SUPPORTING INFORMATION

An approach to developing numeric water quality criteria for coastal waters using the SeaWiFS satellite data record.

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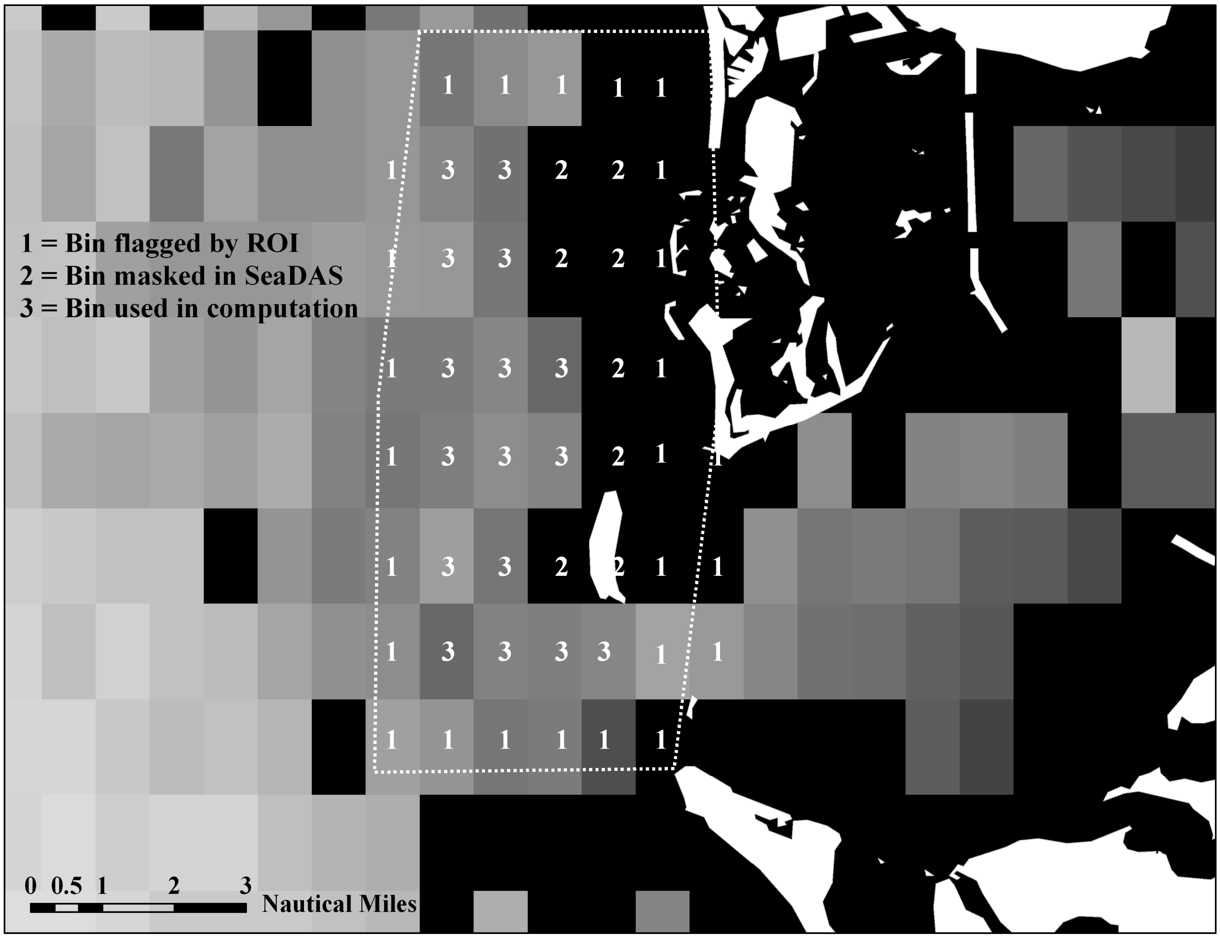

Figure S1. Zoomed in view of coastal segment 22 near Tampa Bay. The dotted white line defines the coastal segment polygon using IDL region of interest (ROI). ROI did not include any Chl_{RS}-*a* bins (#1) that were located on the polygon line or a vertex. Bins masked by SeaDAS standard quality control flags (black, #2), including stray light contamination and land, had no value and were not included in the computation. Chl_{RS}-*a* bins completely within coastal segment polygon (#3) were included in the computation.

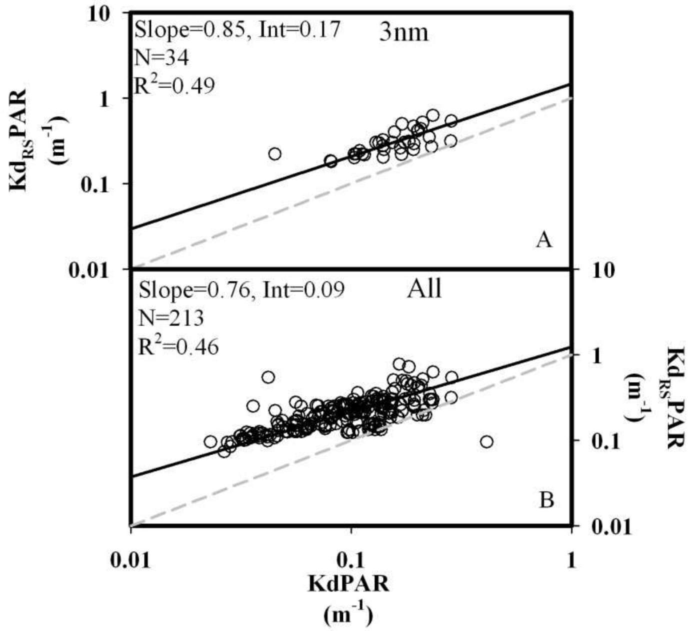

Figure S2. SeaWiFS observations of $Kd_{RS}PAR$ compared to KdPAR from stations within the 3 NM coastal segments (A) and for all the stations (B). Grey dashed line is 1:1 fit and black line is regression slope. Plots are presented in log space, but regression coefficients have been converted to linear space to represent a linear regression formula of y=slope*x+intercept.

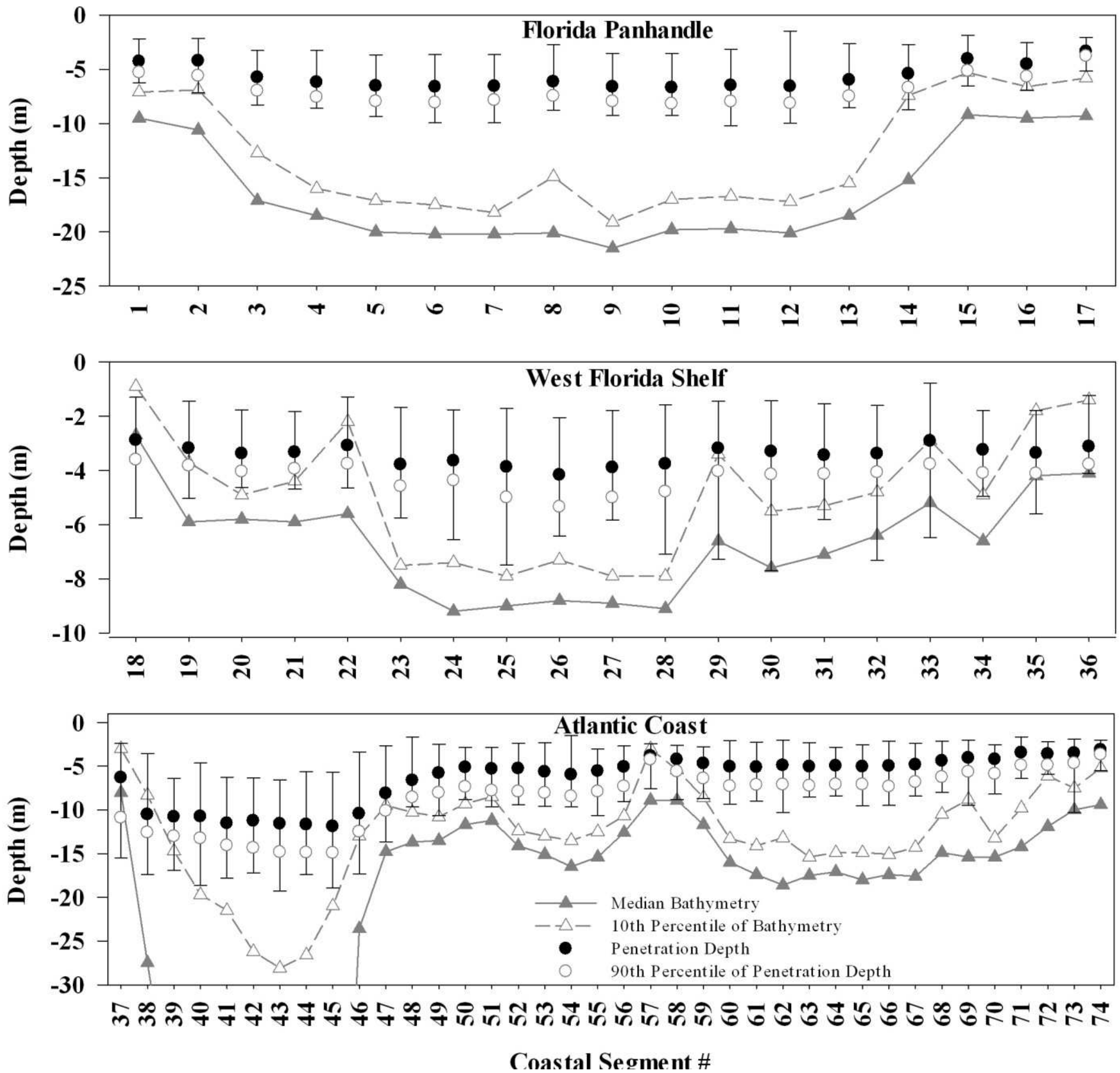

Figure S3. Coastal segment bottom depths and PAR integrated satellite penetration depths.

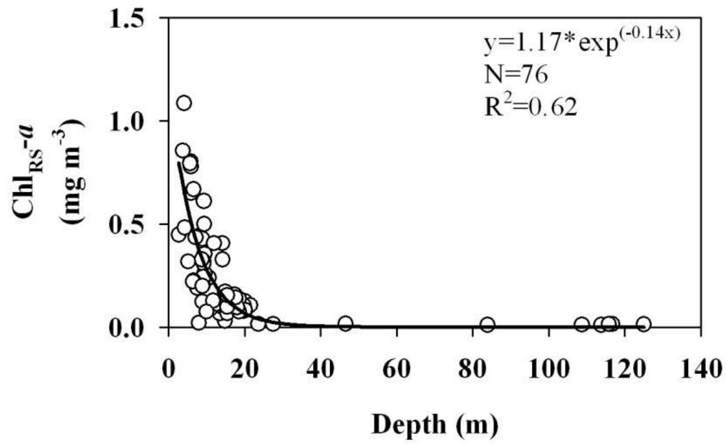

Figure S4. Regression between coastal segment median bathymetry and minimum Chl$_{RS}$-*a* showing the influence of bottom reflectance on Chl$_{RS}$-*a*.

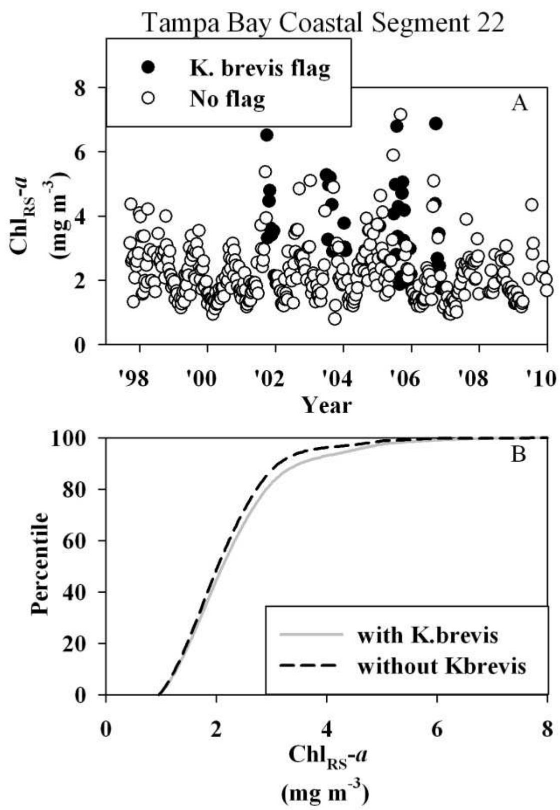

Figure S5. (A) A time-series of satellite remote sensing Chl$_{RS}$-*a* observations for the coastal segment (#22) adjacent to Tampa Bay. Chl$_{RS}$-*a* were flagged when *K. brevis* cell counts exceed 50,000 cells L^{-1} (solid circles). (B) The cumulative distributions of all Chl$_{RS}$-*a* data for segment 22 were calculated using all the data (grey solid line) and using only the unflagged data (dashed black line).

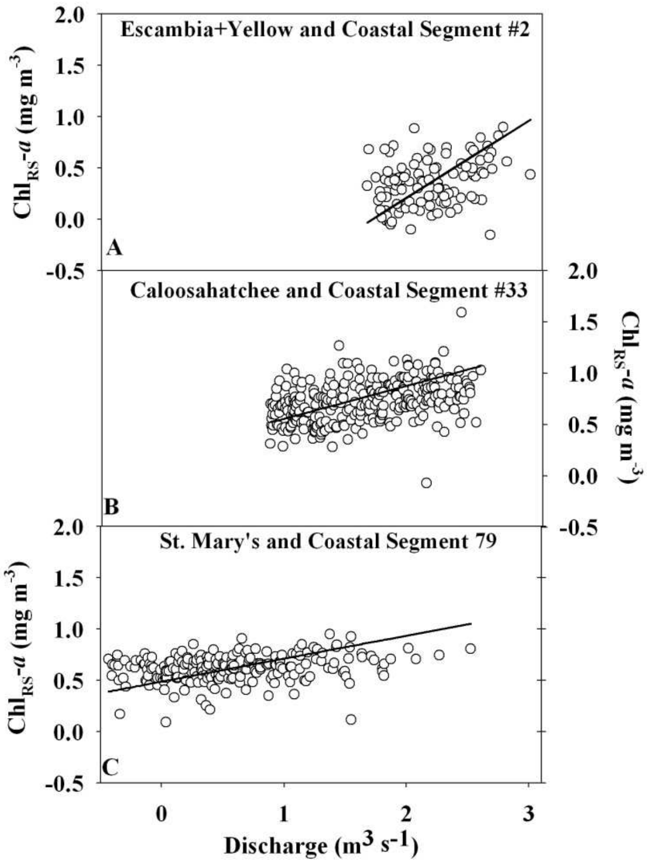

Figure S6. Representative relationships between river discharge and satellite remote sensing observations of Chl$_{RS}$-a for the (A) FP, (B) WFS, and (C) AC. River locations are shown in Figure 1. Discharge and Chl$_{RS}$-a were 8-day averages for the date periods of overlapping discharge and remote sensing data. Model II regressions (black lines) were calculated from $\log_{10}$ transformed discharge and Chl$_{RS}$-a. All the regression relationships were highly significant ($p < 0.01$). Model II regression statistics are shown in Table S1.

Table S1. Model II regression statistics of $\log_{10}$ 8-day average discharge (independent variable) versus $\log_{10}$ 8-day average Chl_{RS}-*a* (dependent variable). The first column designates the river systems for which 8-day average discharges were calculated. The second column contains the coastal segment number for which 8-day average Chl_{RS}-*a* were calculated. The regression statistics are the slope and intercept of the regression, the standard deviation of the slope (s_{slope}) and intercept ($s_{intercept}$), the coefficient of determination (R^2), and the p-value.

River system	Segment#	slope	intercept	s_{slope}	$s_{intercept}$	R^2	p-value
Escambia/Yellow	2	0.75	-1.29	0.09	0.19	0.11	6.44E-04
Choctawhatchee	8	0.61	-1.27	0.04	0.07	0.16	1.70E-15
Hillsborough	22	0.09	0.67	0.01	0.01	0.20	3.81E-23
Peace	29	0.40	0.28	0.05	0.04	0.33	2.97E-06
Caloosahatchee	33	0.32	0.23	0.02	0.03	0.13	1.83E-16
St John	73	0.58	-0.81	0.05	0.13	0.08	2.72E-04
St Mary’s	79	0.22	0.49	0.02	0.02	0.07	1.27E-04