

Supplemental Information

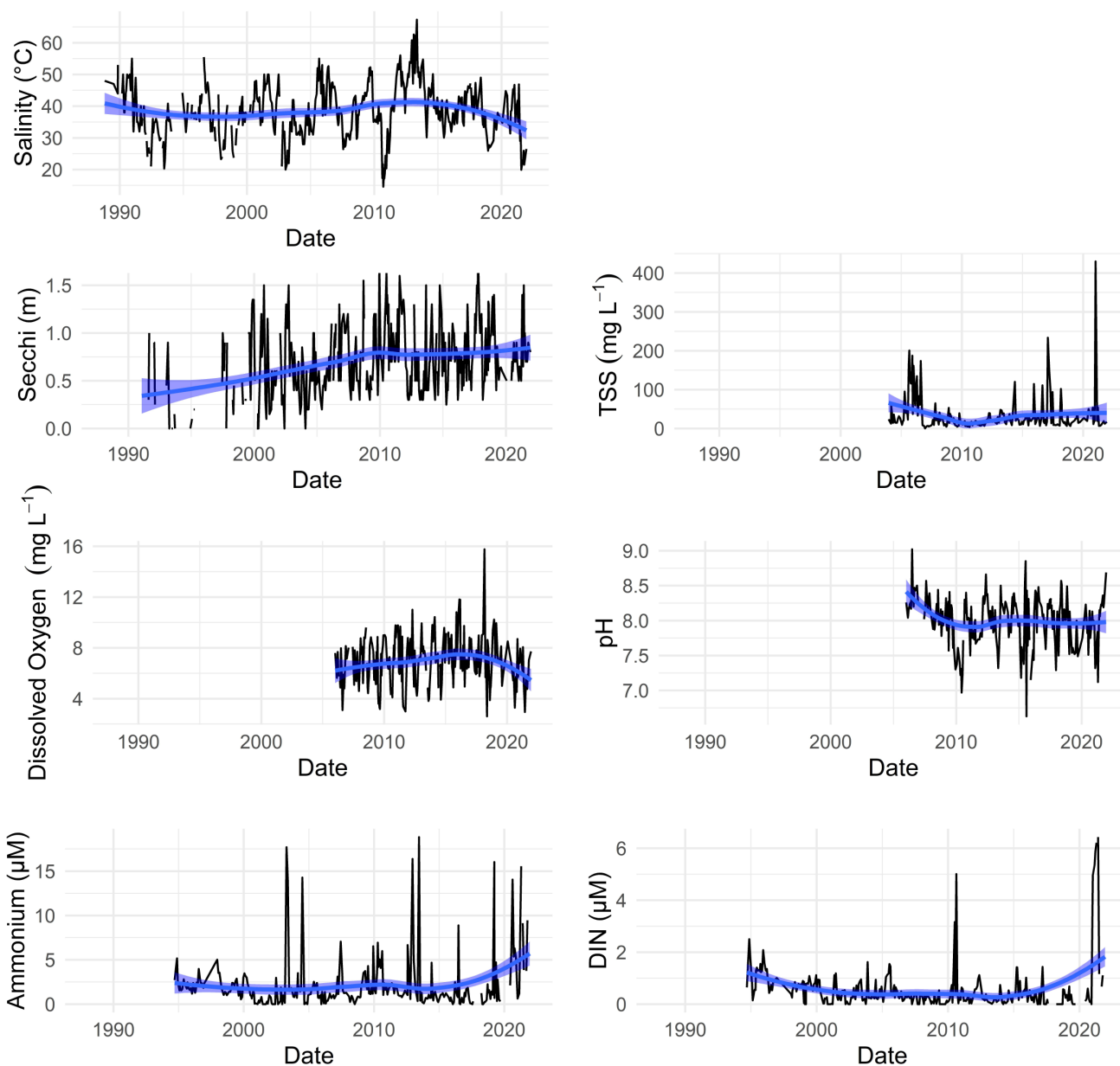


Figure S1. Various environmental parameters collected during LM-151 sampling. Individual points represent observations while lines represent the results of loess smoothing and the shaded region is the standard error.

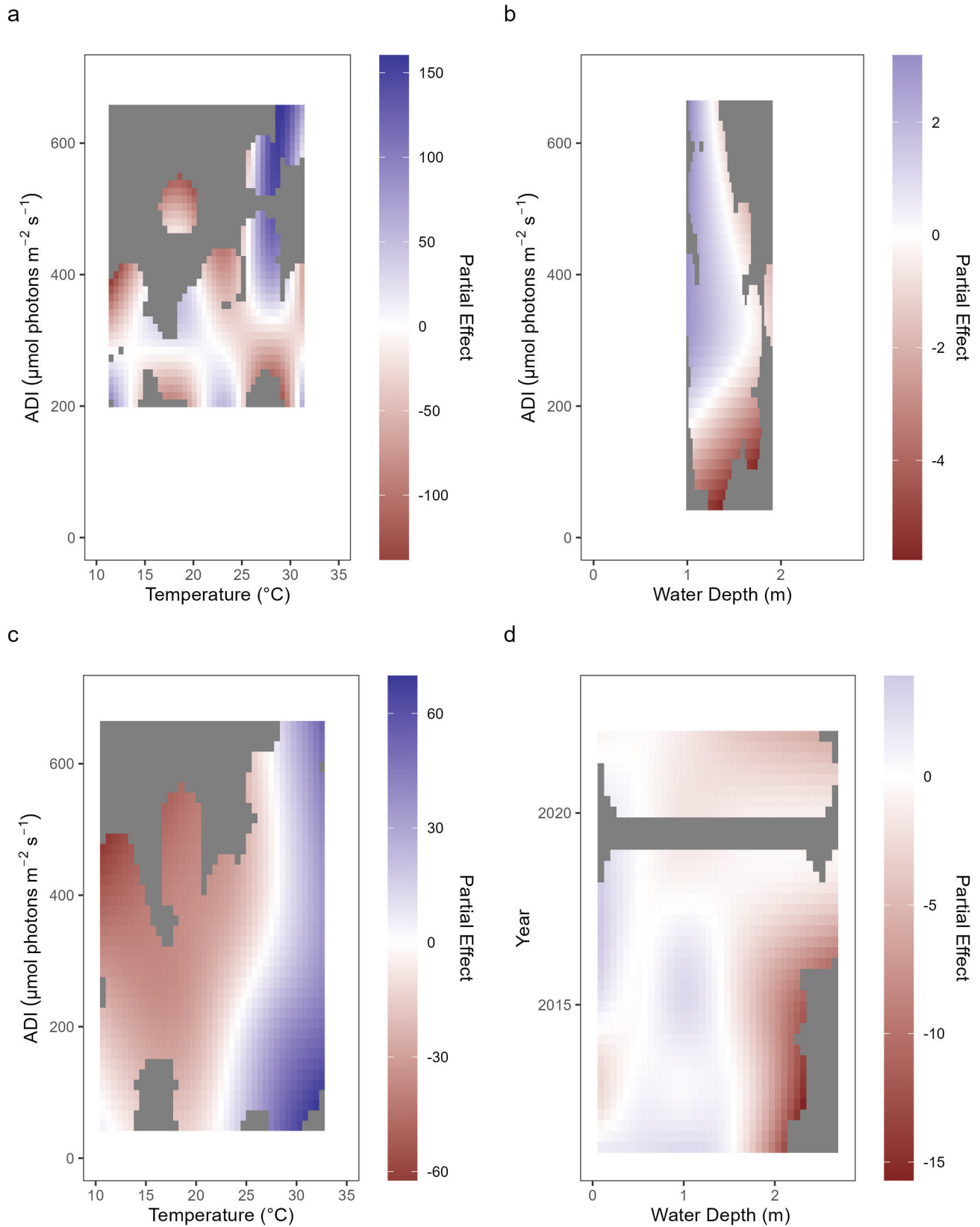


Figure S2. Partial effect plots from GAMs constructed for: a) *Syringodium* biomass LM-151, b) *Syringodium* presence at LM-151, c) *Halodule* biomass at LM-151, d) Seagrass presence at Tier-2 stations. Partial effects indicate the size and sign of the relationship between independent and dependent variables.

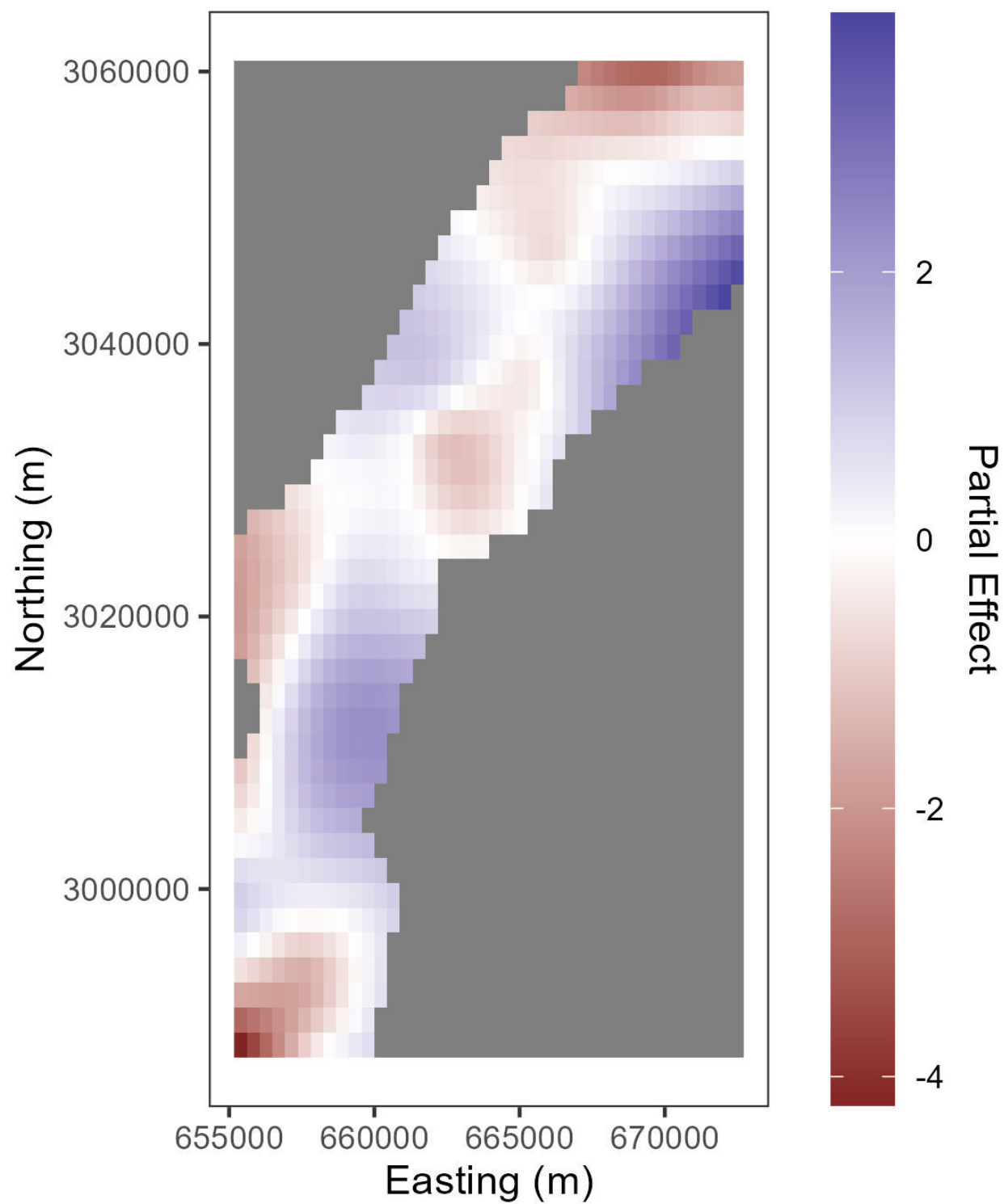


Figure S3. Partial effect plot for seagrass spatial structure in GAM modeling of Tier-2 seagrass presence.

SyringodiumBiomass ~te(Temperature, Irradiance) R ² = 0.678; Total Deviance Explained = 83.3			
Term	p-value	Deviance Explained	k p-value
te(Temperature, Irradiance)	0.004	100	0.9
SyringodiumPresence ~te(Depth, Irradiance) R ² = 0.215; Total Deviance Explained = 25.6			
te(Depth, Irradiance)	0.028	100	0.94
HaloduleBiomass ~te(Temperature, Irradiance) R ² = 0.305; Total Deviance Explained = 35.5			
te(Temperature, Irradiance)	10 ⁻⁵	100	0.44
SeagrassPresence ~te(Depth, Year) + te(Northing, Easting) R ² = 0.616; Total Deviance Explained = 63.5			
te(Depth, Year)	10 ⁻¹⁶	81.4	0.32
te(Northing, Easting)	0.0002	18.6	0.12

Table S1. Statistical results from general additive modelling for seagrass biomass and presence from LM-151 and Tier-2 data.

System	Sabine- Neches	Trinity- San Jacinto	Colorado- Lavaca	San Antonio	San Antonio- Nueces	Nueces	Laguna Madre	Lwr Laguna Madre
TOTAL (km ²)	1414	4602	3202	1737	1875	1278	1227	1170
Unsuitable (km ²)	903	1982	891	815	873	622	527	485
Suitable (km ²)	19	353	284	253	195	238	650	597
Marsh (km ²)	492	2267	2027	668	806	417	51	89
%Unsuitable	64	43	28	47	47	49	43	41
%Suitable	1	8	9	15	10	19	53	51
%Marsh	35	49	63	38	43	33	4	8

Table S2. Shoreline habitat suitability determined using Environmental Sensitivity Index data⁵⁵ for Texas' major estuarine systems.