	(0.17)	0.4	(0.16)	0.0	(0.01)	0.1	(0.02)	0.0	(0.01)	0.0	(0.00)	0.0	(0.00)	0.0	(0.02)	0.1	(0.03)	0.1	(0.03)	0.1	(0.04)
	Marsh:SNB p-value	0.7		0.9		0.1	0.0453	0.5		0.1	0.0157	0.0		0.0		0.8		0.3		0.3		0.1	0.0017	0.0	0.0109
Striped mullet	Marsh	0.0	(0.00)	0.1	(0.04)	0.1	(0.03)	0.0	(0.00)	0.1	(0.02)	0.1	(0.03)	0.0	(0.01)	0.1	(0.03)	0.2	(0.03)	0.0	(0.01)	0.0	(0.00)	0.0	(0.01)
	SNB	0.0	(0.00)	0.0	(0.01)	0.1	(0.06)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.1	(0.02)	0.0	(0.01)	0.0	(0.02)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)
	Marsh:SNB p-value			8.9		1.0		0.0		3.1	0.0215	2.9		0.5		3.5		4.2	0.0004	0.4		0.4		0.4	
Red drum	Marsh	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.02)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.1	(0.03)	0.1	(0.04)	0.1	(0.03)
	SNB	0.0	(0.00)	0.1	(0.03)	0.0	(0.00)	0.0	(0.01)	0.0	(0.00)	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.02)	0.2	(0.05)	0.1	(0.04)	0.0	(0.01)
	Marsh:SNB p-value			0.2		5.5		3.1		4.0		6.0		0.3		0.2		0.3	0.0250	1.2		1.2		2.3	
Speckled worm eel	Marsh	0.0	(0.00)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.1	(0.04)	0.1	(0.03)	0.2	(0.07)	0.1	(0.03)	0.3	(0.14)	0.0	(0.03)	0.0	(0.01)	0.0	(0.00)
	SNB	0.0	(0.03)	0.1	(0.04)	0.0	(0.02)	0.1	(0.05)	0.1	(0.04)	0.1	(0.03)	0.0	(0.02)	0.1	(0.03)	0.3	(0.21)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)
	Marsh:SNB p-value					0.5		0.1	0.0098	0.4		0.8		4.4		1.2		0.8				1.0		0.0	(0.01)
Southern flounder	Marsh	0.0	(0.01)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.1	(0.02)	0.0	(0.01)	0.0	(0.02)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)
	SNB	0.0	(0.00)	0.0	(0.01)	0.1	(0.02)	0.1	(0.03)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.01)	0.0	(0.01)	0.0	(0.01)	0.0	(0.00)	0.0	(0.00)
	Marsh:SNB p-value			0.0		0.4	0.0369	0.5		1.6		2.2		3.5		0.6		0.3		0.3		1.8		0.0	(0.00)
Total Crustaceans	Marsh	26.4	(3.82)	30.8	(7.46)	27.9	(2.85)	36.3	(3.20)	50.2	(4.04)	91.8	(6.94)	124.7	(8.52)	114.9	(6.65)	79.3	(6.52)	75.5	(5.55)	71.5	(5.24)	54.4	(7.89)
	SNB	5.5	(1.22)	5.3	(0.99)	6.0	(0.60)	10.1	(0.96)	3.8	(0.49)	3.8	(0.42)	8.0	(0.95)	12.5	(2.43								

Appendix 4. Monthly and overall (for entire study) mean values and (SE: 1 standard error) of 5 environmental variables measured between 1982 and 1992 in each habitat type (marsh edge: *Spartina alterniflora* marsh edge; SNB: shallow nonvegetated bottom) at Galveston Island State Park. Number of samples (N) used to estimate each mean is also given; numbers are given for both habitat types only where they differ. Results (p-values) are given for paired *t*-tests comparing mean values of variables between the 2 habitat types. *: probability value for the paired *t*-test was significant after alpha was adjusted, as described by Rice (1989). FTU: Formazin Turbidity Unit

Parameter	Habitat type	January		February		March		April		May		June		July		August		September		October		November		December		Overall		p-value
		Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE	
Temperature (°C)	Marsh edge	15.8	(0.52)	15.3	(0.62)	19.1	(0.41)	23.5	(0.31)	26.9	(0.20)	30.1	(0.23)	30.2	(0.23)	29.9	(0.44)	25.6	(0.42)	23.6	(0.29)	20.5	(0.31)	15.2	(0.54)	23.7	(0.20)	0.0310
	SNB	15.8	(0.49)	15.5	(0.57)	18.9	(0.41)	23.0	(0.40)	26.8	(0.20)	29.8	(0.24)	30.1	(0.22)	29.7	(0.43)	25.5	(0.42)	23.3	(0.28)	20.3	(0.36)	15.1	(0.54)	23.5	(0.20)	
	N	32		56		104		83		92		96		80		96		80		72		102/103		72		965		
Salinity (psu)	Marsh edge	22.5	(0.78)	19.8	(0.63)	22.3	(0.50)	20.8	(0.53)	24.9	(0.57)	24.1	(0.50)	25.9	(0.74)	29.9	(0.58)	28.7	(0.54)	24.7	(0.43)	25.4	(0.35)	24.1	(0.58)	24.7	(0.18)	0.8855
	SNB	22.6	(0.78)	19.8	(0.63)	22.3	(0.50)	20.9	(0.53)	24.9	(0.57)	24.1	(0.50)	26.1	(0.75)	29.9	(0.58)	28.7	(0.55)	24.7	(0.44)	25.4	(0.35)	24.1	(0.57)	24.7	(0.18)	
	N	32		56		104		91		96		96		80		96		84		72		101		80		988		
Dissolved oxygen (mg l ⁻¹)	Marsh edge	9.5	(0.42)	9.5	(0.22)	8.6	(0.18)	8.6	(0.13)	7.2	(0.24)	6.7	(0.10)	6.8	(0.14)	6.2	(0.12)	7.0	(0.20)	7.2	(0.16)	8.2	(0.19)	8.8	(0.23)	7.8	(0.06)	0.0001*
	SNB	8.7	(0.43)	9.2	(0.20)	8.3	(0.16)	8.2	(0.12)	7.4	(0.11)	6.6	(0.10)	6.6	(0.13)	6.2	(0.10)	7.1	(0.16)	7.1	(0.15)	8.2	(0.15)	8.7	(0.20)	7.6	(0.05)	
	N	31		56		104		79/78		80		88		73		88/96		73		64		94/95		72		901		
Turbidity (FTU)	Marsh edge	10.0	(2.11)	11.0	(1.47)	11.6	(0.91)	17.1	(1.28)	19.8	(1.46)	20.6	(1.13)	31.9	(2.11)	34.1	(2.54)	23.4	(1.89)	16.6	(1.31)	12.0	(1.19)	10.4	(1.48)	18.7	(0.52)	0.6052
	SNB	12.6	(2.61)	12.1	(1.74)	12.3	(0.95)	17.3	(1.26)	22.6	(1.46)	21.4	(1.19)	27.5	(1.53)	28.2	(2.35)	23.9	(1.94)	20.8	(1.78)	11.6	(0.68)	13.3	(1.82)	18.9	(0.49)	
	N	31		56		102/104		92		95		96		72		82/83		80		64		91/92		71		931		
Water depth (cm)	Marsh edge	13.5	(1.02)	15.2	(0.86)	16.7	(0.73)	20.0	(1.00)	33.6	(1.48)	27.1	(1.02)	18.8	(0.78)	21.9	(1.18)	31.4	(1.12)	25.8	(1.30)	25.1	(1.08)	21.9	(0.93)	23.3	(0.37)	0.0001*
	SNB	29.3	(0.96)	31.2	(0.95)	36.8	(0.85)	37.0	(1.07)	53.0	(1.53)	46.6	(1.06)	36.4	(0.87)	38.7	(1.14)	52.7	(1.17)	47.7	(1.23)	43.8	(1.26)	39.1	(1.09)	42.0	(0.40)	
	N	32		53/56		103/104		92		96		88		80		96		84		72		103		80		979		