

Establishing connectivity patterns of eastern oysters (*Crassostrea virginica*) on regional oceanographic scales

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## **Appendix S1**

Ecosphere

Table S1. Oyster reef percent cover by habitat polygon.<sup>1</sup>

Habitat Polygon	Percent cover	Habitat Polygon	Percent cover
CSA 6 NW Nearshore	0.0%	BB SW Subtidal Stratum B	19.0%
CSA 6 NW Subtidal Stratum A/A+	0.0%	BB NW Nearshore	8.3%
CSA 6 NW Subtidal Stratum B	20.4%	BB NW Subtidal Stratum A/A+	16.7%
CSA 6 SW Nearshore	0.0%	BB NW Subtidal Stratum B	20.0%
CSA 6 SW Subtidal Stratum A/A+	0.0%	BB NE Nearshore	8.3%
CSA 6 SW Subtidal Stratum B	18.5%	BB NE Subtidal Stratum A/A+	19.6%
CSA 6 NE Nearshore	0.0%	BB NE Subtidal Stratum B	25.2%
CSA 6 NE Subtidal Stratum A/A+	0.0%	BB SE Nearshore	8.3%
CSA 6 NE Subtidal Stratum B	19.9%	BB SE Subtidal Stratum A/A+	19.5%
CSA 6 SE Nearshore	0.0%	BB SE Subtidal Stratum B	23.8%
CSA 6 SE Subtidal Stratum A/A+	0.0%	CSA 1S Nearshore	8.0%
CSA 6 SE Subtidal Stratum B	18.3%	CSA 1S Subtidal Stratum A/A+	14.5%
TB NW Nearshore	8.3%	CSA 1S Subtidal Stratum B	22.9%
TB NW Subtidal Stratum A/A+	8.9%	CSA 1N Nearshore	8.0%
TB NW Subtidal Stratum B	15.2%	CSA 1N Subtidal Stratum A/A+	13.2%
TB SW Nearshore	8.3%	CSA 1N Subtidal Stratum B	13.1%
TB SW Subtidal Stratum A/A+	0.0%	MS W Nearshore	2.5%
TB SW Subtidal Stratum B	14.8%	MS W Subtidal Stratum A/A+	22.3%
TB NE Nearshore	8.3%	MS W Subtidal Stratum B	12.4%
TB NE Subtidal Stratum A/A+	17.8%	MS E Nearshore	2.5%
TB NE Subtidal Stratum B	15.4%	MS E Subtidal Stratum A/A+	0.0%
TB SE Nearshore	8.3%	MS E Subtidal Stratum B	12.5%
TB SE Subtidal Stratum A/A+	0.0%	AL Nearshore	2.5%
TB SE Subtidal Stratum B	14.4%	AL Subtidal Stratum A/A+	29.8%
BB SW Nearshore	8.3%	AL Subtidal Stratum B	14.3%
BB SW Subtidal Stratum A/A+	17.3%		

<sup>1</sup> Percent cover values in Stratum A/A+ (known and mapped oyster reef) and Stratum B (areas exclusive of Stratum A/A+ that have the appropriate salinity regime for oyster but do not have mapped resource) polygons were quantified under separate field sampling efforts, and together represent oyster reef occurrence in subtidal areas. Subsequent tables presenting results at the subtidal habitat level sum modeled results in the Stratum A/A+ and Stratum B polygons. TB = Terrebonne Bay; BB = Barataria Bay; MS W = Mississippi West; MS E = Mississippi East.

Table S2. Average larval settlement distribution by region (combines nearshore and subtidal larval transport) across Spring 2010 model releases, excluding values < 0.5%.<sup>2</sup>

ORIGIN LOCATION	SETTLEMENT LOCATION																
	CSA6 NW	CSA6 SW	CSA6 NE	CSA6 SE	TB NW	TB SW	TB NE	TB SE	BB SW	BB NW	BB NE	BB SE	CSA 1S	CSA 1N	MS W	MS E	AL
CSA6 NW	72%	1%	27%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CSA6 SW	54%	15%	34%	2%	--	--	--	--	--	--	--	--	--	--	--	--	--
CSA6 NE	10%	--	55%	--	12%	2%	--	--	--	--	--	--	--	--	--	--	--
CSA6 SE	9%	--	45%	--	10%	4%	--	--	--	--	--	--	--	--	--	--	--
TB NW	--	--	--	--	75%	24%	--	--	--	--	--	--	--	--	--	--	--
TB SW	--	--	--	--	7%	68%	--	25%	--	--	--	--	--	--	--	--	--
TB NE	--	--	--	--	--	1%	78%	21%	--	--	--	--	--	--	--	--	--
TB SE	--	--	--	--	--	7%	5%	86%	1%	--	--	--	--	--	--	--	--
BB SW	--	--	--	--	--	--	--	5%	60%	9%	5%	21%	--	--	--	--	--
BB NW	--	--	--	--	--	--	--	--	21%	76%	1%	1%	--	--	--	--	--
BB NE	--	--	--	--	--	--	--	--	1%	18%	61%	20%	--	--	--	--	--
BB SE	--	--	--	--	--	--	--	--	--	1%	7%	92%	--	--	--	--	--
CSA 1S	--	--	--	--	--	--	--	--	--	--	--	--	97%	3%	--	--	--
CSA 1N	--	--	--	--	--	--	--	--	--	--	--	--	5%	92%	3%	--	--
MS W	--	--	--	--	--	--	--	--	--	--	--	--	--	18%	68%	14%	--
MS E	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7%	81%	11%
AL	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	2%	98%

<sup>2</sup> Percentages represent the average percent of settling larvae modeled to recruit to habitat identified in column header from habitat in row header. TB = Terrebonne Bay; BB = Barataria Bay; MS W = Mississippi West; MS E = Mississippi East. Note: Average settlement values for Coastal Study Area (CSA) 6 NE and SE sum to less than 100% because some model runs in Spring 2010 resulted in no subtidal larvae settlement here (2 of 7 Spring model runs).

Table S3. Average larval settlement distribution by region (combines nearshore and subtidal larval transport) across Spring 2011 model releases, excluding values < 0.5%.<sup>3</sup>

ORIGIN LOCATION	SETTLEMENT LOCATION																
	CSA6 NW	CSA6 SW	CSA6 NE	CSA6 SE	TB NW	TB SW	TB NE	TB SE	BB SW	BB NW	BB NE	BB SE	CSA 1S	CSA 1N	MS W	MS E	AL
CSA6 NW	75%	2%	22%	1%	--	--	--	--	--	--	--	--	--	--	--	--	--
CSA6 SW	63%	9%	27%	1%	--	--	--	--	--	--	--	--	--	--	--	--	--
CSA6 NE	13%	--	15%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
CSA6 SE	4%	--	24%	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TB NW	--	--	--	--	92%	7%	--	1%	--	--	--	--	--	--	--	--	--
TB SW	--	--	--	--	8%	48%	--	44%	--	--	--	--	--	--	--	--	--
TB NE	--	--	--	--	--	--	77%	23%	--	--	--	--	--	--	--	--	--
TB SE	--	--	--	--	--	3%	5%	90%	1%	--	--	1%	--	--	--	--	--
BB SW	--	--	--	--	--	--	--	6%	56%	16%	4%	17%	--	--	--	--	--
BB NW	--	--	--	--	--	--	--	--	11%	89%	--	--	--	--	--	--	--
BB NE	--	--	--	--	--	--	--	--	--	6%	75%	19%	--	--	--	--	--
BB SE	--	--	--	--	--	--	--	--	--	1%	9%	89%	--	--	--	--	--
CSA 1S	--	--	--	--	--	--	--	--	--	--	--	--	94%	6%	--	--	--
CSA 1N	--	--	--	--	--	--	--	--	--	--	--	--	9%	90%	--	--	--
MS W	--	--	--	--	--	--	--	--	--	--	--	--	1%	33%	57%	9%	--
MS E	--	--	--	--	--	--	--	--	--	--	--	--	--	5%	26%	65%	3%
AL	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7%	92%

<sup>3</sup> Percentages represent the average percent of settling larvae modeled to recruit to habitat identified in column header from habitat in row header. TB = Terrebonne Bay; BB = Barataria Bay; MS W = Mississippi West; MS E = Mississippi East. Note: Average settlement values for Coastal Study Area (CSA) 6 NE and SE sum to less than 100% because some model runs in Spring 2011 resulted in no subtidal larvae settlement here (5 of 7 Spring model runs).

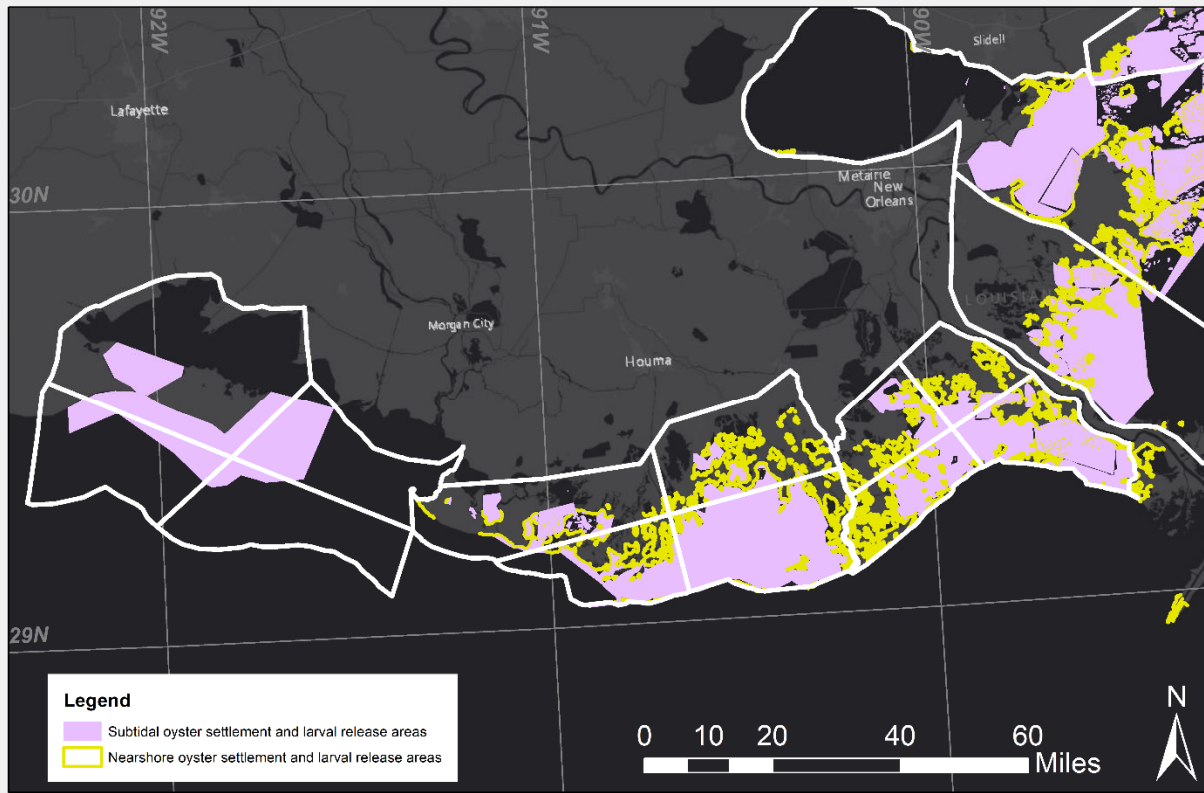


Figure S1. Nearshore and subtidal habitat seeding areas of CSA 6, Terrebonne Bay and Barataria Bay used in ADCIRC larval transport modeling. Subbasin boundaries outlined in white. Only larvae originating from and settling within subbasin boundaries were included in the settlement analyses, i.e., nearshore settlement and larval release areas in the Mississippi River Bird's Foot Delta outside of the Barataria Bay and CSA 1S subbasin boundaries were excluded from the analyses.

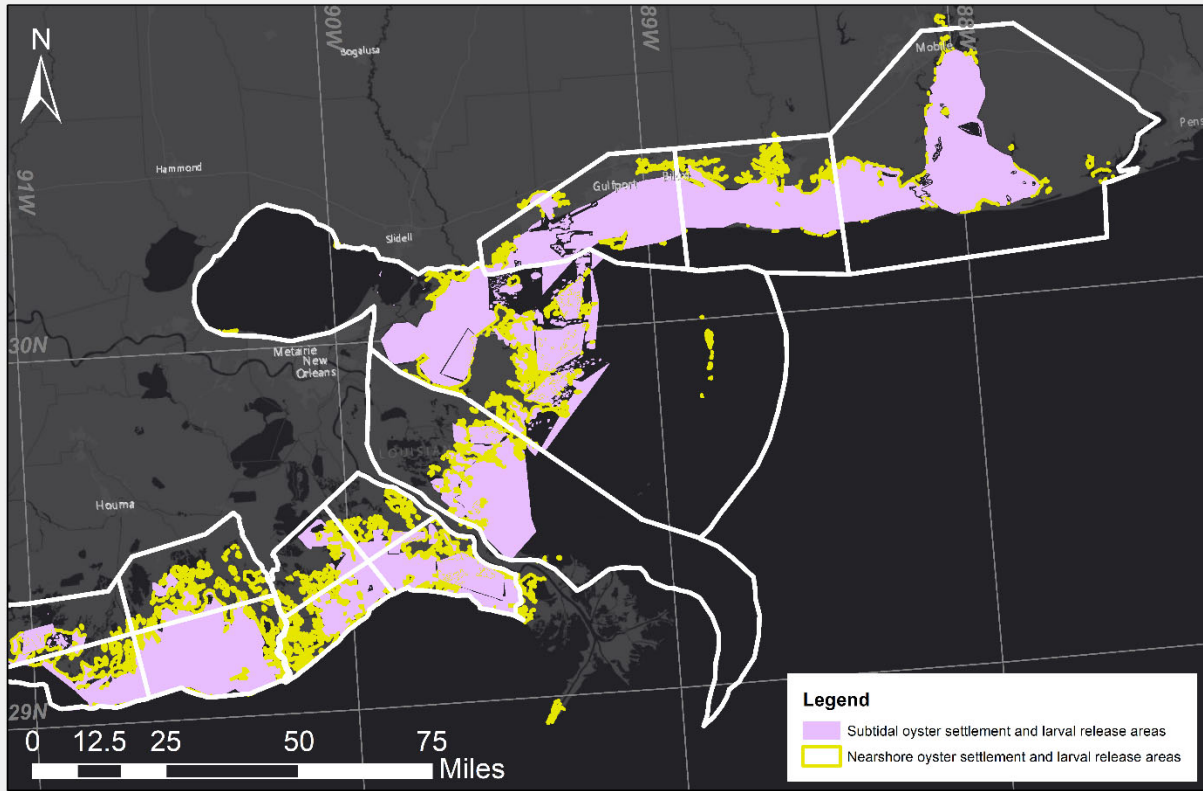


Figure S2. Nearshore and subtidal habitat seeding areas of CSA 1S, CSA 1N, Mississippi West, Mississippi East and Alabama used in ADCIRC larval transport modeling. Subbasin boundaries outlined in white. Only larvae originating from and settling within subbasin boundaries were included in the settlement analyses, i.e., nearshore and subtidal settlement and larval release areas in Mississippi Sound north of the Mississippi West and East subbasin boundaries were excluded from the analyses.