Figure 1. Map of the study area, showing locations of sampling sites within localities of major oyster reef complexes. Within each locality, note that transects were placed on reefs representing a gradient from inshore to offshore. For offshore reefs, note the coastwise orientation and linearity of reefs.

Figure 2. Histogram of probability density function (y-axis) of live oysters counted (x-axis) on intertidal reefs in Suwannee Sound, Florida. The red line represents the predicted density of oyster counts if these data follow a negative binomial distribution.

Figure 3. Predicted oyster counts using the best-fit negative binomial model offset by transect length from each locality CK = Cedar Key, CR = Corrigan’s reef, HB = Horseshoe Beach, and LC = Lone Cabbage based on data from 2010-2019. Colored lines represent Inshore (red), Nearshore (blue), and Offshore (green) sites within each locality. Shaded regions represent 95% CI on the predicted values.

Figure 4. Mean daily discharge by year (panel A) and associated variance (panel B) and CV (panel C) of daily discharge and total annual discharge (panel D) for the Suwannee River measured at USGS Wilcox gauge from October 1941 to December 2018. Red LOWESS smoothing line provided to show general trends in discharge. Blue dashed line is the average mean daily discharge, variance, CV, or total annual discharge from 1941-2018.

Figure 5. Mean daily discharge by year (panel A) and associated variance (panel B) and CV (panel C) of daily discharge and total annual discharge (panel D) for the Suwannee River measured at USGS Wilcox gauge from January 2010 to December 2018. Red LOWESS smoothing line provided to show general trends in discharge. Blue dashed line is the average mean daily discharge, variance, CV, or total annual discharge from 1941-2018.

Figure 6. Oyster landings (whole meat weight, panel A), oyster fishing trips (panel B), and oyster catch per trip (CPUE, panel C) for Suwannee Sound, Florida (Levy, Dixie, Taylor counties) from 1986-July 2019. Data for 2018 and 2019 are provisional.

Figure 7. Predicted oyster counts using the best-fit negative binomial model offset by transect length including mean annual daily discharge with a one-year lag as a covariate. Shaded regions represent 95% CI on the predicted values.

Figure S1. Predicted oyster counts using the best-fit negative binomial model offset by transect length (oyster counts = period \* site + locality + offset(log(transect length))) fit to 1000 simulated data sets (black lines) for all localities combined based on data from 2010-2019. Solid blue line is predicted values fit to observed (actual) field data.

Figure S2. Kernel density plot (y-axis) and p-value (x-axis) for the “period” beta term fit to the model oyster counts = period \* site + locality + offset(log(transect length)) from 1000 simulated datasets.

Figure S3. Panel A: Monthly Palmer drought severity index (y-axis) for north Florida (red line) and southeast Georgia (black line) by year (x-axis). Negative values indicate periods of drought and positive values periods of higher soil moisture. Data from NOAA 2019c. Panel B: Monthly mean sea level (y-axis, solid black line) over year (x-axis) from NOAA station 8727520, Cedar Key, Florida with a linear model (dotted black line) plotted for reference. Average seasonal cycle removed by NOAA (NOAA 2019b).