

Appendixes 1–6

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Appendix 1. Benthic macroinvertebrate taxa (number of individuals) in standard (mid-channel) and additional (deepwater and nearshore) samples, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007—Continued.

Taxon	Hitchcock				Marchand				Fairwood				Bayou Dr				Texas City	
	SpS	SuS	SuDW	SuNS	SpS	SuS	SuDW	SuNS	SpS	SuS	SuDW	SuNS	SpS	SuS	SuDW	SuNS	SpS	SuS
<i>Tanytus</i> sp.	44	0	0	2	26	2	0	0	34	1	0	0	295	3	19	20	181	9
<i>Tanytarsus</i> sp.	2	0	0	0	1	3	0	0	1	0	0	0	0	0	0	0	2	0
<i>Bezzia/Palpomyia</i> sp.	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0
Ceratopogoninae	1	0	0	2	7	41	0	2	0	1	0	2	0	0	0	0	0	0
<i>Chaoborus</i> sp.	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Probrezzia</i> sp.	0	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
Gastropoda	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0
<i>Mulinia lateralis</i>	0	0	0	0	20	2	0	10	54	12	0	0	4	0	2	3	1	0
<i>Aulodrilus pigueti</i>	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<i>Physa</i> sp.	3	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0
Bivalvia	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mytilopsis leucophaea</i>	0	0	0	0	139	0	0	3	0	0	0	0	0	0	0	0	0	0
<i>Capitella</i> sp.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
<i>Dero borellii</i>	0	0	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	0
<i>Dero</i> sp.	0	0	0	0	0	3	0	0	2	0	0	0	0	0	0	0	0	0
Enchytraeidae	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Amphicteis florida</i>	41	0	1	5	63	20	1	32	200	7	1	0	1	0	0	4	6	0
<i>Limnodrilus cervix</i>	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leitoscoloplos</i> sp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	0
Nereididae	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Naididae	2	0	0	0	3	5	0	0	1	0	0	0	0	0	0	0	0	0
<i>Nais</i> sp.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Polychaeta	0	0	0	0	0	6	0	0	12	0	0	0	0	0	0	0	16	0
<i>Polydora cornuta</i>	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0
Spionidae	2	0	0	0	4	0	0	5	37	1	0	0	3	3	0	0	19	0
<i>Spirosperma</i> sp.	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
<i>Stenonereis martini</i>	0	0	0	0	16	1	0	22	0	0	0	0	0	1	1	2	4	2

Appendix 1. Benthic macroinvertebrate taxa (number of individuals) in standard (mid-channel) and additional (deepwater and nearshore) samples, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007—Continued.

Taxon	Hitchcock			Marchand			Fairwood			Bayou Dr			Texas City		
	SpS	SuS	SuDW	SuNS	SpS	SuS	SpS	SuS	SuDW	SpS	SuS	SuDW	SuNS	SpS	SuS
<i>Streblospio benedicti</i>	26	0	0	0	49	6	236	33	0	79	2	1	1	106	1
Tubificidae	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Tubificidae w/o cap setae	0	1	1	23	2	10	0	1	0	0	3	0	2	9	2
Tubificidae w/ cap setae	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Tubificoides heterochaetus</i>	0	0	0	0	0	0	0	35	0	110	0	0	0	0	0
Oribatei	4	0	2	0	0	0	0	1	0	0	0	0	0	0	0
<i>Ampelisca</i> sp.	0	0	0	0	1	0	0	0	0	0	3	0	0	576	2
Amphipoda	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
<i>Americanysis almyra</i>	0	0	0	0	0	0	0	10	0	0	0	12	0	0	5
<i>Apocorophium louisianum</i>	0	0	0	0	0	0	44	0	0	7	5	0	0	55	0
Corophiidae	0	0	0	0	0	0	0	0	2	3	0	8	0	0	1
<i>Edotea montosa</i>	0	0	0	0	0	0	1	0	0	0	3	0	0	2	0
<i>Edotea</i> sp.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
<i>Grandidierella bonnieroides</i>	0	0	0	0	0	0	0	0	0	1	1	16	0	32	0
<i>Hyalella</i> sp.	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0
Leptocheliidae	0	0	0	0	0	0	3	0	0	0	0	1	0	0	0
Mysidae	0	0	0	0	0	1	0	0	0	0	0	0	2	0	2
Penaeidae	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Microgammarus mucronatus</i>	0	0	0	0	0	0	4	0	0	0	2	0	0	0	0
Ostracoda	0	0	1	1	2	0	0	0	0	1	0	0	0	1	0
<i>Taphromysis bowmani</i>	0	3	0	1	0	1	0	0	0	2	0	0	0	0	0
Foraminiferida	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0
Nematoda	1	0	1	1	1	1	0	0	0	2	0	0	0	0	0
Nemertea	0	0	0	0	0	0	6	3	0	0	2	2	1	6	7
Total	703	16	7	140	598	201	928	123	7	298	968	73	66	1,069	33

30 Variation in Biotic Assemblages and Stream-Habitat Data, Highland and Marchand Bayous, Galveston County, Texas

Appendix 2. Fish taxa (number of individuals) collected in standard samples by electrofishing and seining, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007.

[SpS, spring standard sample; SuS, summer standard sample]

Taxon	Hitchcock		Marchand		Fairwood		Bayou Dr		Texas City	
	SpS	SuS ¹	SpS	SuS	SpS	SuS ²	SpS	SuS ³	SpS	SuS
Euryhaline taxa										
<i>Menidia beryllina</i>	17	0	41	3	3	9	79	179	8	138
<i>Anchoa mitchilli</i>	2	0	3	12	1	6	143	102	62	10
<i>Lagodon rhomboides</i>	0	0	0	1	5	13	2	7	40	27
<i>Brevoortia</i> sp.	484	719	285	0	24	19	922	267	48	0
<i>Poecilia latipinna</i>	2	1	0	4	6	193	0	2	0	0
<i>Leiostomus xanthurus</i>	67	0	38	0	182	0	110	6	123	1
<i>Oligoplites saurus</i>	0	0	0	0	0	0	0	1	0	2
<i>Mugil cephalus</i>	55	49	28	7	17	32	30	2	0	6
<i>Fundulus grandis</i>	0	0	0	0	0	0	0	1	1	0
<i>Lucania parva</i>	0	0	1	0	0	5	0	2	0	0
<i>Fundulus pulvereus</i>	0	0	0	0	0	12	0	1	0	0
<i>Fundulus chrysotus</i>	0	0	0	1	0	0	0	0	0	0
<i>Gobiosoma robustum</i>	0	0	0	0	0	0	0	1	0	0
<i>Microgobius gulosus</i>	0	0	0	0	0	6	0	0	0	0
<i>Syngnathus louisianae</i>	0	0	0	0	0	0	0	1	0	0
<i>Paralichthys lethostigma</i>	0	0	1	0	0	0	0	0	0	0
<i>Sciaenops ocellatus</i>	0	0	0	0	1	1	0	0	0	0
<i>Pogonias cromis</i>	0	0	0	0	0	0	0	0	1	0
<i>Cyprinodon variegatus</i>	1	0	0	0	4	28	0	0	1	0
<i>Gambusia affinis</i>	2	0	5	4	1	62	0	0	0	0
<i>Leptocephalus larvae</i>	0	0	0	0	0	0	0	0	1	0
Total euryhaline individuals	630	769	402	32	244	386	1,286	572	285	184
Freshwater taxa										
<i>Micropterus salmoides</i>	3	13	0	7	0	3	0	0	0	0
<i>Lepomis macrochirus</i>	21	27	12	23	0	3	0	0	0	0
<i>Lepomis cyanellus</i>	2	1	0	1	0	0	0	0	0	0
<i>Lepomis gulosus</i>	4	11	1	1	0	0	0	0	0	0
<i>Lepomis megalotis</i>	2	4	14	24	0	0	0	0	0	0
<i>Lepomis microlophus</i>	1	2	0	0	0	0	0	0	0	0
<i>Lepisosteus oculatus</i>	3	5	1	0	0	0	0	0	0	0
<i>Pomoxis annularis</i>	0	1	0	0	0	0	0	0	0	0
Total freshwater individuals	36	64	28	56	0	6	0	0	0	190
Total Individuals	666	833	430	88	244	392	1,286	572	285	184

¹ Sample consists of first 20 minutes of electrofishing.

² Sample consists of first 20 minutes of electrofishing and first six seine hauls distributed across three within-reach locations.

³ Sample consists of first 10 seine hauls distributed across three within-reach locations.

Appendix 3. Fish taxa (number of individuals) collected by electrofishing, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007.

Species	Hitchcock					Marchand		Fairwood				
	Spring stan- dard	Summer (minutes of electrofishing)				Spring stan- dard	Sum- mer- stan- dard	Spring stan- dard	Summer (minutes of electrofishing)			
		15	5	5	5				15	5	5	5
Euryhaline species												
<i>Menidia beryllina</i>	17	0	0	0	0	14	0	2	0	0	0	0
<i>Anchoa mitchilli</i>	2	0	0	0	0	0	0	1	0	0	0	0
<i>Lagodon rhomboides</i>	0	0	0	0	0	0	1	5	9	3	2	0
<i>Brevoortia</i> sp.	484	719	0	9	21	8	0	23	18	0	0	7
<i>Poecilia latipinna</i>	2	0	1	0	0	0	0	6	1	0	0	0
<i>Leiostomus xanthurus</i>	67	0	0	0	0	8	0	114	0	0	0	0
<i>Oligoplites saurus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Mugil cephalus</i>	55	23	26	8	6	28	7	17	22	5	11	4
<i>Fundulus grandis</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lucania parva</i>	0	0	0	0	0	1	0	0	0	0	0	0
<i>Fundulus pulvereus</i>	0	0	0	0	0	0	0	0	0	1	1	0
<i>Fundulus chrysotus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gobiosoma robustum</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Microgobius gulosus</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Syngnathus louisianae</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paralichthys lethostigma</i>	0	0	0	0	0	1	0	0	0	0	0	0
<i>Sciaenops ocellatus</i>	0	0	0	0	0	0	0	1	0	1	0	0
<i>Pogonias cromis</i>	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyprinodon variegatus</i>	1	0	0	0	0	0	0	4	1	0	0	2
<i>Gambusia affinis</i>	2	0	0	0	0	5	1	1	0	0	0	0
<i>Leptocephalus larvae</i>	0	0	0	0	0	0	0	0	0	0	0	0
Total euryhaline individuals	630	742	27	17	27	65	9	244	51	10	14	13
Freshwater species												
<i>Lepisosteus oculatus</i>	3	4	1	0	1	1	0	0	0	0	0	0
<i>Pomoxis annularis</i>	0	1	0	0	0	0	0	0	0	0	0	0
<i>Micropterus salmoides</i>	3	8	5	2	3	0	7	0	0	2	0	0
<i>Lepomis macrochirus</i>	21	21	6	8	7	11	19	0	1	2	0	0
<i>Lepomis cyanellus</i>	2	1	0	0	0	0	1	0	0	0	0	0
<i>Lepomis gulosus</i>	4	8	3	0	0	1	1	0	0	0	0	0
<i>Lepomis megalotis</i>	2	4	0	2	3	14	24	0	0	0	0	0
<i>Lepomis microlophus</i>	1	0	2	0	2	0	0	0	0	0	0	0
Total freshwater individuals	36	47	17	12	16	27	52	0	1	4	0	0
Total individuals	666	789	44	29	43	92	61	174	52	14	14	13

Appendix 4. Fish taxa (number of individuals) collected by seining, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007.

Species	Marchand			Fairwood																		
	Spring standard¹ (table 2)	Summer standard¹ (table 2)	Spring standard¹ (table 2)	Location 1 seine hauls						Location 2 seine hauls						Location 3 seine hauls						
				Euryhaline species						Euryhaline species						Euryhaline species						
				1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	
<i>Menidia beryllina</i>	27	3	1	2	2	0	2	12	10	0	3	15	8	20	16	2	0	4	1	1	3	
<i>Anchoa mitchilli</i>	3	12	0	2	1	0	0	0	0	0	0	0	0	1	0	3	0	1	0	0	0	
<i>Lagodon rhomboides</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0	1	0	0	
<i>Brevoortia</i> sp.	277	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Poecilia latipinna</i>	0	4	0	162	7	9	29	23	23	5	2	4	2	1	3	14	2	3	0	0	0	
<i>Leiostomus xanthurus</i>	30	0	68	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Oligoplites saurus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Mugil cephalus</i>	0	0	0	0	3	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	
<i>Fundulus grandis</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lucania parva</i>	0	0	0	5	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Fundulus pulvereus</i>	0	0	0	10	1	2	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Fundulus chrysotus</i>	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Gobiosoma robustum</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Microgobius gulosus</i>	0	0	0	2	3	2	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	
<i>Syngnathus louisianae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Paralichthys lethostigma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Sciaenops ocellatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Pogonias cromis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Cyprinodon variegatus</i>	0	0	0	6	20	10	5	11	17	1	0	0	0	0	1	0	0	0	0	0	0	
<i>Gambusia affinis</i>	0	3	0	48	4	5	10	12	10	0	0	7	3	1	0	10	0	13	0	2	0	
<i>Leptocephalus larvae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Freshwater species																						
<i>Lepisosteus oculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Pomoxis annularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Micropterus salmoides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	
<i>Lepomis macrochirus</i>	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lepomis cyanellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lepomis gulosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lepomis megalotis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<i>Lepomis microlophus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total individuals	338	27	70	237	42	30	48	61	63	6	6	26	14	25	20	31	4	21	2	3	3	

Appendix 4. Fish taxa (number of individuals) collected by seining, Highland and Marchand Bayous, Galveston County, Texas, spring and summer 2007—Continued.

Species	Bayou Dr														Texas City						
	Spring standard' (table 2)	Summer													Spring standard' (table 2)	Summer standard' (table 2)					
		Location 1 seine hauls						Location 2 seine hauls						Location 3 seine hauls							
		1	2	3	4	5	6	1	2	3	4	5	6	1			2	3	4	5	6
Euryhaline species																					
<i>Menidia beryllina</i>	79	32	62	17	5	11	3	0	10	11	14	39	21	5	3	34	62	60	3	8	138
<i>Anchoa mitchilli</i>	143	5	3	3	0	9	9	44	26	1	1	21	25	10	2	8	8	14	11	62	10
<i>Lagodon rhomboides</i>	2	0	2	0	1	2	1	2	1	1	1	0	0	0	0	0	1	0	0	40	27
<i>Brevoortia</i> sp.	922	0	1	0	0	4	0	0	0	0	0	0	0	0	138	128	20	0	168	48	0
<i>Poecilia latipinna</i>	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Leiostomus xanthurus</i>	110	0	0	0	0	1	0	5	0	1	1	0	0	0	0	0	0	0	0	0	0
<i>Oligoplites saurus</i>	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	0	123	1
<i>Mugil cephalus</i>	30	0	0	0	0	2	2	0	0	2	0	0	2	0	0	0	0	2	1	0	2
<i>Fundulus grandis</i>	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
<i>Lucania parva</i>	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0
<i>Fundulus pulvereus</i>	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
<i>Fundulus chrysotus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Gobiosoma robustum</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
<i>Microgobius gulosus</i>	0	0	0	0	0	0	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0
<i>Syngnathus louisianae</i>	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Paralichthys lethostigma</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Sciaenops ocellatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pogonias cromis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Cyprinodon variegatus</i>	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0
<i>Gambusia affinis</i>	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
<i>Leptocephalus larvae</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Freshwater species																					
<i>Lepisosteus oculatus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Pomoxis annularis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Micropterus salmoides</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis macrochirus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis cyanellus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis gulosus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis megalotis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Lepomis microlophus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Individuals	1,286	37	70	21	7	20	15	52	37	19	20	67	51	15	143	171	91	77	183	285	184

¹ Standard samples not partitioned by seine hauls (Marchand) or by location and seine hauls (Fairwood, Bayou Dr, Texas City).

Appendix 5. Stream-habitat (transect) data collected from reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007.

Habitat data	Upstream					Downstream				
	Transect 1	Transect 1.5	Transect 2	Transect 2.5	Transect 3	Transect 3.5	Transect 4	Transect 4.5	Transect 5	
Highland Bayou at Hitchcock, Tex., 7/11/2007										
Stream Type(RI=Riffle,RU=Run,G=Glide,P=Pool)	G	G	G	G	G	G	G	G	G	G
Stream Width (ft)	40	42	45	48	54	42	50	52	41	
Left Bank Slope(°)	15	15	18	18	20	28	30	25	30	
% Left Bank Erosion	5	5	10	10	10	30	5	25	10	
Left Bank Width of Natural Buffer Vegetation (ft)	300	300	300	300	200	60	200	300	300	
Right bank Slope(°)	15	15	15	15	18	15	15	28	10	
% Right Bank Erosion	5	5	20	5	5	15	5	40	5	
Right Bank Width of Natural Buffer Vegetation (ft)	15	15	0	0	0	5	0	0	0	
% Tree Canopy	10	10	18	10	1	32	10	15	10	
Dominant Substrate Type(1=clay,2=silt,3=sand, 4=gravel,5=cobble,6=boulder,7=bedrock,8=other)	2	2	2	2	2	2	2	2	2	
Stream Depth at Point 1 (ft:right edge water)	1.61	1.52	1.91	1.82	1.87	2.00	1.75	1.61	2.50	
Stream Depth at Point 2	2.65	2.54	3.22	2.71	3.04	3.19	2.50	2.56	4.00	
Stream Depth at Point 3	3.55	3.05	4.40	3.48	4.16	4.40	3.00	3.25	5.14	
Stream Depth at Point 4	4.81	4.32	5.32	3.92	4.57	5.00	4.25	4.24	5.25	
Stream Depth at Point 5	4.85	5.03	5.75	4.24	5.73	5.50	5.00	5.25	4.99	
Stream Depth at Point 6	4.91	5.05	5.82	4.06	5.57	5.14	5.59	5.53	4.91	
Stream Depth at Point 7	3.85	4.33	5.05	3.87	5.22	4.40	5.50	4.84	4.47	
Stream Depth at Point 8	2.91	2.36	3.69	3.34	4.26	3.45	4.99	4.00	3.75	
Stream Depth at Point 9	2.55	2.61	2.43	2.55	3.35	2.50	3.50	3.10	2.81	
Stream Depth at Point 10 (ft, left edge water)	1.74	1.84	1.72	1.94	2.00	1.70	2.21	2.06	2.46	
% Substrate Gravel or Larger	0	0	0	0	0	0	0	0	0	
% Instream Cover	10	10	10	10	10	10	10	10	5	
Left Bank % Trees	15	15	30	20	60	20	20	15	20	
Left Bank % Shrubs	80	80	50	60	30	70	60	80	50	
Left Bank % Grasses,Forbs	0	0	20	20	10	10	20	5	30	
Left Bank % Cult Fields	0	0	0	0	0	0	0	0	0	
Left Bank % Other	5	5	0	0	0	0	0	0	0	
Right Bank % Trees	5	5	5	5	5	0	0	0	0	
Right Bank % Shrubs	90	90	0	0	0	0	0	0	0	
Right Bank % Grasses,Forbs	0	0	95	95	95	100	100	100	100	
Right Bank % Cult Fields	0	0	0	0	0	0	0	0	0	
Right Bank % Other	5	5	0	0	0	0	0	0	0	
Instream Cover Types	rootmass limbs into channel @ LB	rootmass	rootmass	rootmass snag	overhang snag	logs overhang veg	light debris rootmass overhang veg	rootmass woody debris cutbank	rootmass bulkhead piling	

Appendix 5. Stream-habitat (transect) data collected from reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007—Continued.

Habitat data	Upstream					Downstream				
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5
Marchand Bayou at FM 519, Hitchcock, Tex. (8/14/2007)										
Stream Type (R1=Riffle, R2=Run, C=Glide, P=Pool)	G	G	G	G	G					
Stream Width (ft)	24	27	30.5	33	30					
Left Bank Slope(°)	80	40	62	15	72					
% Left Bank Erosion	50	15	30	10	25					
Left Bank Width of Natural Buffer Vegetation (ft)	25	30	5	50	5					
Right bank Slope(°)	72	45	30	87	19					
% Right Bank Erosion	20	40	40	25	25					
Right Bank Width of Natural Buffer Vegetation (ft)	300	300	300	300	300					
% Tree Canopy	65	54	100	100	97					
Dominant Substrate Type (1=clay, 2=silt, 3=sand, 4=gravel, 5=cobble, 6=boulder, 7=bedrock, 8=other)	1	1	1	2	1					
Stream Depth at Point 1 (ft, right edge water)	4.25	4.78	0.70	0.65	1.69					
Stream Depth at Point 2	4.66	4.23	1.60	1.13	2.42					
Stream Depth at Point 3	4.15	4.00	1.88	2.05	3.17					
Stream Depth at Point 4	4.78	3.45	2.25	1.75	3.28					
Stream Depth at Point 5	3.97	3.10	2.39	2.50	3.22					
Stream Depth at Point 6	3.76	2.60	2.50	2.60	3.43					
Stream Depth at Point 7	3.34	1.82	2.79	2.68	3.53					
Stream Depth at Point 8	2.96	1.75	2.64	2.78	3.13					
Stream Depth at Point 9	2.60	1.63	2.35	2.15	2.93					
Stream Depth at Point 10 (ft, left edge water)	2.35	1.00	1.90	1.59	2.53					
% Substrate Gravel or Larger	0	0	5	5	10					
% Instream Cover	25	0	15	5	10					
Left Bank % Trees	80	10	40	0	0					
Left Bank % Shrubs	0	0	0	30	0					
Left Bank % Grasses, Forbs	20	30	60	0	30					
Left Bank % Cult Fields	0	0	0	0	0					
Left Bank % Other	0	60	0	70	70					
Right Bank % Trees	20	0	20	20	0					
Right Bank % Shrubs	0	0	60	60	0					
Right Bank % Grasses, Forbs	80	50	20	20	30					
Right Bank % Cult Fields	0	0	0	0	0					
Right Bank % Other	0	50	0	0	70					
Instream Cover Types	submerge woody debris	cutbank light debris	overhang veg light woody debris cutbank	light woody	overhang veg cutbank					

Appendix 5. Stream-habitat (transect) data collected from reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007—Continued.

Habitat data	Upstream					Downstream				
	Transect 1	Transect 1.5	Transect 2	Transect 2.5	Transect 3	Transect 3.5	Transect 4	Transect 4.5	Transect 5	
Highland Bayou at Fairwood Rd, La Marque, Tex. (7/11/2007)										
Stream Type (RI=Riffle, Ru=Run, C=Glide, P=Pool)	G	G	G	G	G	G	G	G	G	G
Stream Width (ft)	83	85	83	88	83	79	83	92	83	
Left Bank Slope(°)	72	25	16	52	63	52	43	20	35	
% Left Bank Erosion	40	10	5	50	40	70	30	10	10	
Left Bank Width of Natural Buffer Vegetation (ft)	70	1	2	15	0	2	5	0	70	
Right bank Slope(°)	57	48	68	55	20	10	52	28	40	
% Right Bank Erosion	25	50	10	30	5	10	10	60	5	
Right Bank Width of Natural Buffer Vegetation (ft)	300	1	6	10	35	60	300	50	300	
% Tree Canopy	0	0	0	0	0	0	0	0	0	
Dominant Substrate Type (1=clay, 2=silt, 3=sand, 4=gravel, 5=cobble, 6=boulder, 7=bedrock, 8=other)	2	2	2	2	2	2	2	2	2	
Stream Depth at Point 1 (ft, right edge water)	3.13	2.00	2.72	2.90	1.75	6.00	2.00	2.55	1.50	
Stream Depth at Point 2	4.81	3.60	6.21	4.65	3.50	8.11	5.02	4.36	4.00	
Stream Depth at Point 3	5.73	6.10	8.27	9.50	5.00	8.86	7.10	5.75	5.01	
Stream Depth at Point 4	8.44	8.00	8.81	10.81	8.39	9.06	8.65	6.99	7.52	
Stream Depth at Point 5	10.10	9.91	10.25	9.91	9.63	8.85	10.00	7.57	11.50	
Stream Depth at Point 6	11.41	10.96	9.88	8.87	9.41	7.49	11.50	8.35	1.10	
Stream Depth at Point 7	11.71	10.11	8.75	7.00	8.70	7.12	11.10	10.00	9.44	
Stream Depth at Point 8	10.99	6.64	7.00	5.41	7.49	6.50	9.84	7.50	8.12	
Stream Depth at Point 9	8.96	2.50	4.38	4.00	6.56	5.00	7.00	3.86	6.50	
Stream Depth at Point 10 (ft, left edge water)	5.81	1.95	2.63	1.73	5.00	2.00	5.46	2.26	5.00	
% Substrate Gravel or Larger	0	0	0	0	5	0	5	0	5	
% Instream Cover	10	10	5	10	10	10	5	10	5	
Left Bank % Trees	5	15	0	20	0	20	0	15	10	
Left Bank % Shrubs	25	80	0	60	0	70	0	80	25	
Left Bank % Grasses, Forbs	0	0	100	20	100	10	100	5	0	
Left Bank % Cult Fields	0	0	0	0	0	0	0	0	0	
Left Bank % Other	70	5	0	0	0	0	0	0	65	
Right Bank % Trees	20	5	0	5	0	0	5	0	10	
Right Bank % Shrubs	50	90	0	0	50	0	10	0	20	
Right Bank % Grasses, Forbs	0	0	100	95	50	100	85	100	70	
Right Bank % Cult Fields	0	0	0	0	0	0	0	0	0	
Right Bank % Other	30	5	0	0	0	0	20	0	0	
Instream Cover Types	light debris rip-rap	rootmass rip-rap	rip-rap grass	rootmass snag	ovhang brush grass	logs overhang veg	light woody debris cutbank	rootmass woody debris cutbank	light brush	

[illegible]

Appendix 5. Stream-habitat (transect) data collected from reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007—Continued.

Habitat data	Upstream					Downstream				
	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5	Transect 1	Transect 2	Transect 3	Transect 4	Transect 5
Highland Bayou nr Texas City, Tex. (8/13/2007)										
Stream Type(RI=Riffle,Ru=Run,G=Glide,P=Pool)	G	G	G	G	G	G	G	G	G	G
Stream Width (ft)	2005	1717	1162	920	621					
Left Bank Slope(°)	10	10	5	12	5					
% Left Bank Erosion	0	10	10	25	10					
Left Bank Width of Natural Buffer Vegetation (ft)	0	30	115	15	12					
Right bank Slope(°)	5	20	3	30	10					
% Right Bank Erosion	50	0	0	10	5					
Right Bank Width of Natural Buffer Vegetation (ft)	300	10	0	5	0					
% Tree Canopy	0	0	0	0	0					
Dominant Substrate Type(1=clay,2=silt,3=sand,4=gravel,5=cobble,6=boulder,7=bedrock,8=other)	1	8	2	8	2					
Stream Depth at Point 1 (ft:right edge water)	1.90	2.00	1.85	1.75	1.70					
Stream Depth at Point 2	2.41	2.71	2.31	3.00	1.90					
Stream Depth at Point 3	2.85	2.76	2.50	4.62	2.06					
Stream Depth at Point 4	2.81	3.28	2.68	5.63	2.10					
Stream Depth at Point 5	2.90	3.00	3.00	5.48	1.94					
Stream Depth at Point 6	2.89	3.11	2.81	3.41	4.10					
Stream Depth at Point 7	2.77	3.16	2.74	3.37	7.00					
Stream Depth at Point 8	2.96	3.18	2.99	3.29	6.60					
Stream Depth at Point 9	2.94	3.44	2.80	2.80	4.75					
Stream Depth at Point 10 (ft, left edge water)	2.00	3.25	2.87	2.05	3.75					
% Substrate Gravel or Larger	0	0	0	0	0					
% Instream Cover	0	0	0	0	0					
Left Bank % Trees	0	0	0	0	0					
Left Bank % Shrubs	10	5	10	10	10					
Left Bank % Grasses,Forbs	90	95	90	90	90					
Left Bank % Cult Fields	0	0	0	0	0					
Left Bank % Other	0	0	0	0	0					
Right Bank % Trees	0	10	0	0	0					
Right Bank % Shrubs	5	20	5	5	5					
Right Bank % Grasses,Forbs	95	70	95	95	95					
Right Bank % Cult Fields	0	0	0	0	0					
Right Bank % Other	0	0	0	0	0					
Instream Cover Types	mud	crush brick mud	bulkhead mud	riprap mud	mud					

Appendix 6. Habitat quality index data calculated for reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007.

Habitat quality index				
Date	7/11/2007			
Site	Highland Bayou at Hitchcock, Tex			
Metric	Value	Score (n=5)	Score (n=7)	Score (n=9)
Instream cover	9%	1	1	1
Riffles	0	1	1	1
Pools	0	1	1	1
Bank stability				
Slope component	stable	3	3	3
Erosion component	moderate stable	2	2	2
Riparian buffer vegetation	extensive	3	3	3
Channel flow status	high	3	3	3
Channel sinuosity	high	3	3	3
Bottom substrate	unstable	1	1	1
Aesthetics	common	1	1	1
Aquatic life use score		19	19	19
Statewide scoring criteria				
Exceptional	26 - 31			
High	20 - 25			
Intermediate	14 - 19			
Limited	< 14			

Habitat quality index			
Date	8/14/2007		
Site	Marchand Bayou at FM 519, Hitchcock, Tex		
Metric	Value	Score (n=5)	
Instream cover	11%	2	
Riffles	0	1	
Pools	0	1	
Bank stability			
Slope component	moderate unstable	1	
Erosion component	moderate stable	2	
Riparian buffer vegetation	extensive	3	
Channel flow status	moderate	2	
Channel sinuosity	low	1	
Bottom substrate	unstable	1	
Aesthetics	common	1	
Aquatic life use score		15	
Statewide scoring criteria			
Exceptional	26 - 31		
High	20 - 25		
Intermediate	14 - 19		
Limited	< 14		

Appendix 6. Habitat quality index data calculated for reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007—Continued.

Habitat quality index				
Date	7/11/2007			
Site	Highland Bayou at Fairwood Rd, La Marque, Tex			
Metric	Value	Score (n=5)	Score (n=7)	Score (n=9)
Instream cover	8%	1	1	1
Riffles	0	1	1	1
Pools	0	1	1	1
Bank stability				
Slope component	moderate unstable	1	1	1
Erosion component	moderate stable	2	2	2
Riparian buffer vegetation	extensive	3	3	3
Channel flow status	high	3	3	3
Channel sinuosity	low	1	1	1
Bottom substrate	unstable	1	1	1
Aesthetics	common	1	1	1
Aquatic life use score		15	15	15
Statewide scoring criteria				
Exceptional	26 - 31			
High	20 - 25			
Intermediate	14 - 19			
Limited	< 14			

Habitat quality index				
Date	7/11/2007			
Site	Highland Bayou at Bayou Dr nr La Marque, Tex			
Metric	Value	Score (n=5)	Score (n=7)	Score (n=9)
Instream cover	1%	1	1	1
Riffles	0	1	1	1
Pools	0	1	1	1
Bank stability				
Slope component	stable	3	3	3
Erosion component	stable	3	3	3
Riparian buffer vegetation	extensive	3	3	3
Channel flow status	high	3	3	3
Channel sinuosity	moderate	2	2	2
Bottom substrate	unstable	1	1	1
Aesthetics	common	1	1	1
Aquatic life use score		19	19	19
Statewide scoring criteria				
Exceptional	26 - 31			
High	20 - 25			
Intermediate	14 - 19			
Limited	< 14			

Appendix 6. Habitat quality index data calculated for reaches on Highland and Marchand Bayous, Galveston County, Texas, summer 2007—Continued.

Habitat quality index				
Date	8/13/2007			
Site	Highland Bayou nr Texas City, Tex			
	Metric	Value		Score (n=5)
	Instream cover	0%	1	
	Riffles	0	1	
	Pools	0	1	
	Bank stability			
	Slope component	stable	3	
	Erosion component	moderate stable	2	
	Riparian buffer vegetation	wide	2	
	Channel flow status	high	3	
	Channel sinuosity	none	0	
	Bottom substrate	unstable	1	
	Aesthetics	common	1	
Aquatic life use score			15	
Statewide scoring criteria				
	Exceptional	26 - 31		
	High	20 - 25		
	Intermediate	14 - 19		
	Limited	< 14		

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