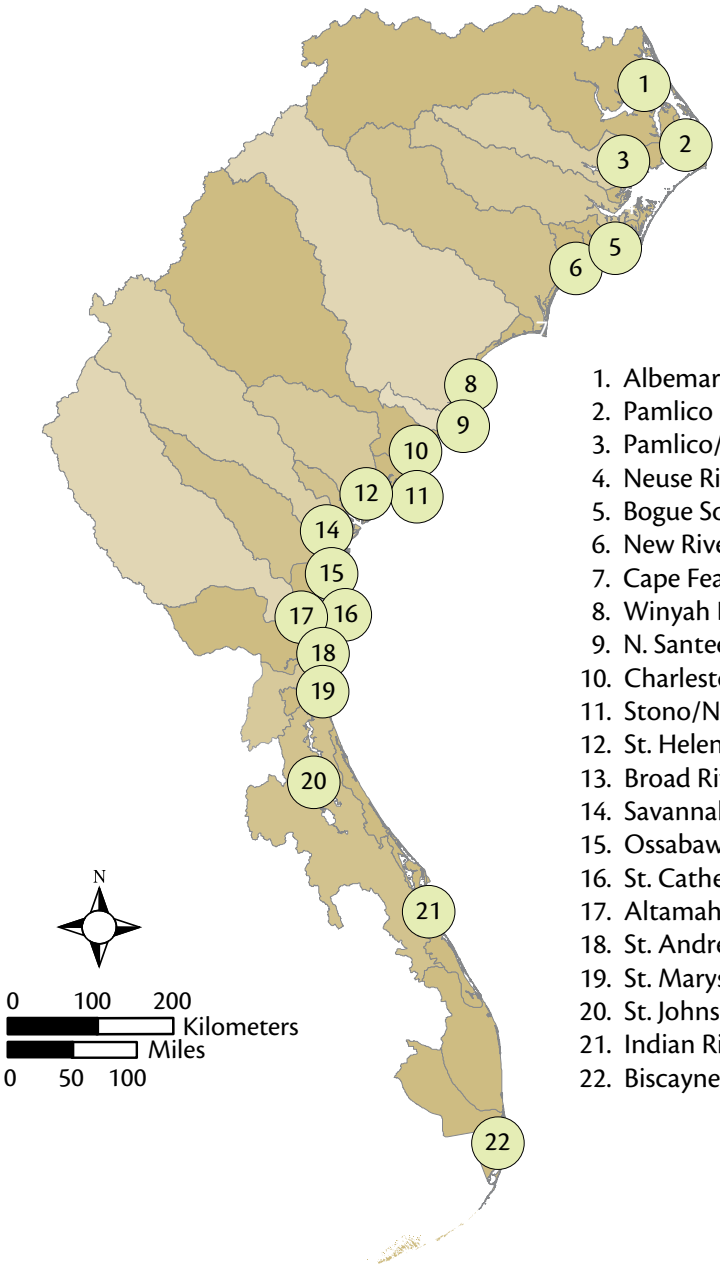
THE SOUTH ATLANTIC REGION

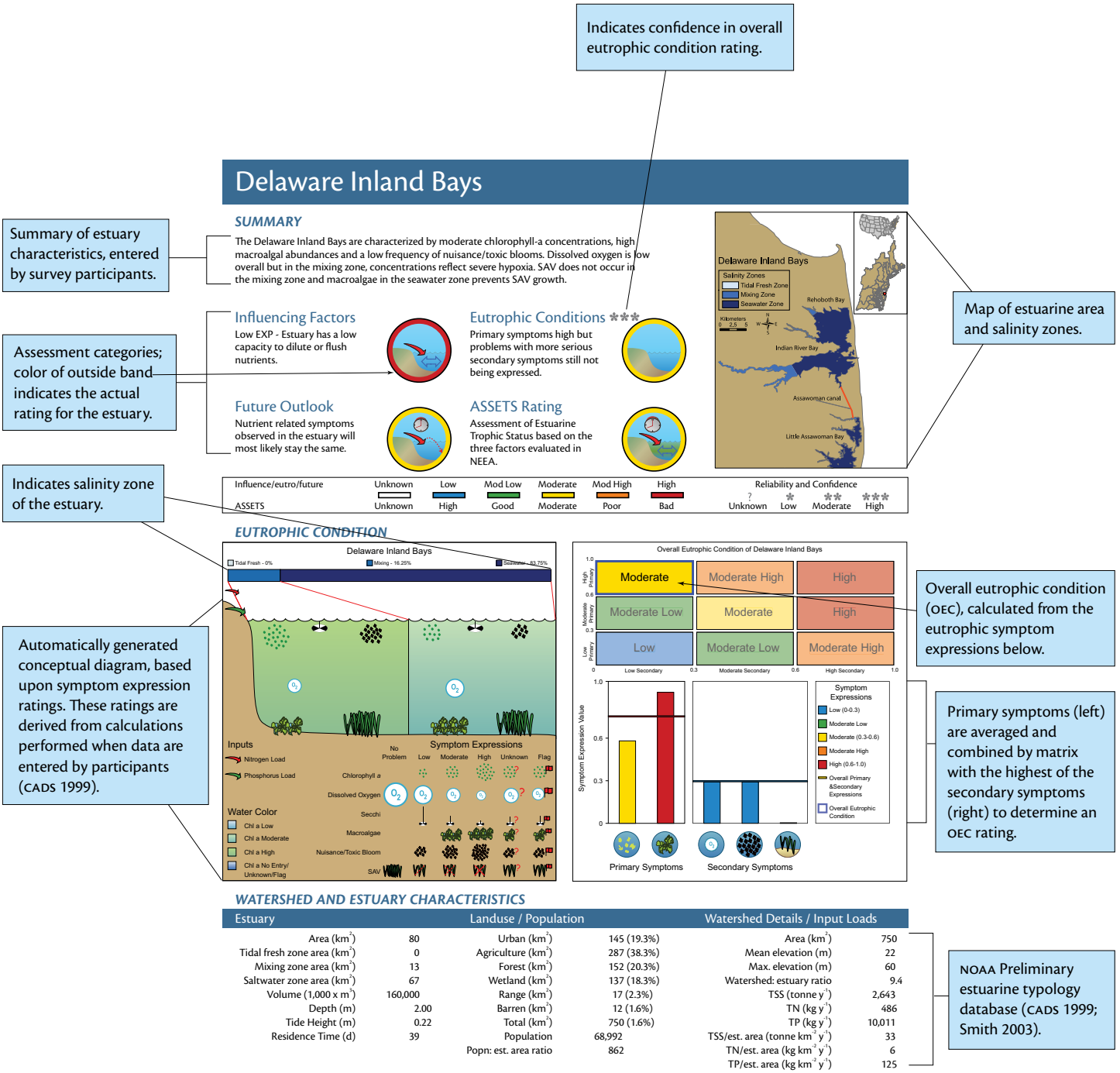


1. Albemarle Sound
2. Pamlico Sound
3. Pamlico/Pungo Rivers
4. Neuse River
5. Bogue Sound
6. New River
7. Cape Fear River
8. Winyah Bay
9. N. Santee/S. Santee Rivers
10. Charleston Harbor
11. Stono/North Edisto Rivers
12. St. Helena Sound
13. Broad River
14. Savannah River
15. Ossabaw Sound
16. St. Catherines/Sapelo Sounds
17. Altamaha River
18. St. Andrew/St. Simons Sounds
19. St. Marys River/Cumberland Sound
20. St. Johns River
21. Indian River
22. Biscayne Bay

ESTUARY SUMMARIES

This appendix contains one-page summaries for the 141 systems included in the study which include the status and trends of eutrophic conditions, a salinity zone map, and data describing watershed and estuary characteristics. They are organized by region (North, Mid and South Atlantic, Gulf of Mexico and Pacific) and are listed alphabetically within the region. These summary pages are produced automatically from the NEEA online survey and are accessible for download at http://ian.umces.edu/neea.

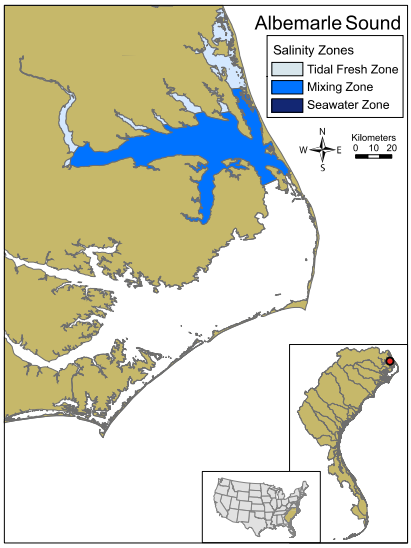
Figure A1: Example of an estuary summary page; after data and summary texts are entered by survey participants, symptom expressions for each indicator are calculated and incorporated in to a summary.



Albemarle Sound

SUMMARY

Though data were unavailable to assess Albemarle Sound for 2004, in the 1999 assessment the estuary was characterized by low symptom expressions for chlorophyll-a and dissolved oxygen, and was also susceptible to frequent nuisance/toxic blooms.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions *

An Unknown Overall Eutrophic Condition expression will occur if either the Primary or Secondary overall symptom expression is Unknown.

Future Outlook

An Unknown Future Outlook expression will occur if the Expected Changes In Nutrient Load by 2020 is Unknown.

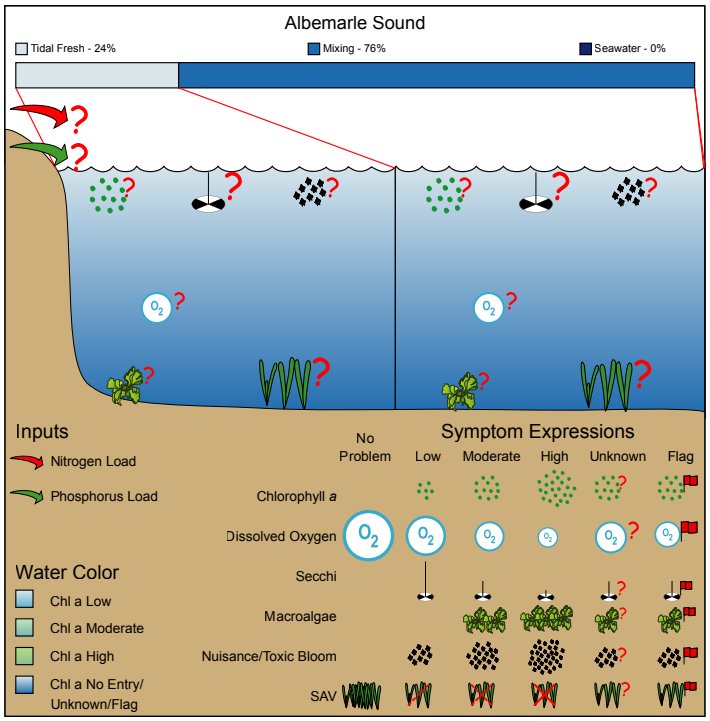
ASSETS Rating

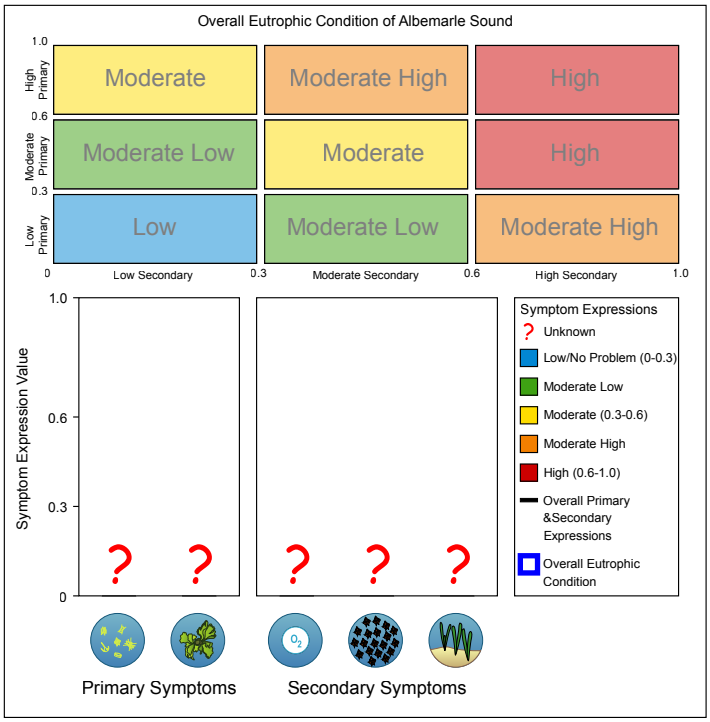
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence			
? Unknown	* Low	** Moderate	*** High

EUTROPHIC CONDITION





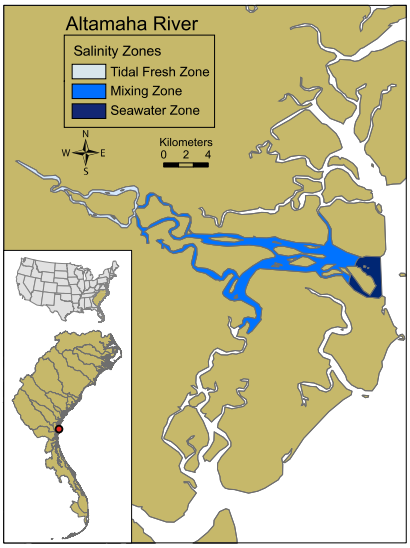
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	2,497	Urban (km^2)	2,375 (5.3%)	Area (km^2)	45,036
Tidal fresh zone area (km^2)	599	Agriculture (km^2)	13,535 (30.5%)	Mean elevation (m)	138
Mixing zone area (km^2)	1,898	Forest (km^2)	24,139 (54.3%)	Max. elevation (m)	1,144
Saltwater zone area (km^2)	0	Wetland (km^2)	4,364 (9.8%)	Watershed: estuary ratio	18.0
Volume (1,000 x m^3)	6,242,500	Range (km^2)	18 (0%)	TSS (tonne y^{-1})	354,000
Depth (m)	2.50	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	Unknown
Tide Height (m)	0.58	Total (km^2)	44,431 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	9	Population	1,274,559	TSS/est. area (tonne km^{-2} y^{-1})	142
		Popn: est. area ratio	510	DIN/est. area (kg km^{-2} y^{-1})	Unknown
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

Altamaha River

SUMMARY

The Altamaha River exhibits a low eutrophic condition, due to some low dissolved oxygen events but no problematic blooms. Chicken production in the upper portion of the system and increased population may present future nutrient loading issues. Changes since the 1999 assessment cannot be determined.

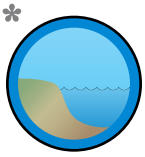


Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

Level of expression of eutrophic conditions is minimal.



Future Outlook

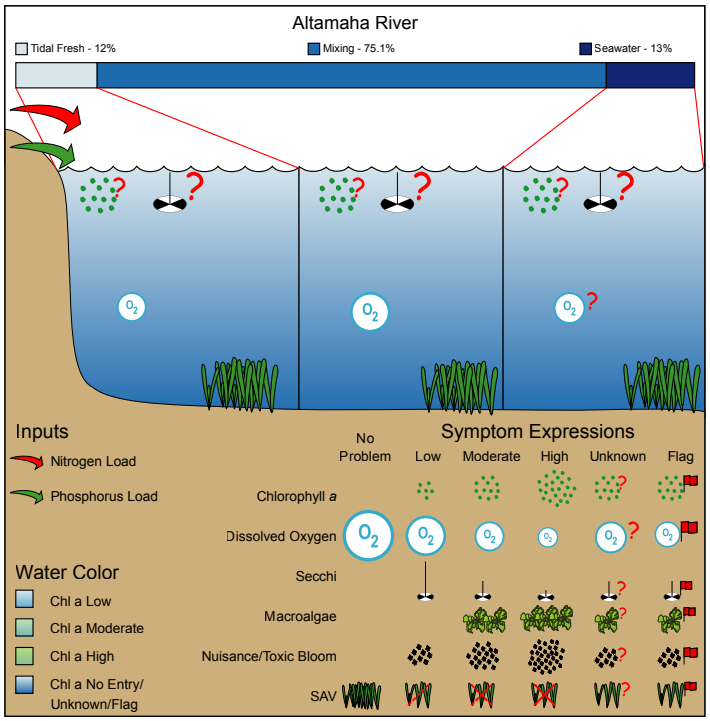
Nutrient related symptoms observed in the estuary are likely to substantially worsen.

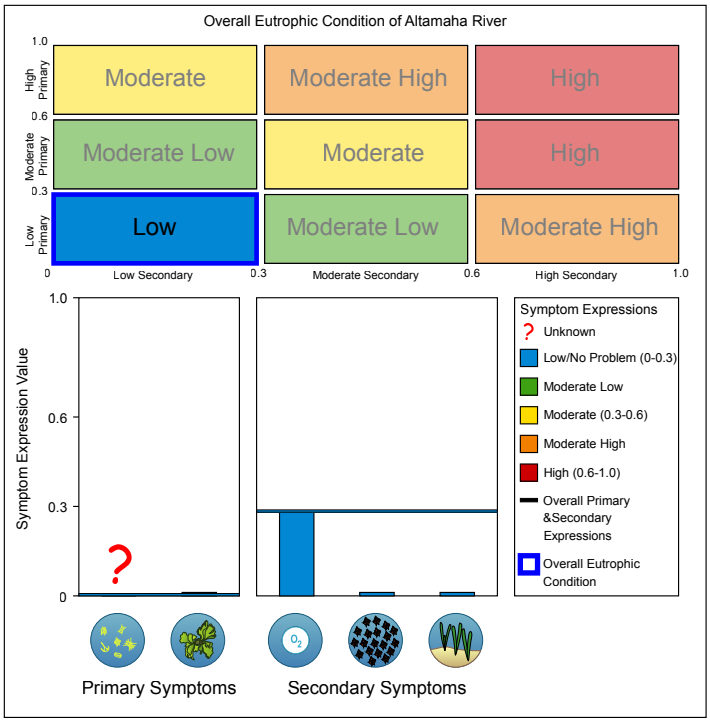
ASSETS Rating

Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High	Reliability and Confidence
ASSETS	Unknown	High	Good	Moderate	Poor	Bad	? Unknown * Low ** Moderate *** High

EUTROPHIC CONDITION





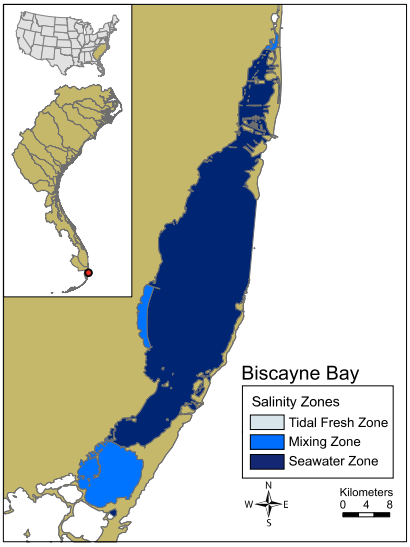
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	39	Urban (km^2)	2,147 (5.8%)	Area (km^2)	36,962
Tidal fresh zone area (km^2)	5	Agriculture (km^2)	9,547 (26%)	Mean elevation (m)	133
Mixing zone area (km^2)	29	Forest (km^2)	23,123 (62.9%)	Max. elevation (m)	459
Saltwater zone area (km^2)	5	Wetland (km^2)	1,932 (5.3%)	Watershed: estuary ratio	947.7
Volume (1,000 x m^3)	76,440	Range (km^2)	5 (0%)	TSS (tonne y^{-1})	1,960
Depth (m)	1.96	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	4,789,299
Tide Height (m)	1.90	Total (km^2)	36,755 (0%)	TP (kg y^{-1})	1,242,006
Residence Time (d)	0	Population	1,681,584	TSS/est. area (tonne km^{-2} y^{-1})	50
		Popn: est. area ratio	43,118	DIN/est. area (kg km^{-2} y^{-1})	122,803
				TP/est. area (kg km^{-2} y^{-1})	31,846

Biscayne Bay

SUMMARY

Biscayne Bay is characterized by low levels of chlorophyll-a and has no macroalgal blooms. Bottom-water anoxia and hypoxia occur in localized, deepened areas. However, the geology of South Florida affects the surface water dissolved oxygen levels such that low DO is not necessarily a eutrophic symptom. SAV is widely distributed and stable.

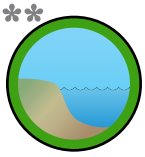


Influencing Factors

Any level nitrogen input and low to moderate susceptibility (good ability to dilute and flush nutrients).

Eutrophic Conditions ***

Moderate secondary symptoms indicate substantial eutrophic conditions, but low primary indicates other factors may be involved in causing conditions.



Future Outlook

Nutrient related symptoms observed in the estuary will most likely stay the same.

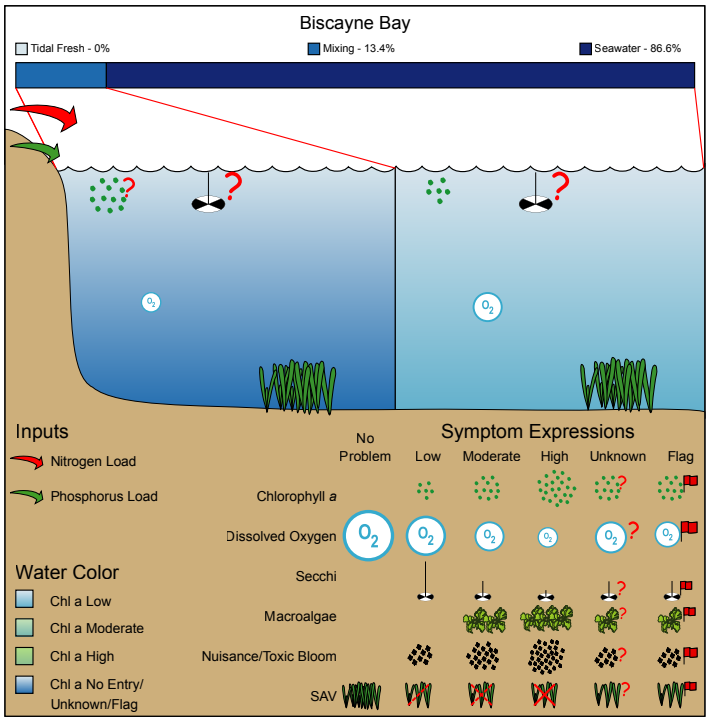
ASSETS Rating

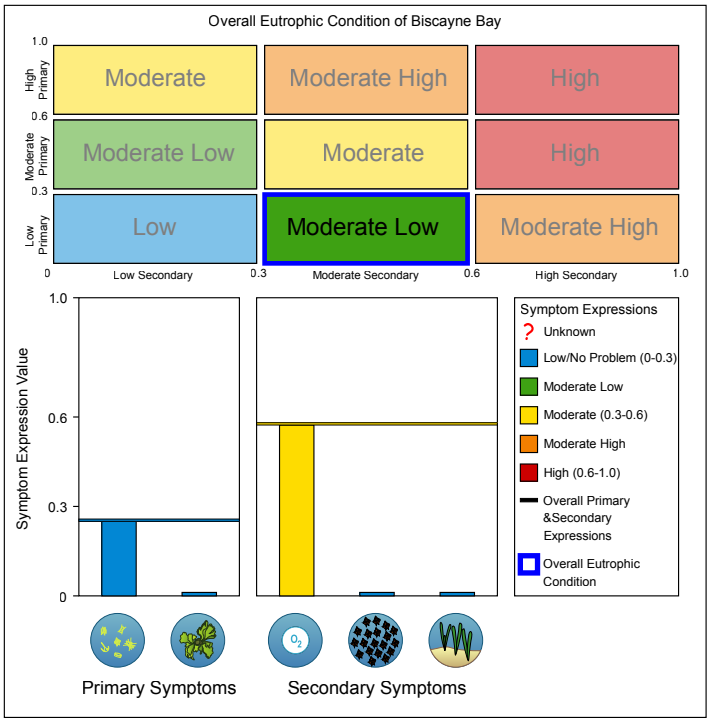
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





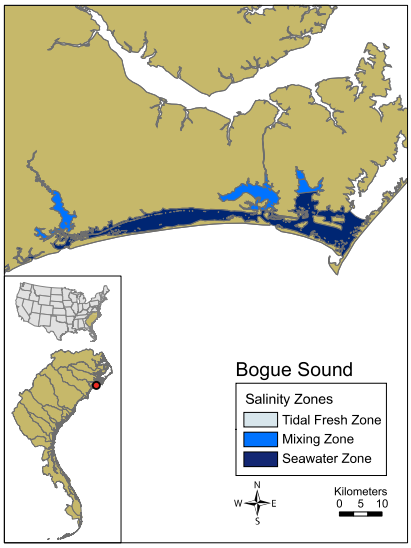
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	702	Urban (km^2)	873 (13.1%)	Area (km^2)	6,746
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	1,393 (20.9%)	Mean elevation (m)	4
Mixing zone area (km^2)	94	Forest (km^2)	404 (6%)	Max. elevation (m)	9
Saltwater zone area (km^2)	608	Wetland (km^2)	3,427 (51.3%)	Watershed: estuary ratio	9.6
Volume (1,000 x m^3)	863,460	Range (km^2)	583 (8.7%)	TSS (tonne y^{-1})	165,000
Depth (m)	1.23	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	2,059,000
Tide Height (m)	0.46	Total (km^2)	6,680 (0%)	TP (kg y^{-1})	47,300
Residence Time (d)	4	Population	1,552,612	TSS/est. area (tonne km^{-2} y^{-1})	235
		Popn: est. area ratio	2,212	DIN/est. area (kg km^{-2} y^{-1})	2,933
				TP/est. area (kg km^{-2} y^{-1})	67

Bogue Sound

SUMMARY

No data were available to assess the eutrophic condition of Bogue Sound for 2004. However, the estuary was characterized in 1999 by a moderate low eutrophic condition, stemming from moderate chlorophyll-a concentrations and low frequency of nuisance/toxic blooms.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions *

An Unknown Overall Eutrophic Condition expression will occur if either the Primary or Secondary overall symptom expression is Unknown.

Future Outlook

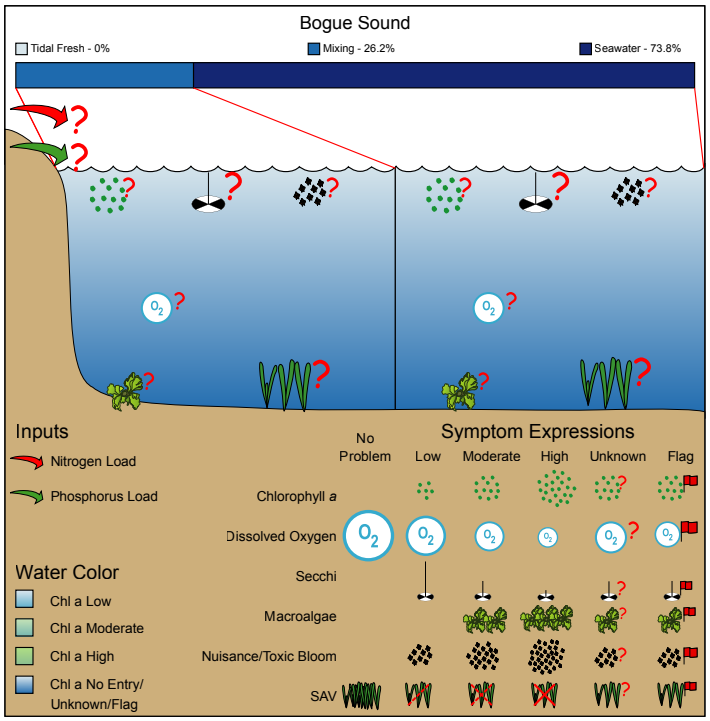
An Unknown Future Outlook expression will occur if the Expected Changes In Nutrient Load by 2020 is Unknown.

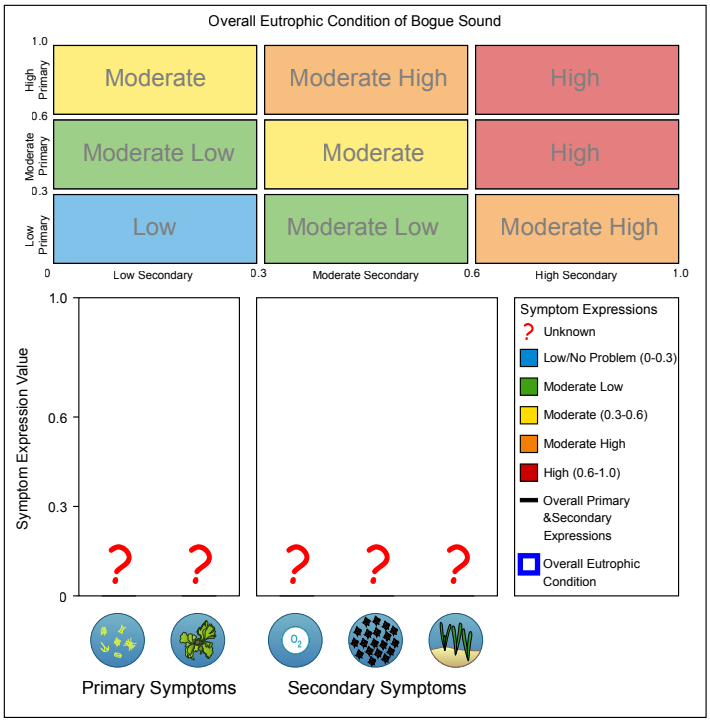
ASSETS Rating

Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High	Reliability and Confidence
ASSETS	Unknown	High	Good	Moderate	Poor	Bad	? Unknown * Low ** Moderate *** High

EUTROPHIC CONDITION





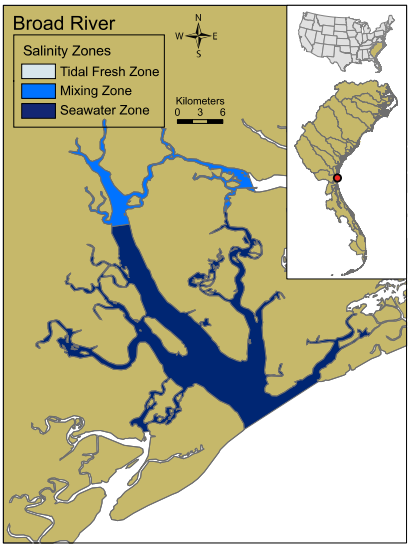
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	274	Urban (km^2)	145 (9.7%)	Area (km^2)	1,555
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	181 (12.1%)	Mean elevation (m)	8
Mixing zone area (km^2)	72	Forest (km^2)	603 (40.3%)	Max. elevation (m)	24
Saltwater zone area (km^2)	202	Wetland (km^2)	565 (37.7%)	Watershed: estuary ratio	5.7
Volume (1,000 x m^3)	361,680	Range (km^2)	3 (0.2%)	TSS (tonne y^{-1})	44,900
Depth (m)	1.32	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	Unknown
Tide Height (m)	0.73	Total (km^2)	1,497 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	2	Population	47,891	TSS/est. area (tonne km^{-2} y^{-1})	164
		Popn: est. area ratio	175	DIN/est. area (kg km^{-2} y^{-1})	Unknown
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

Broad River

SUMMARY

The Broad River shows a slight increase in chlorophyll-a and dissolved oxygen concentrations since the 1999 assessment. There is no significant change in overall eutrophic condition. The river has not shown any clear trend in occurrence of nuisance/toxic blooms. SAV and macroalgae do not occur in this system

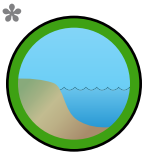


Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions **

Primary symptoms beginning to indicate possible problems but still very few secondary symptoms expressed.



Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

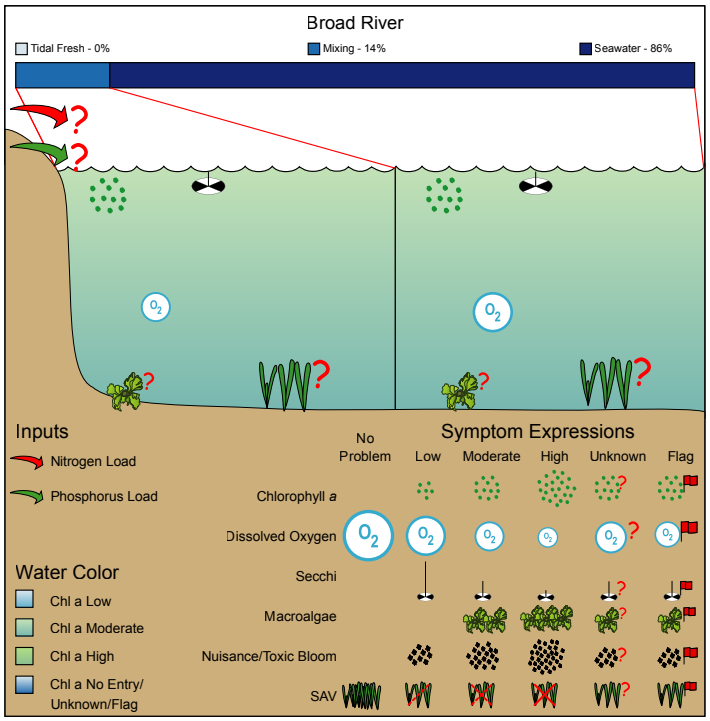
ASSETS Rating

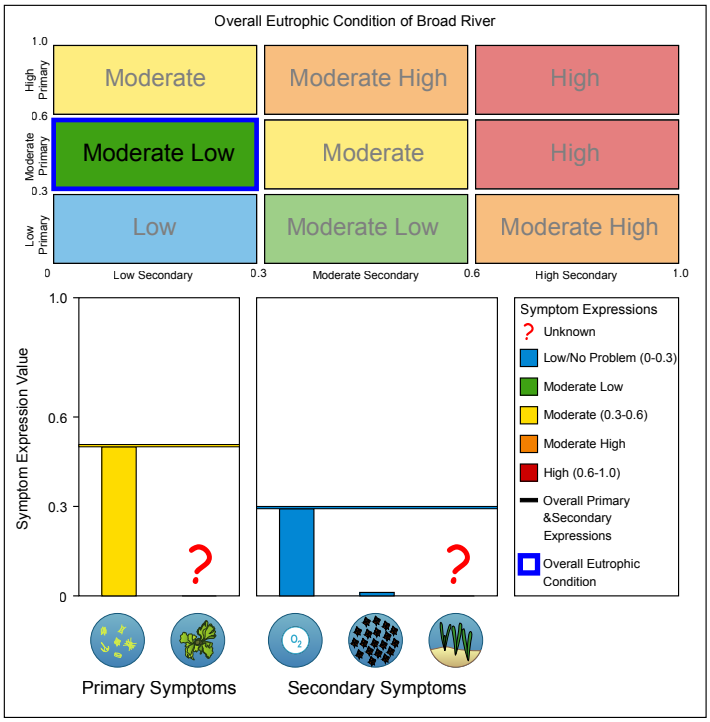
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	243	Urban (km^2)	117 (5%)	Area (km^2)	2,365
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	730 (31.4%)	Mean elevation (m)	17
Mixing zone area (km^2)	34	Forest (km^2)	694 (29.9%)	Max. elevation (m)	64
Saltwater zone area (km^2)	209	Wetland (km^2)	777 (33.4%)	Watershed: estuary ratio	9.7
Volume (1,000 x m^3)	1,222,290	Range (km^2)	5 (0.2%)	TSS (tonne y^{-1})	17,500
Depth (m)	5.03	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	Unknown
Tide Height (m)	2.23	Total (km^2)	2,323 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	3	Population	72,977	TSS/est. area (tonne km^{-2} y^{-1})	72
		Popn: est. area ratio	300	DIN/est. area (kg km^{-2} y^{-1})	Unknown
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

Cape Fear River

SUMMARY

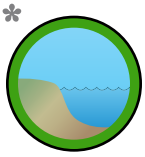
Overall there has been little change in the eutrophic state of the Cape Fear River. However, there has been an increasing trend in ammonium concentrations at several locations, possibly from animal operations. There is currently an EPA mandated TMDL for BOD/DO in the estuary. BOD is strongly correlated with chlorophyll-a in the Cape Fear River.

Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

Primary symptoms beginning to indicate possible problems but still very few secondary symptoms expressed.

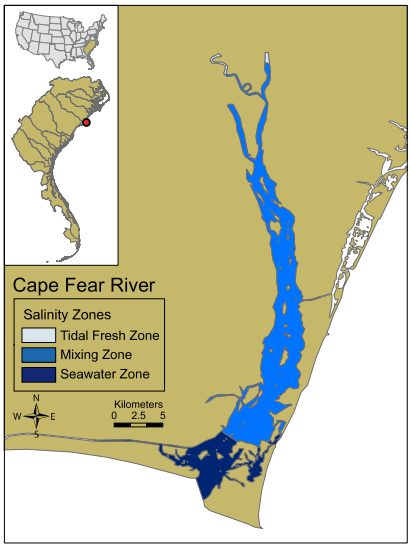


Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

ASSETS Rating

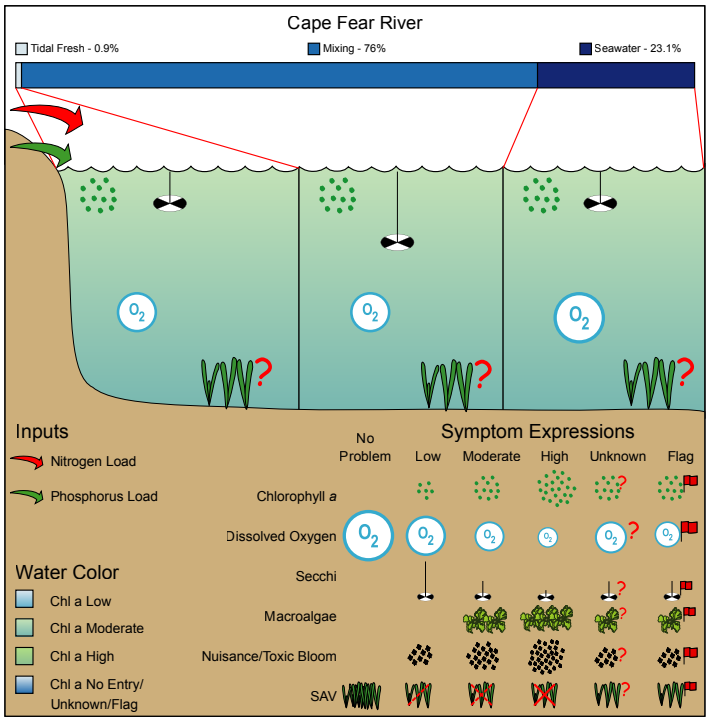
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

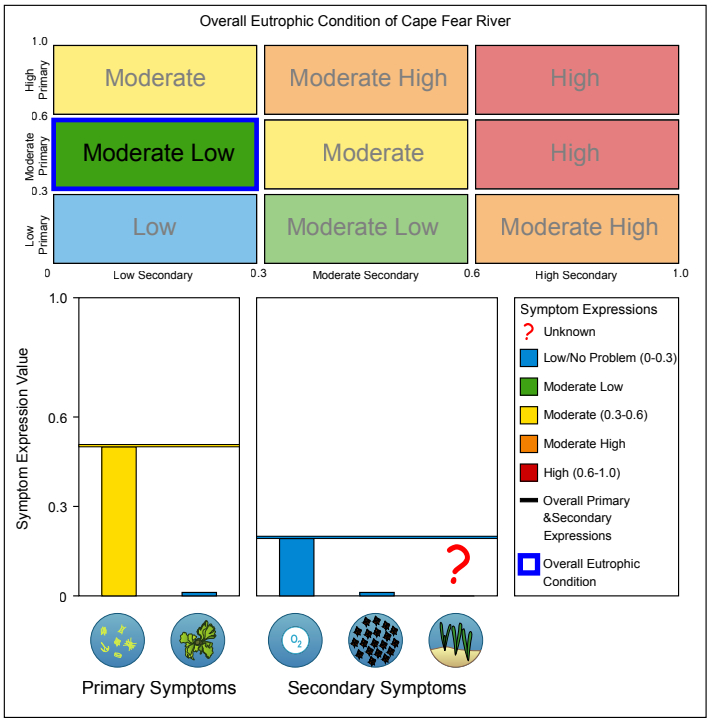


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	100	Urban (km^2)	2,372 (10.1%)	Area (km^2)	23,589
Tidal fresh zone area (km^2)	<1	Agriculture (km^2)	5,623 (24%)	Mean elevation (m)	88
Mixing zone area (km^2)	76	Forest (km^2)	12,344 (52.7%)	Max. elevation (m)	306
Saltwater zone area (km^2)	23	Wetland (km^2)	3,067 (13.1%)	Watershed: estuary ratio	235.9
Volume (1,000 x m^3)	245,000	Range (km^2)	39 (0.2%)	TSS (tonne y^{-1})	83,900
Depth (m)	2.45	Barren (km^2)	0 (0%)	TN (kg y^{-1})	7,615,782
Tide Height (m)	1.06	Total (km^2)	23,445 (0%)	TP (kg y^{-1})	606,051
Residence Time (d)	2	Population	1,364,574	TSS/est. area (tonne km^{-2} y^{-1})	839
		Popn: est. area ratio	13,646	TN/est. area (kg km^{-2} y^{-1})	76,158
				TP/est. area (kg km^{-2} y^{-1})	6,061

Charleston Harbor

SUMMARY

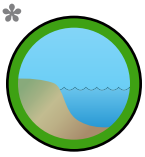
Dissolved oxygen concentrations have increased in Charleston Harbor since the 1999 assessment. Some decreases in water clarity are evident. Chlorophyll-a symptom expression is moderate for both the mixing and seawater zones. There are low-to-no nuisance/toxic bloom problems. Overall eutrophic condition is moderate low.

Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

Primary symptoms beginning to indicate possible problems but still very few secondary symptoms expressed.

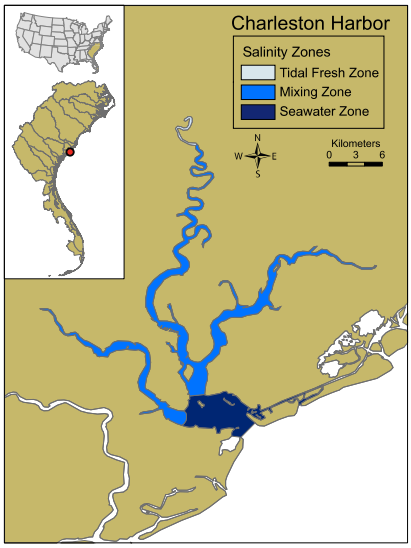


Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

ASSETS Rating

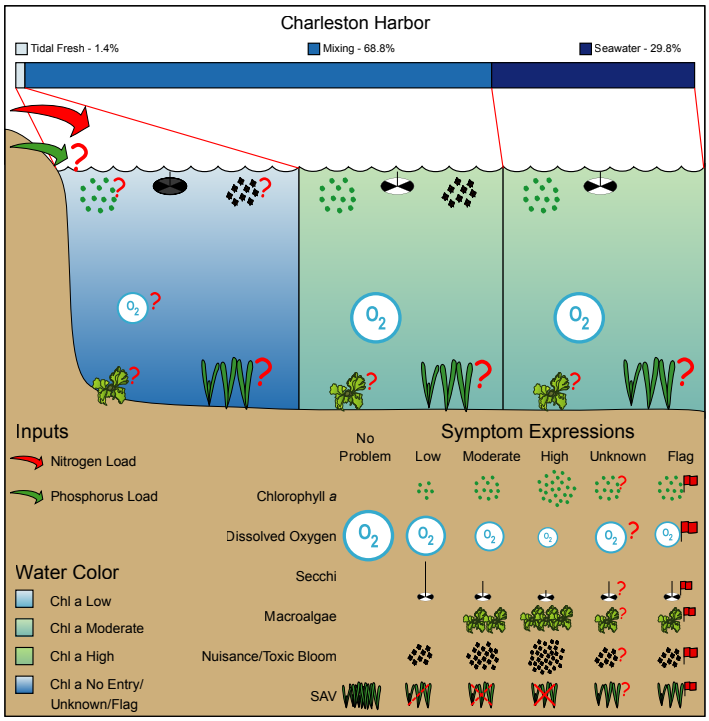
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

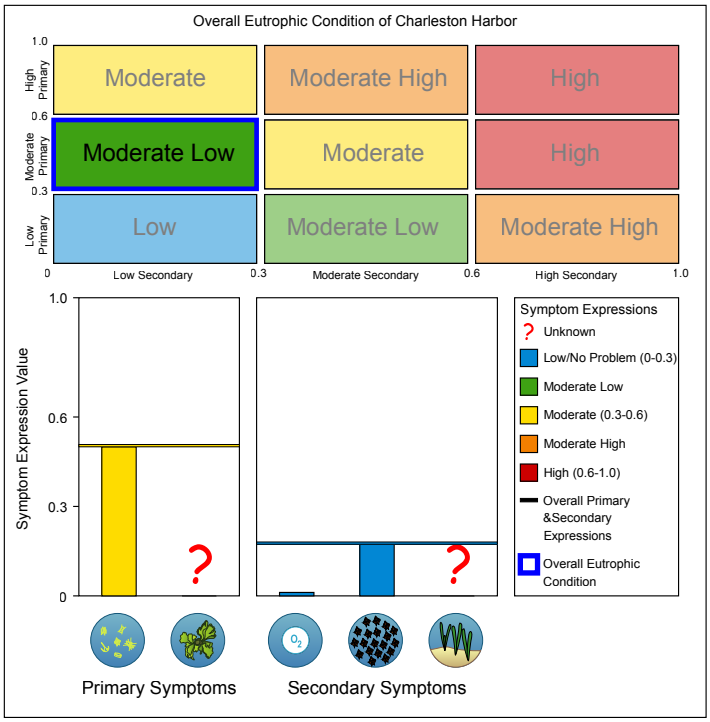


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence: ? Unknown; * Low; ** Moderate; *** High

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	85	Urban (km^2)	4,532 (11.4%)	Area (km^2)	41,116
Tidal fresh zone area (km^2)	1	Agriculture (km^2)	9,938 (24.9%)	Mean elevation (m)	216
Mixing zone area (km^2)	58	Forest (km^2)	24,159 (60.6%)	Max. elevation (m)	1,679
Saltwater zone area (km^2)	25	Wetland (km^2)	1,217 (3.1%)	Watershed: estuary ratio	483.7
Volume (1,000 x m^3)	424,150	Range (km^2)	10 (0%)	TSS (tonne y^{-1})	32,200
Depth (m)	4.99	Barren (km^2)	0 (0%)	TN (kg y^{-1})	30,470,000
Tide Height (m)	1.45	Total (km^2)	39,857 (0%)	TP (kg y^{-1})	Unknown
Residence Time (d)	5	Population	3,139,518	TSS/est. area (tonne km^{-2} y^{-1})	379
		Popn: est. area ratio	36,936	TN/est. area (kg km^{-2} y^{-1})	358,471
				TP/est. area (kg km^{-2} y^{-1})	Unknown

Indian River

SUMMARY

In general, the overall eutrophic condition of the Indian River Lagoon has been chacterized as moderate and remains unchanged since the last survey. More specifically, some areas have not changed (Banana River, Mosquito Lagoon), others have improved (Northern Indian River Lagoon), and others (St. Lucie Estuary) have worsened.

Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

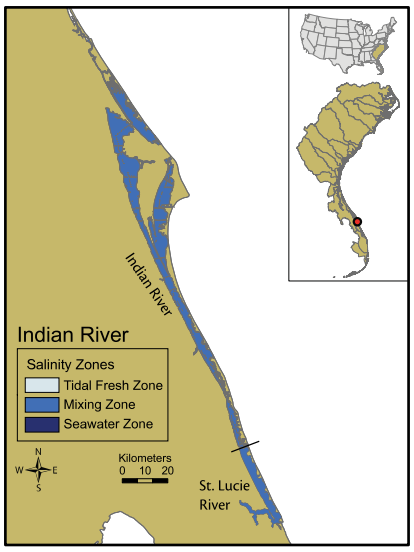
Level of expression of eutrophic conditions is substantial.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

ASSETS Rating

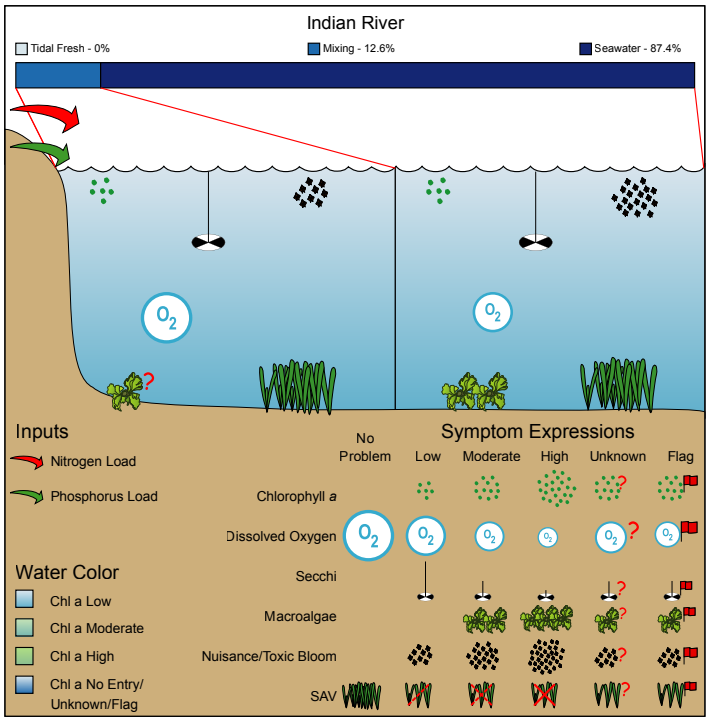
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

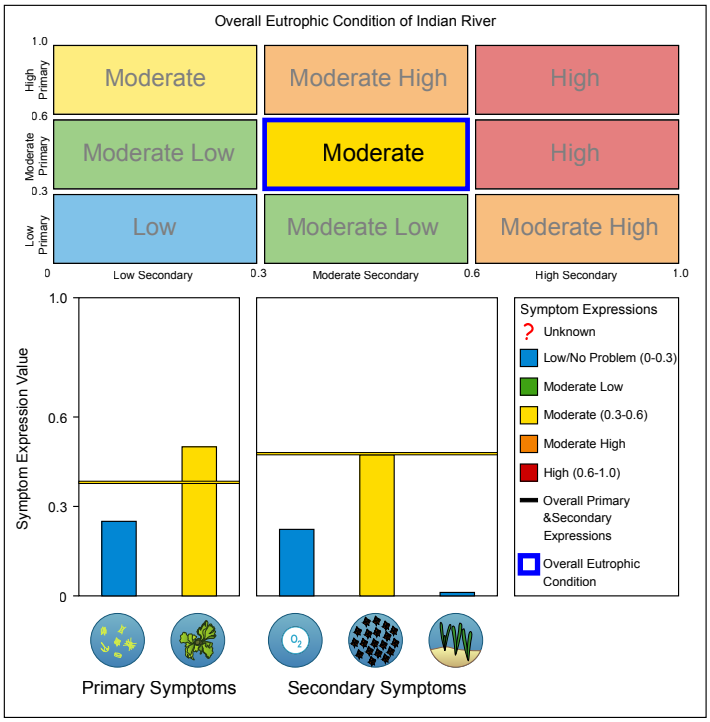


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence: ? Unknown; * Low; ** Moderate; *** High

EUTROPHIC CONDITION





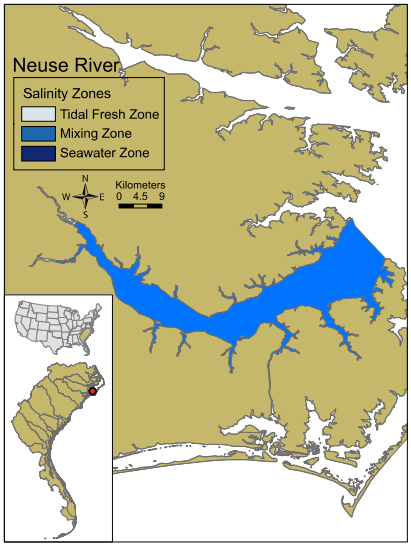
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	866	Urban (km^2)	1,147 (39%)	Area (km^2)	3,093
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	694 (23.6%)	Mean elevation (m)	5
Mixing zone area (km^2)	109	Forest (km^2)	132 (4.5%)	Max. elevation (m)	14
Saltwater zone area (km^2)	757	Wetland (km^2)	357 (12.1%)	Watershed: estuary ratio	3.6
Volume (1,000 x m^3)	666,820	Range (km^2)	614 (20.8%)	TSS (tonne y^{-1})	39,700
Depth (m)	0.77	Barren (km^2)	0 (0%)	TN (kg y^{-1})	3,277,134
Tide Height (m)	0.32	Total (km^2)	2,945 (0%)	DIP (kg y^{-1})	405,420
Residence Time (d)	3	Population	471,807	TSS/est. area (tonne km^{-2} y^{-1})	46
		Popn: est. area ratio	545	TN/est. area (kg km^{-2} y^{-1})	3,784
				DIP/est. area (kg km^{-2} y^{-1})	468

Neuse River

SUMMARY

The Neuse River watershed has undergone state-applied agricultural BMPs. There is a significant long term decrease in TN loading. However, if the 3-year drought (2000-2002) is excluded, the trend becomes non-significant. Nuisance/toxic blooms and hypoxia remain a problem. Ammonium concentrations have increased, regardless of attempts at control.

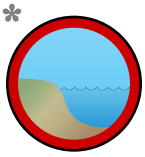


Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

High primary and secondary symptom levels indicate serious eutrophication problems.



Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

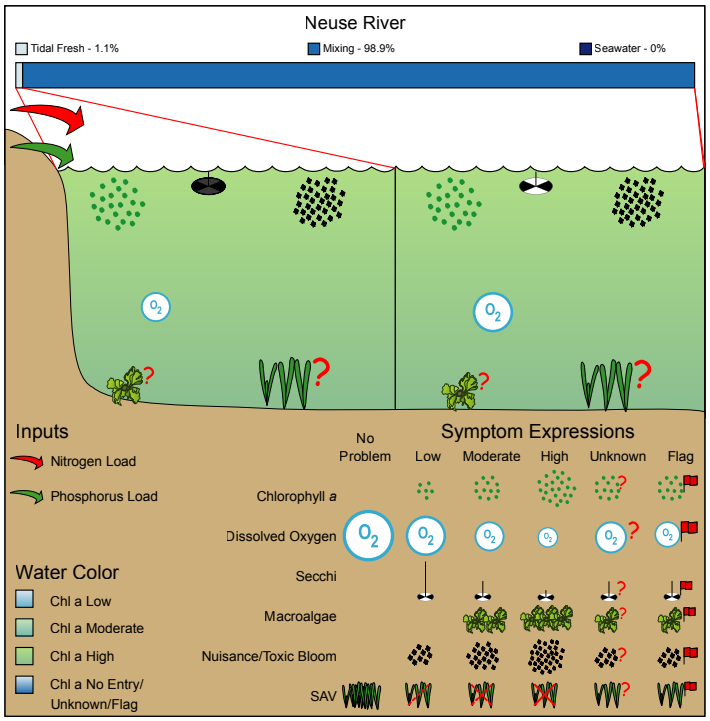
ASSETS Rating

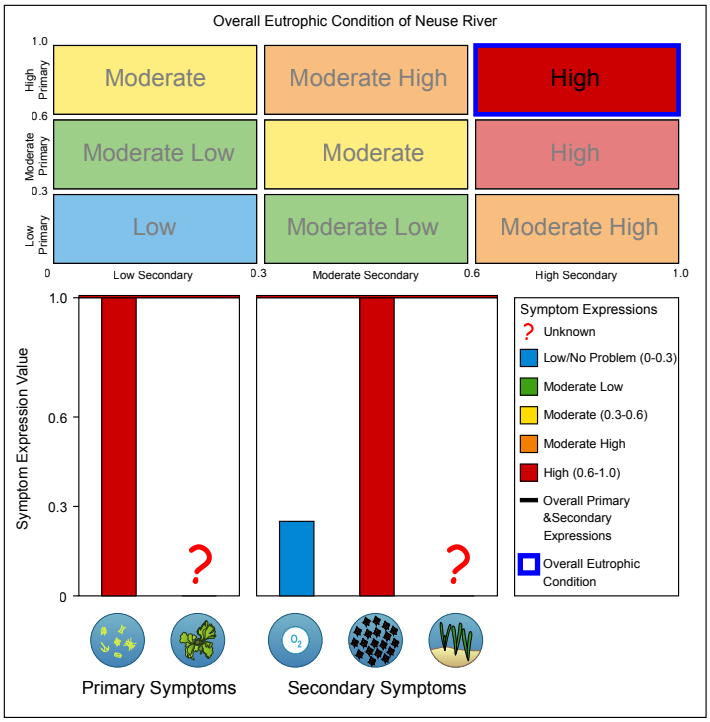
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
	? Unknown	* Low	** Moderate	*** High

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	456	Urban (km^2)	1,329 (9.5%)	Area (km^2)	14,066
Tidal fresh zone area (km^2)	5	Agriculture (km^2)	4,983 (35.6%)	Mean elevation (m)	56
Mixing zone area (km^2)	451	Forest (km^2)	6,649 (47.5%)	Max. elevation (m)	245
Saltwater zone area (km^2)	0	Wetland (km^2)	1,020 (7.3%)	Watershed: estuary ratio	30.8
Volume (1,000 x m^3)	1,304,160	Range (km^2)	5 (0%)	TSS (tonne y^{-1})	85,200
Depth (m)	2.86	Barren (km^2)	0 (0%)	TN (kg y^{-1})	9,600,000
Tide Height (m)	0.15	Total (km^2)	13,986 (0%)	TP (kg y^{-1})	970,000
Residence Time (d)	73	Population	1,015,059	TSS/est. area (tonne km^{-2} y^{-1})	187
		Popn: est. area ratio	2,226	TN/est. area (kg km^{-2} y^{-1})	21,053
				TP/est. area (kg km^{-2} y^{-1})	2,127

New River

SUMMARY

The New River has shown considerable improvement due to improved military and civilian wastewater treatment. Decreases were realized in ammonium, phosphate, TSS, and chlorophyll-a, and increases occurred in water clarity and bottom DO. Blooms still occur in the upper estuary driven by upstream discharge and N loading, likely from swine farms.

Influencing Factors

Low to moderate nitrogen input and moderate to high susceptibility (moderate ability to dilute and flush nutrients).

Eutrophic Conditions ***

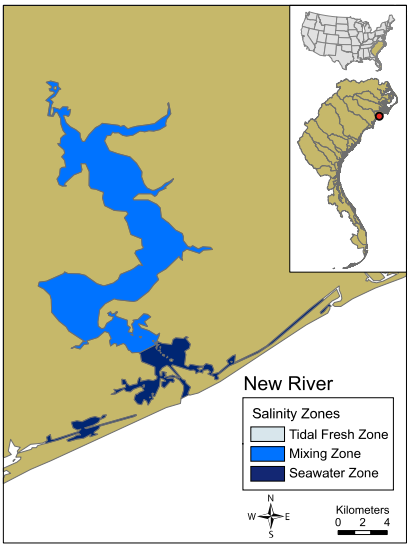
Primary symptoms high but problems with more serious secondary symptoms still not being expressed.

Future Outlook

Nutrient related symptoms observed in the estuary will most likely stay the same.

ASSETS Rating

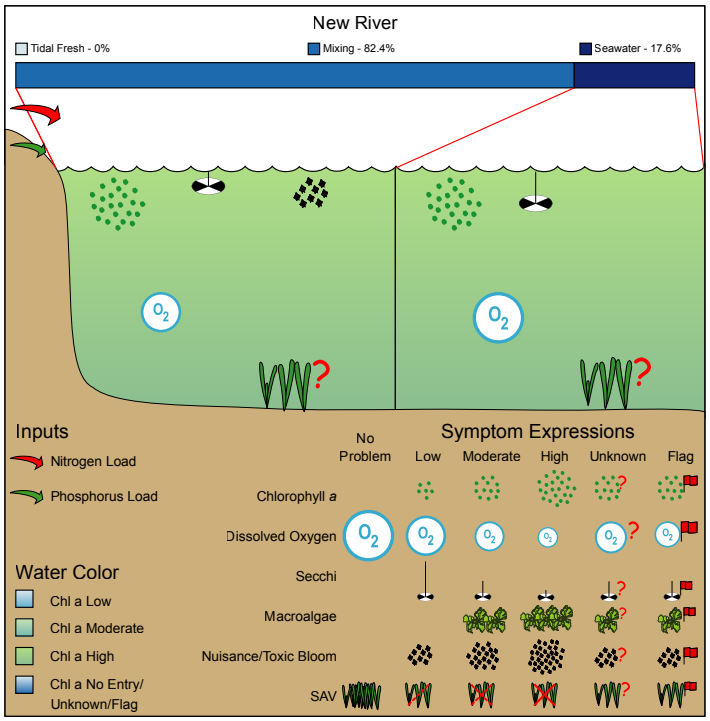
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

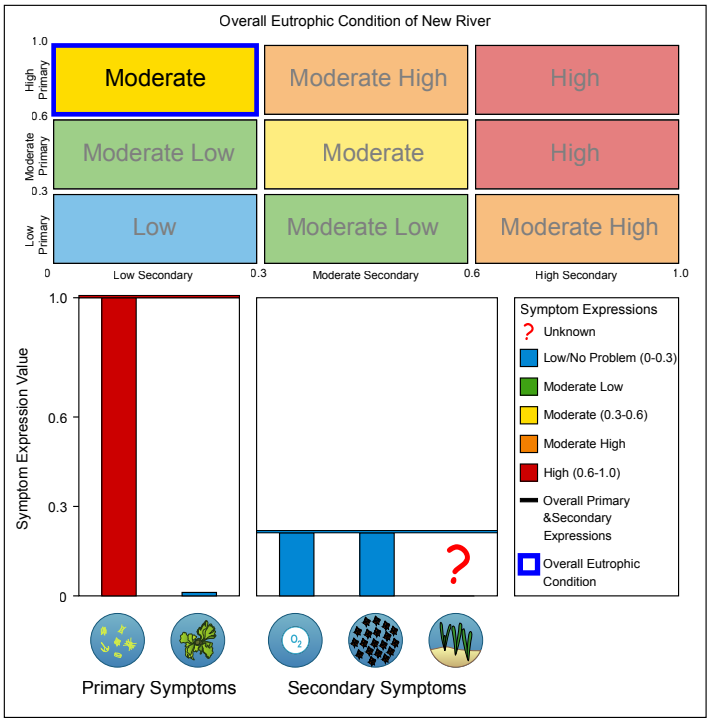


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





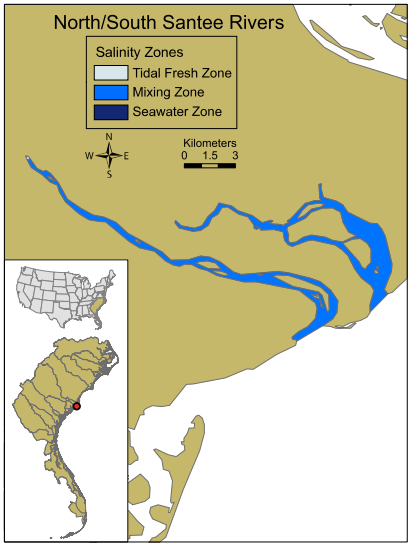
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	88	Urban (km^2)	238 (20.5%)	Area (km^2)	1,177
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	155 (13.4%)	Mean elevation (m)	12
Mixing zone area (km^2)	73	Forest (km^2)	603 (52%)	Max. elevation (m)	35
Saltwater zone area (km^2)	15	Wetland (km^2)	163 (14.1%)	Watershed: estuary ratio	13.4
Volume (1,000 x m^3)	146,960	Range (km^2)	0 (0%)	TSS (tonne y^{-1})	77,500
Depth (m)	1.67	Barren (km^2)	0 (0%)	TN (kg y^{-1})	54,480
Tide Height (m)	0.91	Total (km^2)	1,160 (0%)	TP (kg y^{-1})	2,270
Residence Time (d)	2	Population	121,657	TSS/est. area (tonne km^{-2} y^{-1})	881
		Popn: est. area ratio	1,383	TN/est. area (kg km^{-2} y^{-1})	619
				TP/est. area (kg km^{-2} y^{-1})	26

North/South Santee Rivers

SUMMARY

The Santee River system is characterized by moderate symptom expressions of dissolved oxygen and chlorophyll-a. Occasional harmful algal blooms have been documented, but were not surveyed for the earlier report. SAV and macroalgae do not occur in this estuary. Overall eutrophic condition is moderate.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions *

Level of expression of eutrophic conditions is substantial.

Future Outlook

An Unknown Future Outlook expression will occur if the Expected Changes In Nutrient Load by 2020 is Unknown.

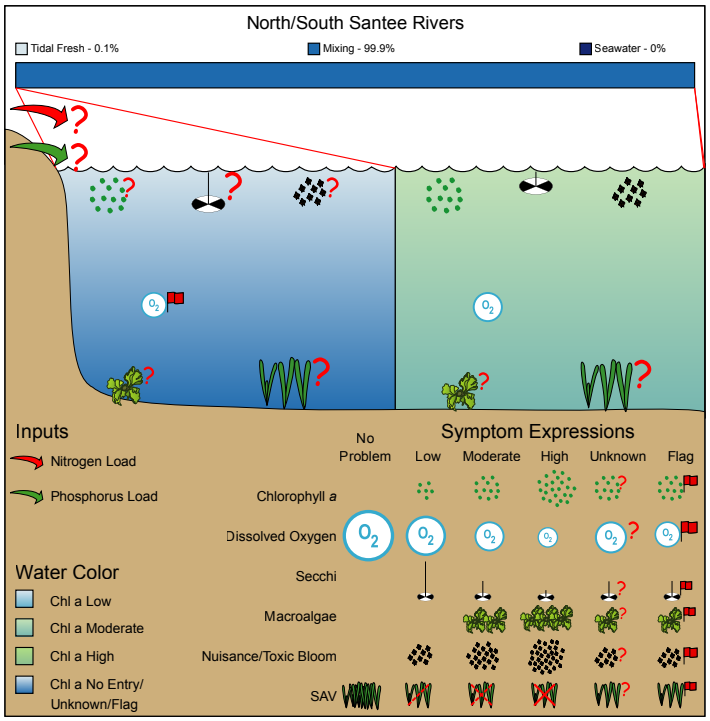
ASSETS Rating

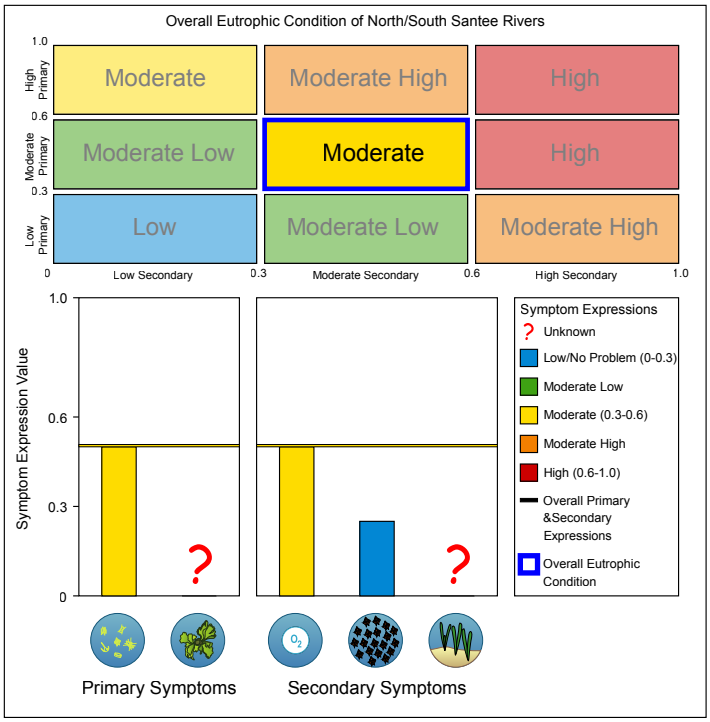
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





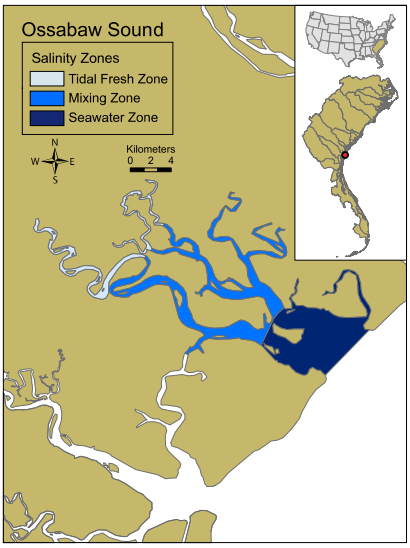
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	18	Urban (km^2)	21 (1.1%)	Area (km^2)	1,818
Tidal fresh zone area (km^2)	<1	Agriculture (km^2)	220 (12.2%)	Mean elevation (m)	11
Mixing zone area (km^2)	18	Forest (km^2)	906 (50.2%)	Max. elevation (m)	40
Saltwater zone area (km^2)	0	Wetland (km^2)	653 (36.2%)	Watershed: estuary ratio	101.0
Volume (1,000 x m^3)	21,960	Range (km^2)	5 (0.3%)	TSS (tonne y^{-1})	16,000
Depth (m)	1.22	Barren (km^2)	0 (0%)	TN (kg y^{-1})	Unknown
Tide Height (m)	1.09	Total (km^2)	1,805 (0%)	TP (kg y^{-1})	Unknown
Residence Time (d)	0	Population	14,100	TSS/est. area (tonne km^{-2} y^{-1})	889
		Popn: est. area ratio	783	TN/est. area (kg km^{-2} y^{-1})	Unknown
				TP/est. area (kg km^{-2} y^{-1})	Unknown

Ossabaw Sound

SUMMARY

Ossabaw sound is characterized by a moderate level of low dissolved oxygen events. Macroalgae is rarely present in this system and no harmful algal blooms have been observed. However, bacteria in the system present some problems, frequently triggering beach advisories in the summer. SAV is not found in this system.

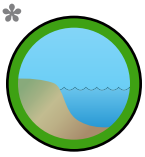


Influencing Factors

Any level nitrogen input and low to moderate susceptibility (good ability to dilute and flush nutrients).

Eutrophic Conditions **

Moderate secondary symptoms indicate substantial eutrophic conditions, but the No Problem primary indicates other factors may be involved in causing conditions.



Future Outlook

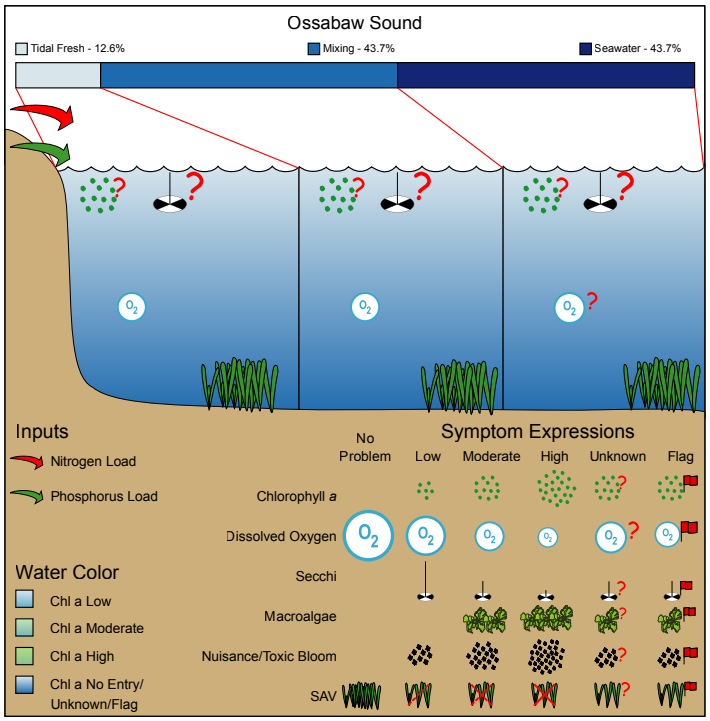
Nutrient related symptoms observed in the estuary are likely to worsen only minimally.

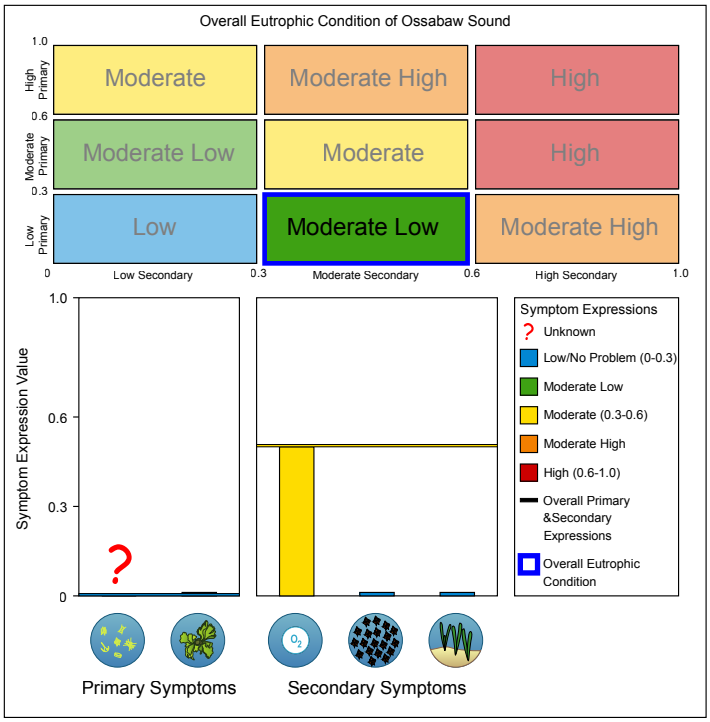
ASSETS Rating

Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High	Reliability and Confidence
ASSETS	Unknown	High	Good	Moderate	Poor	Bad	? Unknown, * Low, ** Moderate, *** High

EUTROPHIC CONDITION





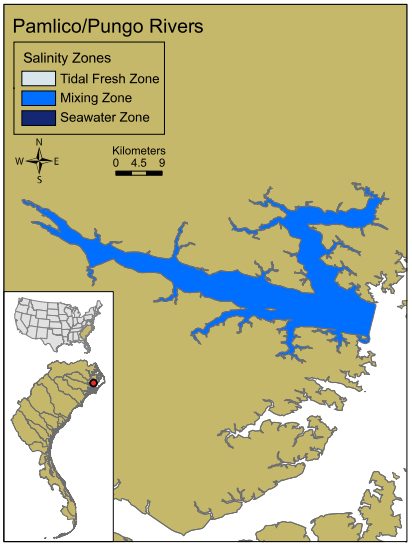
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	88	Urban (km^2)	412 (3.4%)	Area (km^2)	12,133
Tidal fresh zone area (km^2)	11	Agriculture (km^2)	4,162 (34.5%)	Mean elevation (m)	70
Mixing zone area (km^2)	38	Forest (km^2)	5,732 (47.5%)	Max. elevation (m)	244
Saltwater zone area (km^2)	38	Wetland (km^2)	1,671 (13.9%)	Watershed: estuary ratio	137.9
Volume (1,000 x m^3)	294,800	Range (km^2)	83 (0.7%)	TSS (tonne y^{-1})	17,400
Depth (m)	3.35	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	919,197
Tide Height (m)	1.93	Total (km^2)	12,059 (0%)	TP (kg y^{-1})	452,564
Residence Time (d)	1	Population	268,166	TSS/est. area (tonne km^{-2} y^{-1})	198
		Popn: est. area ratio	3,047	DIN/est. area (kg km^{-2} y^{-1})	10,445
				TP/est. area (kg km^{-2} y^{-1})	5,143

Pamlico/Pungo Rivers

SUMMARY

Data were unavailable to assess the Pamlico/Pungo Rivers for 2004. However, in the 1999 assessment, the estuary was characterized with a moderate high eutrophic condition, stemming from high chlorophyll-a symptom expression and moderate dissolved oxygen, nuisance/toxic bloom and SAV symptom expressions.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions *

An Unknown Overall Eutrophic Condition expression will occur if either the Primary or Secondary overall symptom expression is Unknown.

Future Outlook

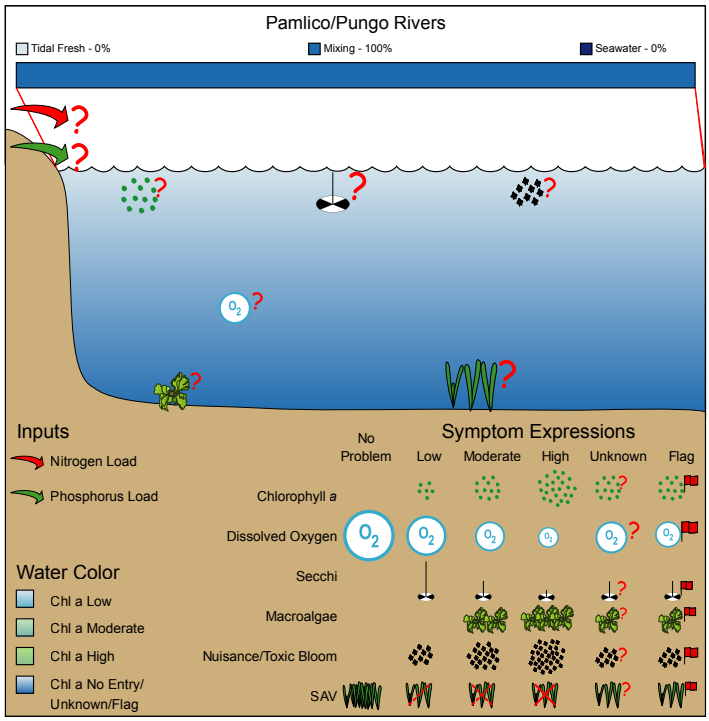
An Unknown Future Outlook expression will occur if the Expected Changes In Nutrient Load by 2020 is Unknown.

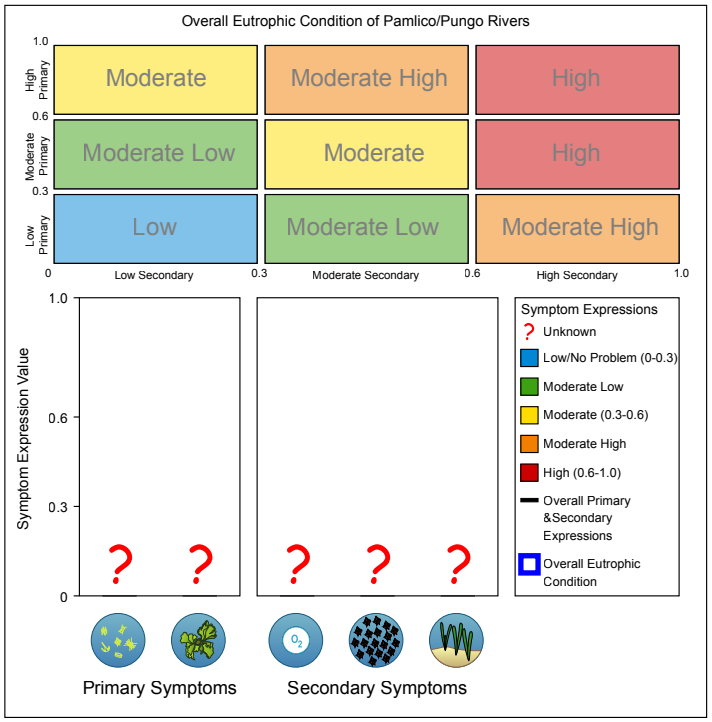
ASSETS Rating

Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High	Reliability and Confidence
ASSETS	Unknown	High	Good	Moderate	Poor	Bad	? Unknown, * Low, ** Moderate, *** High

EUTROPHIC CONDITION





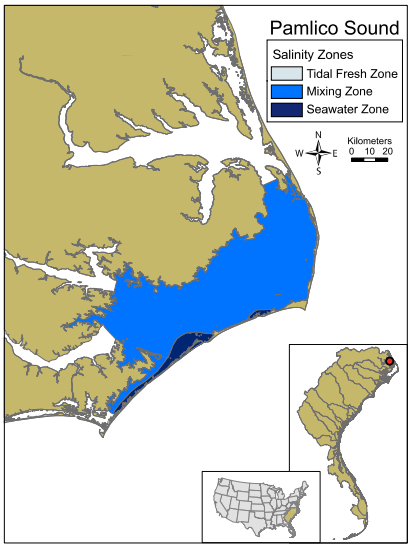
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	452	Urban (km^2)	523 (4.9%)	Area (km^2)	10,730
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	4,121 (38.6%)	Mean elevation (m)	47
Mixing zone area (km^2)	452	Forest (km^2)	4,981 (46.7%)	Max. elevation (m)	207
Saltwater zone area (km^2)	0	Wetland (km^2)	1,033 (9.7%)	Watershed: estuary ratio	23.7
Volume (1,000 x m^3)	732,240	Range (km^2)	18 (0.2%)	TSS (tonne y^{-1})	49,300
Depth (m)	1.62	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	Unknown
Tide Height (m)	0.15	Total (km^2)	10,676 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	39	Population	354,945	TSS/est. area (tonne km^{-2} y^{-1})	109
		Popn: est. area ratio	785	DIN/est. area (kg km^{-2} y^{-1})	Unknown
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

Pamlico Sound

SUMMARY

Most water body condition parameters for Pamlico Sound are unknown for 2004. The estuary experiences occasional Karenia brevis blooms from Florida are transported in by the Gulf Stream. Rapid development without sewage treatment expansion is expected to increase nutrient loads to the area.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions *

An Unknown Overall Eutrophic Condition expression will occur if either the Primary or Secondary overall symptom expression is Unknown.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

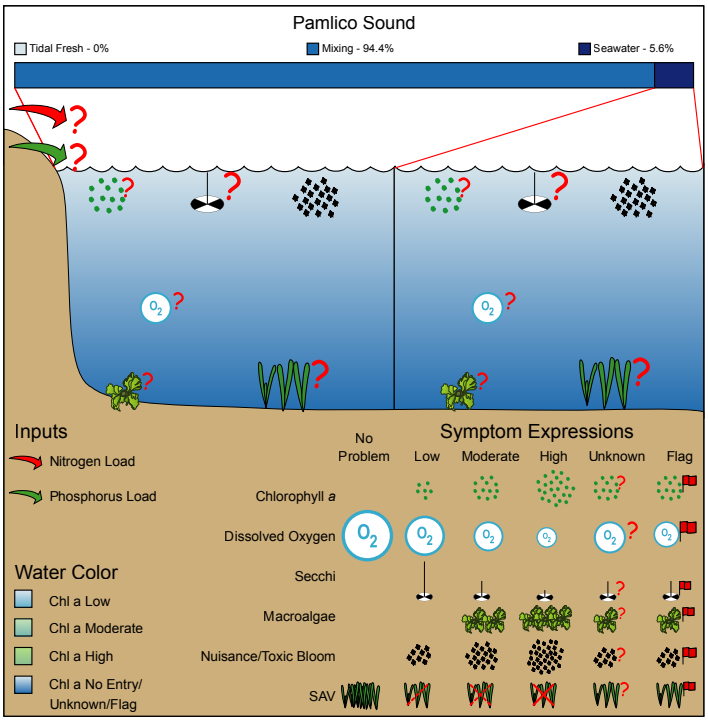
ASSETS Rating

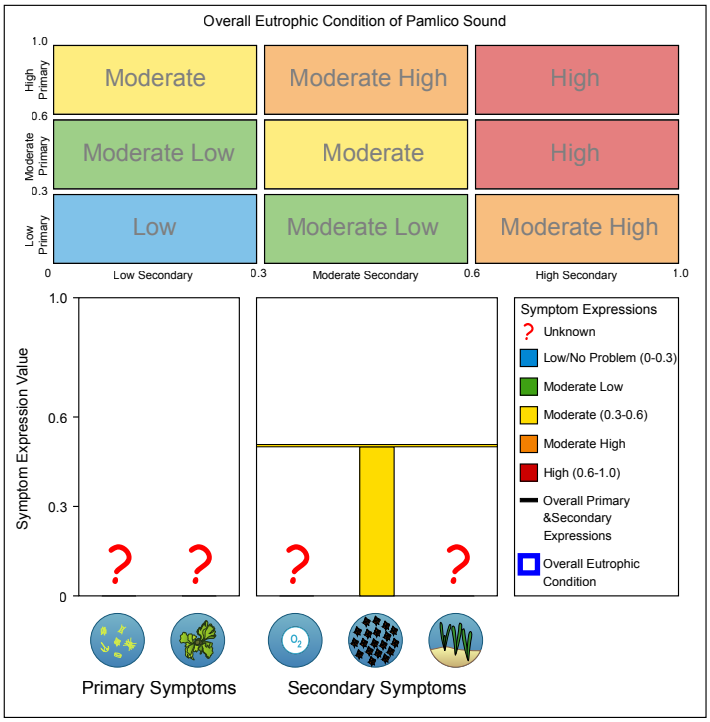
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





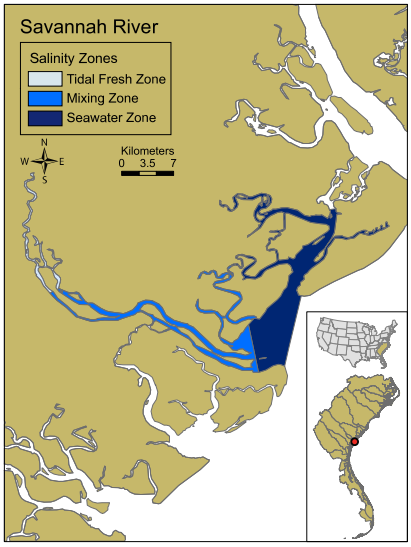
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	4,680	Urban (km^2)	1,937 (7.4%)	Area (km^2)	2,045
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	9,373 (35.6%)	Mean elevation (m)	1
Mixing zone area (km^2)	4,418	Forest (km^2)	11,935 (45.3%)	Max. elevation (m)	12
Saltwater zone area (km^2)	262	Wetland (km^2)	3,080 (11.7%)	Watershed: estuary ratio	0.4
Volume (1,000 x m^3)	13,712,400	Range (km^2)	31 (0.1%)	TSS (tonne y^{-1})	18,000
Depth (m)	2.93	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	Unknown
Tide Height (m)	0.36	Total (km^2)	26,356 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	34	Population	8,255	TSS/est. area (tonne km^{-2} y^{-1})	4
		Popn: est. area ratio	2	DIN/est. area (kg km^{-2} y^{-1})	Unknown
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

Savannah River

SUMMARY

The Savannah River is characterized by moderate chlorophyll-a and dissolved oxygen symptom expressions. Macroalgal and nuisance/toxic blooms are not a problem in this system and SAV is not found in the estuary. Conditions are expected to worsen in the future due to wastewater treatment, animal operations(chickens) and exurban development.



Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

Level of expression of eutrophic conditions is substantial.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

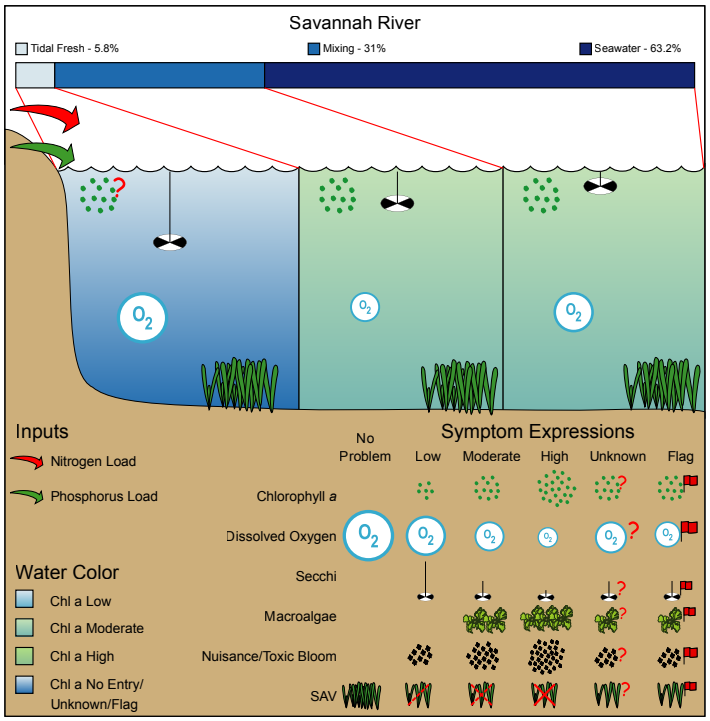
ASSETS Rating

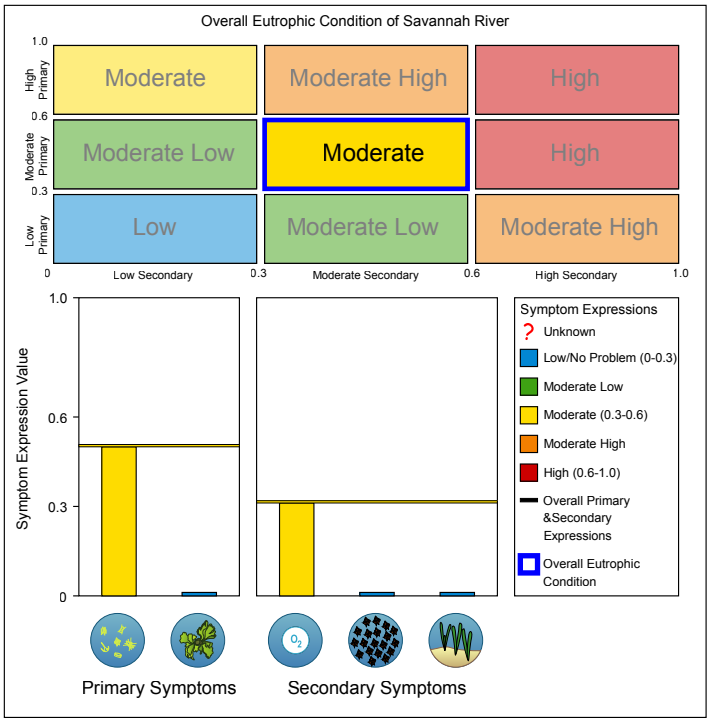
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





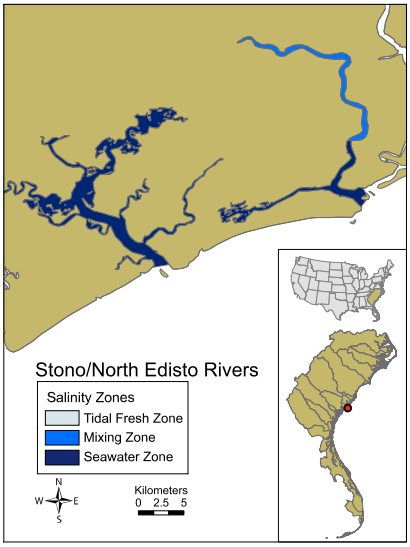
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	121	Urban (km^2)	1,570 (5.8%)	Area (km^2)	28,023
Tidal fresh zone area (km^2)	7	Agriculture (km^2)	6,260 (22.9%)	Mean elevation (m)	184
Mixing zone area (km^2)	38	Forest (km^2)	17,493 (64.1%)	Max. elevation (m)	1,489
Saltwater zone area (km^2)	76	Wetland (km^2)	1,911 (7%)	Watershed: estuary ratio	231.6
Volume (1,000 x m^3)	372,680	Range (km^2)	47 (0.2%)	TSS (tonne y^{-1})	25,400
Depth (m)	3.08	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	3,519,037
Tide Height (m)	2.06	Total (km^2)	27,280 (0%)	TP (kg y^{-1})	1,185,777
Residence Time (d)	1	Population	988,620	TSS/est. area (tonne km^{-2} y^{-1})	210
		Popn: est. area ratio	8,170	DIN/est. area (kg km^{-2} y^{-1})	29,083
				TP/est. area (kg km^{-2} y^{-1})	9,800

Stono/North Edisto Rivers

SUMMARY

Monitoring of the Stono/North Edisto Rivers has not revealed significant changes since 1999. Chlorophyll-a and dissolved oxygen have symptom expressions of moderate, while occurrence of nuisance/toxic blooms is low. SAV and macroalgae do not occur in this estuary.



Influencing Factors

Nutrient load is unknown and influencing factors cannot be calculated.

Eutrophic Conditions **

Level of expression of eutrophic conditions is substantial.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

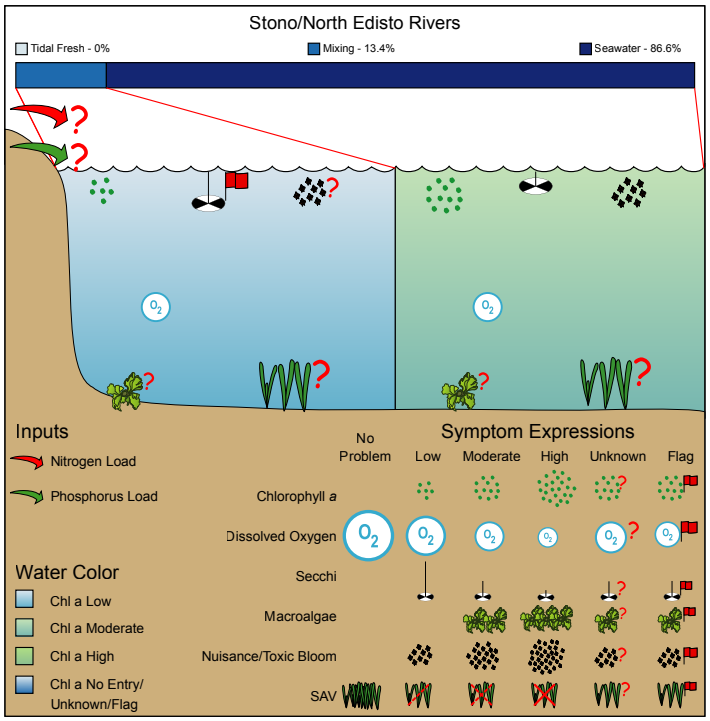
ASSETS Rating

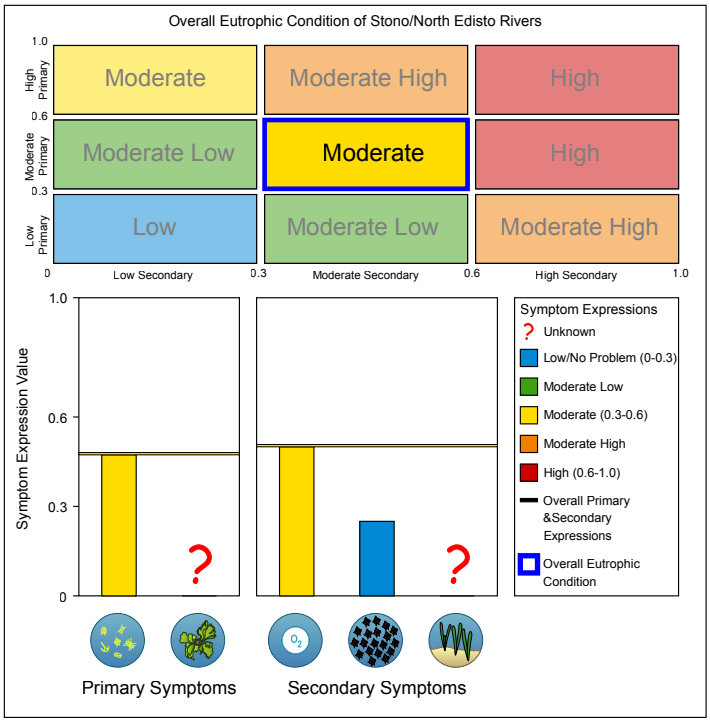
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	69	Urban (km^2)	119 (10.4%)	Area (km^2)	1,171
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	228 (19.9%)	Mean elevation (m)	4
Mixing zone area (km^2)	9	Forest (km^2)	342 (29.9%)	Max. elevation (m)	9
Saltwater zone area (km^2)	60	Wetland (km^2)	453 (39.6%)	Watershed: estuary ratio	17.0
Volume (1,000 x m^3)	431,940	Range (km^2)	3 (0.2%)	TSS (tonne y^{-1})	16,500
Depth (m)	6.26	Barren (km^2)	0 (0%)	TN (kg y^{-1})	Unknown
Tide Height (m)	1.84	Total (km^2)	1,145 (0%)	TP (kg y^{-1})	Unknown
Residence Time (d)	6	Population	47,552	TSS/est. area (tonne km^{-2} y^{-1})	239
		Popn: est. area ratio	689	TN/est. area (kg km^{-2} y^{-1})	Unknown
				TP/est. area (kg km^{-2} y^{-1})	Unknown

St. Andrew/St. Simons Sounds

SUMMARY

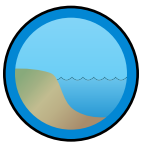
No chlorophyll-a or dissolved oxygen data were available for the St. Andrew/St. Simon Sounds. However, there are no problems with macroalgae or nuisance/toxic blooms. More data are needed for an accurate eutrophic condition assessment, but nutrient loads are expected to increase due to rapid growth in the area and conditions are expected to worsen

Influencing Factors

Low to moderate nitrogen input and moderate to high susceptibility (moderate ability to dilute and flush nutrients).

Eutrophic Conditions *

Level of expression of eutrophic conditions is minimal.

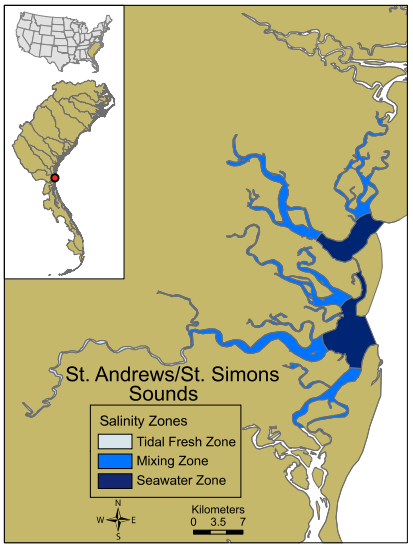


Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

ASSETS Rating

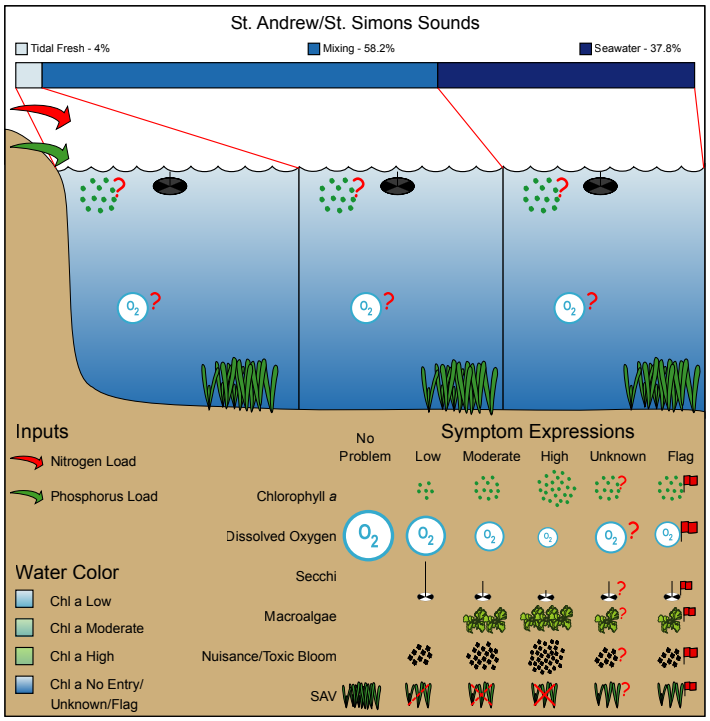
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

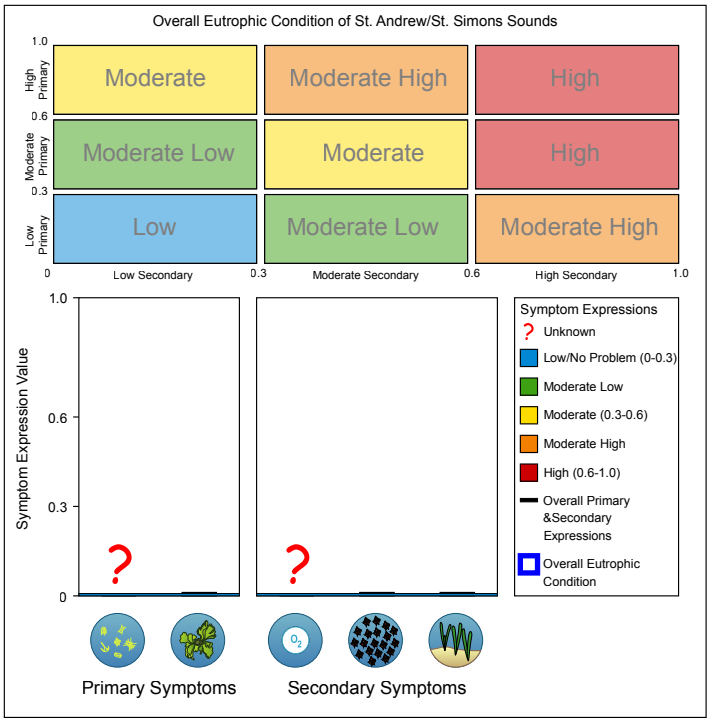


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





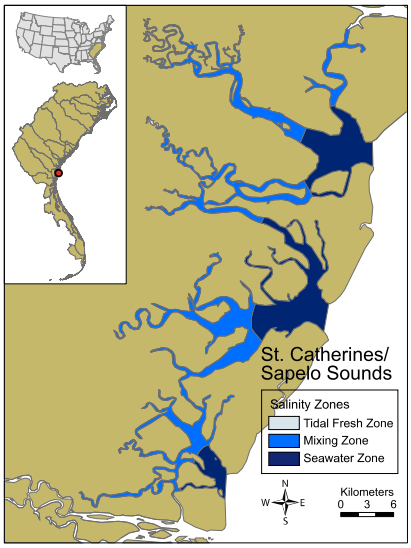
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	176	Urban (km^2)	275 (2.7%)	Area (km^2)	10,242
Tidal fresh zone area (km^2)	7	Agriculture (km^2)	2,321 (22.8%)	Mean elevation (m)	42
Mixing zone area (km^2)	102	Forest (km^2)	5,768 (56.6%)	Max. elevation (m)	114
Saltwater zone area (km^2)	67	Wetland (km^2)	1,826 (17.9%)	Watershed: estuary ratio	58.2
Volume (1,000 x m^3)	681,120	Range (km^2)	0 (0%)	TSS (tonne y^{-1})	8,560
Depth (m)	3.87	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	519,374
Tide Height (m)	2.13	Total (km^2)	10,189 (0%)	TP (kg y^{-1})	360,943
Residence Time (d)	2	Population	180,224	TSS/est. area (tonne km^{-2} y^{-1})	49
		Popn: est. area ratio	1,024	DIN/est. area (kg km^{-2} y^{-1})	2,951
				TP/est. area (kg km^{-2} y^{-1})	2,051

St. Catherines/Sapelo Sounds

SUMMARY

No data were available to assess the eutrophic condition of St. Catherines/Sapelo Sounds. However, the estuary was characterized by a moderate low eutrophic condition in the 1999 assessment based on moderate chlorophyll-a concentrations, a low symptom expression for dissolved oxygen, and no problematic macroalgal or nuisance/toxic blooms.



Influencing Factors

Low to moderate nitrogen input and moderate to high susceptibility (moderate ability to dilute and flush nutrients).

Eutrophic Conditions *

An Unknown Overall Eutrophic Condition expression will occur if either the Primary or Secondary overall symptom expression is Unknown.

Future Outlook

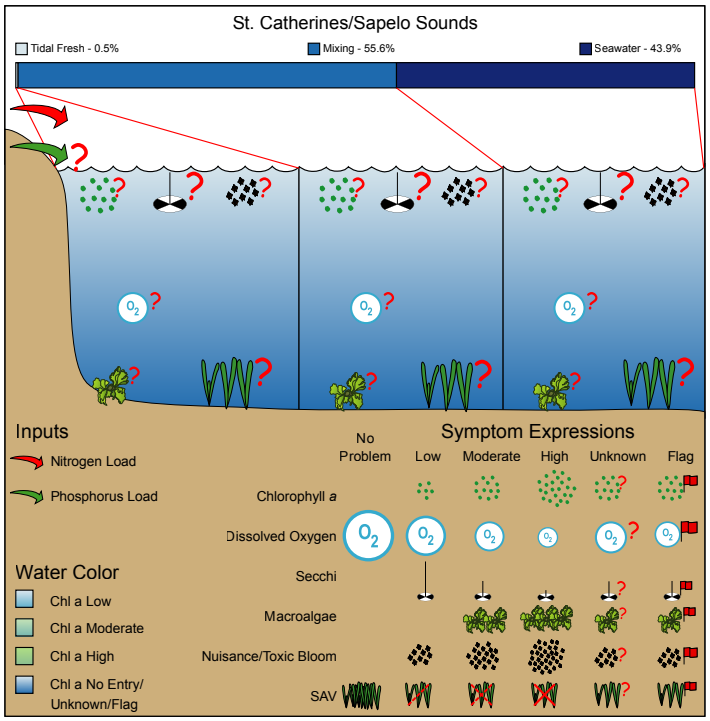
An Unknown Future Outlook expression will occur if the Expected Changes In Nutrient Load by 2020 is Unknown.

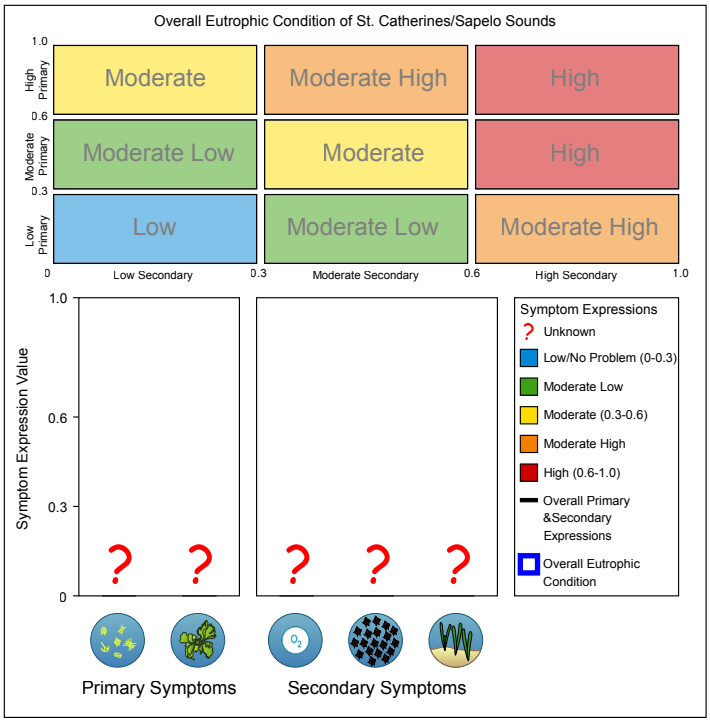
ASSETS Rating

Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High	Reliability and Confidence			
ASSETS	Unknown	High	Good	Moderate	Poor	Bad	? Unknown	* Low	** Moderate	*** High

EUTROPHIC CONDITION





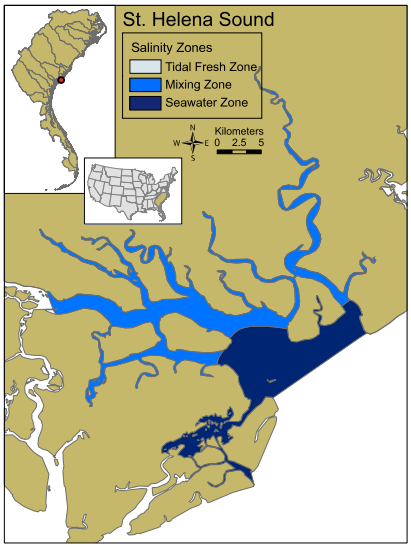
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	188	Urban (km^2)	104 (4.8%)	Area (km^2)	2,255
Tidal fresh zone area (km^2)	<1	Agriculture (km^2)	28 (1.3%)	Mean elevation (m)	5
Mixing zone area (km^2)	105	Forest (km^2)	1,277 (58.6%)	Max. elevation (m)	27
Saltwater zone area (km^2)	83	Wetland (km^2)	759 (34.8%)	Watershed: estuary ratio	12.0
Volume (1,000 x m^3)	682,440	Range (km^2)	13 (0.6%)	TSS (tonne y^{-1})	4,150
Depth (m)	3.63	Barren (km^2)	0 (0%)	TN (kg y^{-1})	270,000
Tide Height (m)	2.22	Total (km^2)	2,181 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	1	Population	24,051	TSS/est. area (tonne km^{-2} y^{-1})	22
		Popn: est. area ratio	128	TN/est. area (kg km^{-2} y^{-1})	1,436
				DIP/est. area (kg km^{-2} y^{-1})	Unknown

St. Helena Sound

SUMMARY

St. Helena Sound has not shown any clear trend related to dissolved oxygen or evidence of harmful algal blooms in main sound. The upper portion shows some evidence of increasing nutrient and chlorophyll-a concentrations, especially in tidal creeks. SAV and macro algae are not applicable to the Sound.



Influencing Factors

Any level nitrogen input and low to moderate susceptibility (good ability to dilute and flush nutrients).

Eutrophic Conditions *

Level of expression of eutrophic conditions is substantial.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to worsen only minimally.

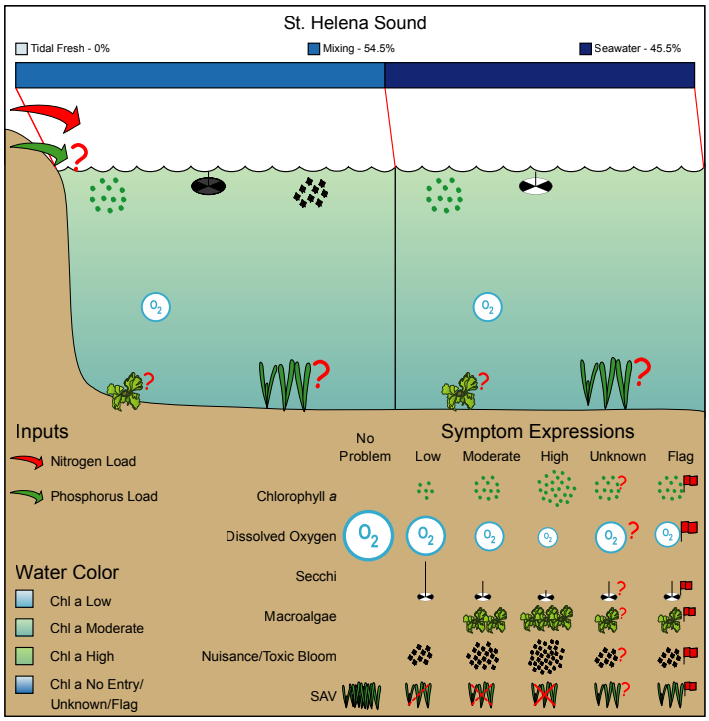
ASSETS Rating

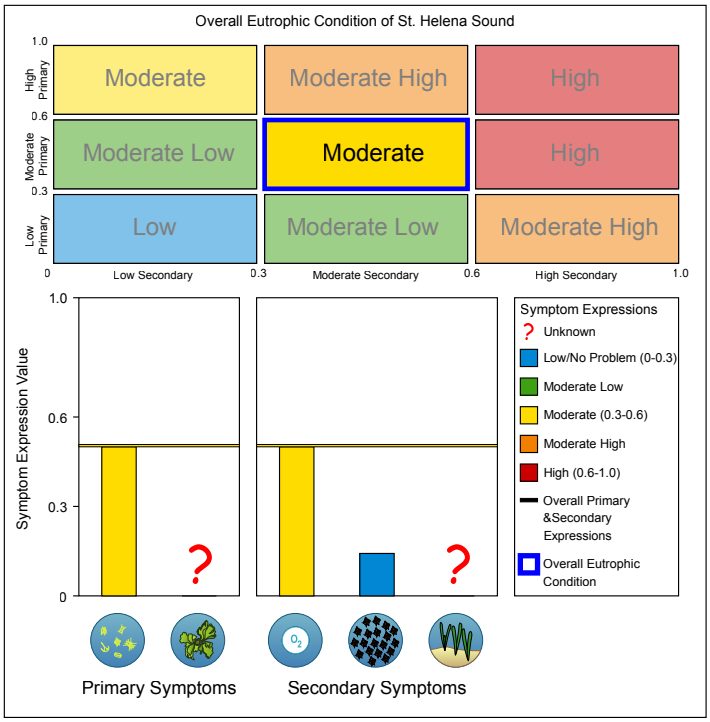
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	203	Urban (km^2)	282 (2.3%)	Area (km^2)	12,263
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	4,268 (35%)	Mean elevation (m)	57
Mixing zone area (km^2)	111	Forest (km^2)	5,053 (41.5%)	Max. elevation (m)	206
Saltwater zone area (km^2)	92	Wetland (km^2)	2,569 (21.1%)	Watershed: estuary ratio	60.4
Volume (1,000 x m^3)	720,650	Range (km^2)	10 (0.1%)	TSS (tonne y^{-1})	44,100
Depth (m)	3.55	Barren (km^2)	0 (0%)	TN (kg y^{-1})	4,200,000
Tide Height (m)	1.73	Total (km^2)	12,183 (0%)	TP (kg y^{-1})	Unknown
Residence Time (d)	2	Population	228,005	TSS/est. area (tonne km^{-2} y^{-1})	217
		Popn: est. area ratio	1,123	TN/est. area (kg km^{-2} y^{-1})	20,690
				TP/est. area (kg km^{-2} y^{-1})	Unknown

St. Johns River

SUMMARY

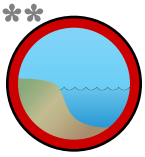
The eutrophic condition of the St. John's River has worsened since the 1999 assessment. This is primarily due to an increasing incidence of nuisance/toxic and algal blooms. Total phosphorus has increased in the tidal fresh water reach. Nitrogen fixation by blue green algae may be increasing total nitrogen concentration. TMDLs are under litigation.

Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions ***

High primary and secondary symptom levels indicate serious eutrophication problems.

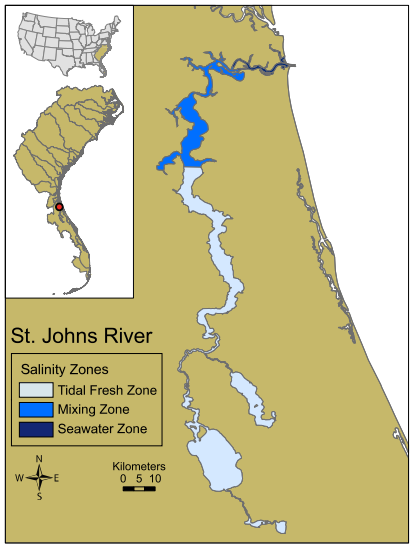


Future Outlook

Nutrient related symptoms observed in the estuary are likely to improve somewhat.

ASSETS Rating

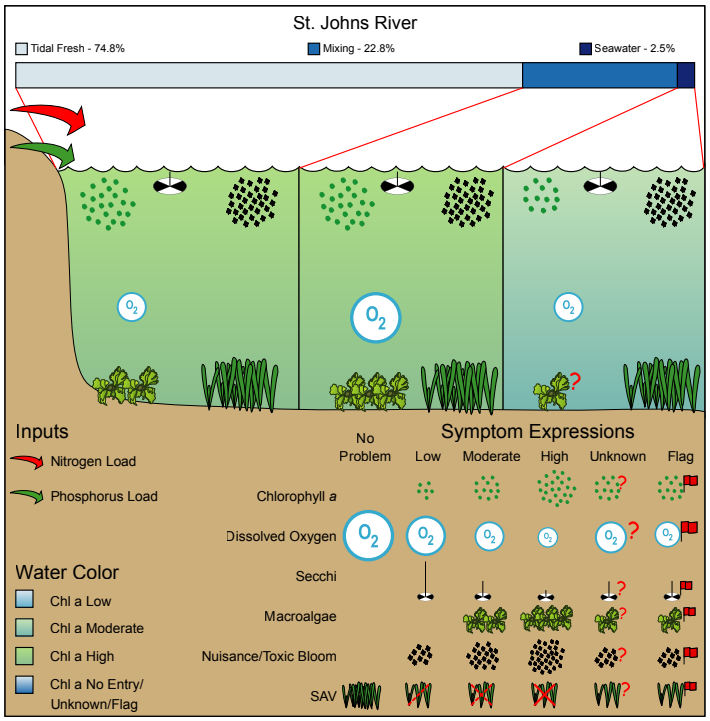
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

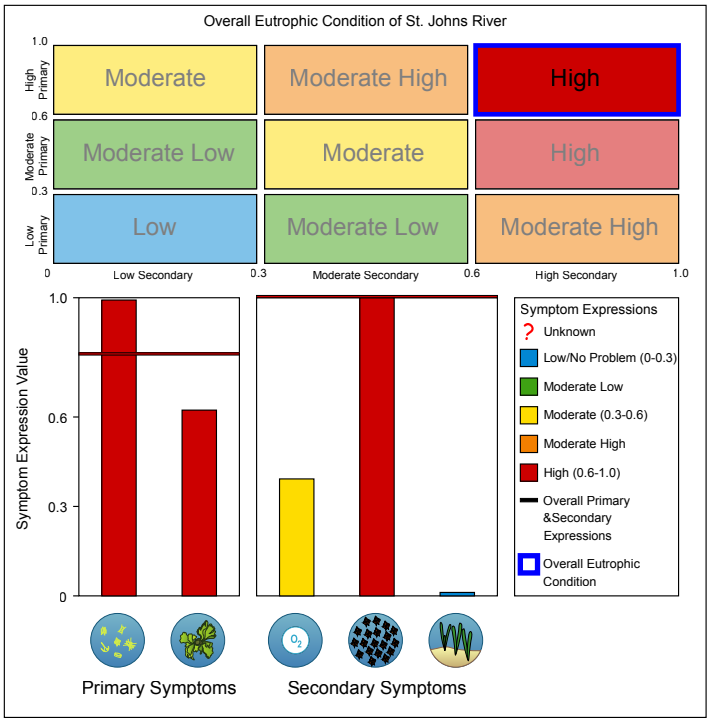


Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





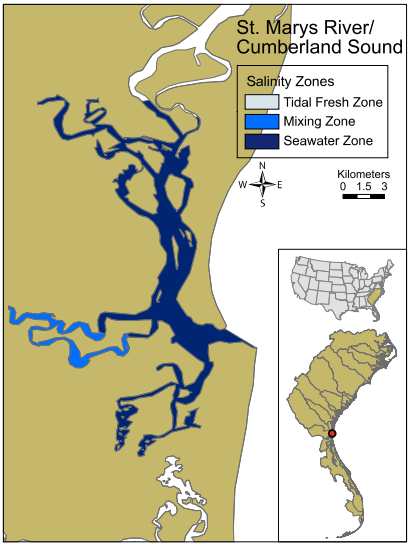
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	684	Urban (km^2)	3,442 (15.7%)	Area (km^2)	23,214
Tidal fresh zone area (km^2)	512	Agriculture (km^2)	5,136 (23.4%)	Mean elevation (m)	18
Mixing zone area (km^2)	156	Forest (km^2)	7,612 (34.6%)	Max. elevation (m)	72
Saltwater zone area (km^2)	17	Wetland (km^2)	4,284 (19.5%)	Watershed: estuary ratio	33.9
Volume (1,000 x m^3)	1,511,640	Range (km^2)	1,500 (6.8%)	TSS (tonne y^{-1})	200,000
Depth (m)	2.21	Barren (km^2)	0 (0%)	TN (kg y^{-1})	12,600,000
Tide Height (m)	0.66	Total (km^2)	21,973 (0%)	TP (kg y^{-1})	1,200,000
Residence Time (d)	6	Population	2,268,634	TSS/est. area (tonne km^{-2} y^{-1})	292
		Popn: est. area ratio	3,317	TN/est. area (kg km^{-2} y^{-1})	18,421
				TP/est. area (kg km^{-2} y^{-1})	1,754

St. Marys River/Cumberland Sound

SUMMARY

The St. Marys River/Cumberland Sound estuary is characterized by periodic low dissolved oxygen events and an overall trend of declining summertime DO. Macroalgal and harmful algal blooms have not be reported in this system and SAV are not characteristic of the estuary. Conditions are expected to worsen in the future due to rapid population growth.

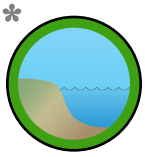


Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions **

Moderate secondary symptoms indicate substantial eutrophic conditions, but the No Problem primary indicates other factors may be involved in causing conditions.



Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

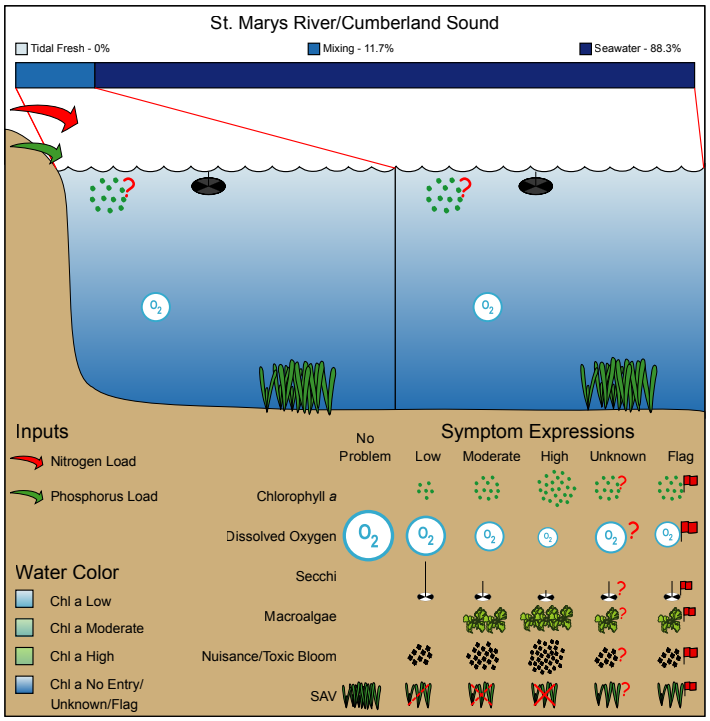
ASSETS Rating

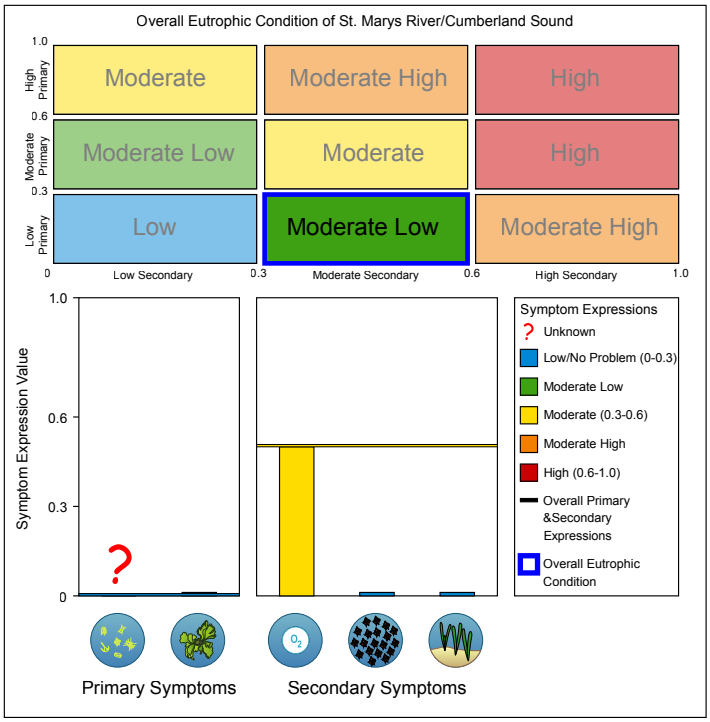
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





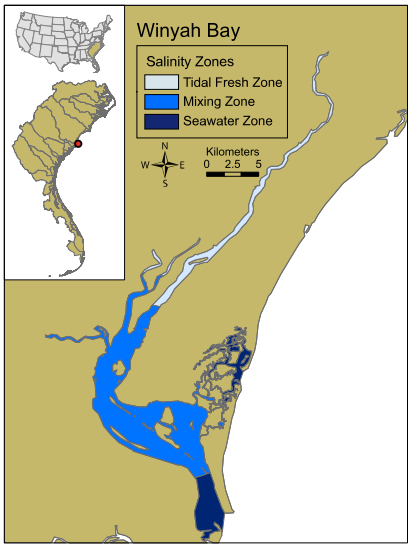
WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	64	Urban (km^2)	137 (3.2%)	Area (km^2)	4,386
Tidal fresh zone area (km^2)	0	Agriculture (km^2)	119 (2.7%)	Mean elevation (m)	26
Mixing zone area (km^2)	7	Forest (km^2)	2,888 (66.4%)	Max. elevation (m)	55
Saltwater zone area (km^2)	57	Wetland (km^2)	1,202 (27.7%)	Watershed: estuary ratio	68.5
Volume (1,000 x m^3)	213,760	Range (km^2)	0 (0%)	TSS (tonne y^{-1})	21,400
Depth (m)	3.34	Barren (km^2)	0 (0%)	TN (kg y^{-1})	2,545,193
Tide Height (m)	1.75	Total (km^2)	4,346 (0%)	TP (kg y^{-1})	82,222
Residence Time (d)	2	Population	65,087	TSS/est. area (tonne km^{-2} y^{-1})	334
		Popn: est. area ratio	1,017	TN/est. area (kg km^{-2} y^{-1})	39,769
				TP/est. area (kg km^{-2} y^{-1})	1,285

Winyah Bay

SUMMARY

Overall eutrophic conditions in Winyah Bay are moderate. Moderate levels of dissolved oxygen periodically reach biologically stressful levels. SAV and macroalgae have not been observed in this system. The data provided here is for Winyah Bay only, it does not include North Inlet.



Influencing Factors

Moderate to high nitrogen input and moderate to high susceptibility (low ability for dilution and flushing of nutrients).

Eutrophic Conditions *

Level of expression of eutrophic conditions is substantial.

Future Outlook

Nutrient related symptoms observed in the estuary are likely to substantially worsen.

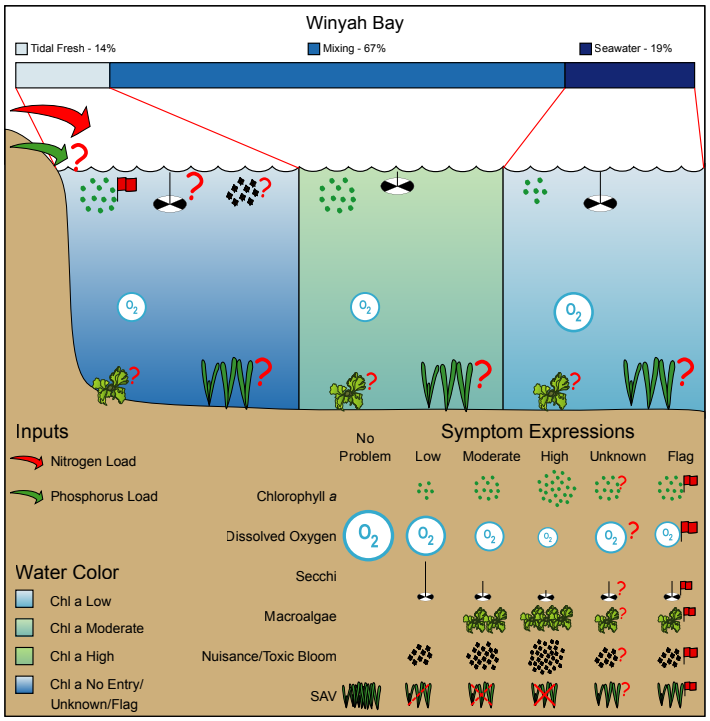
ASSETS Rating

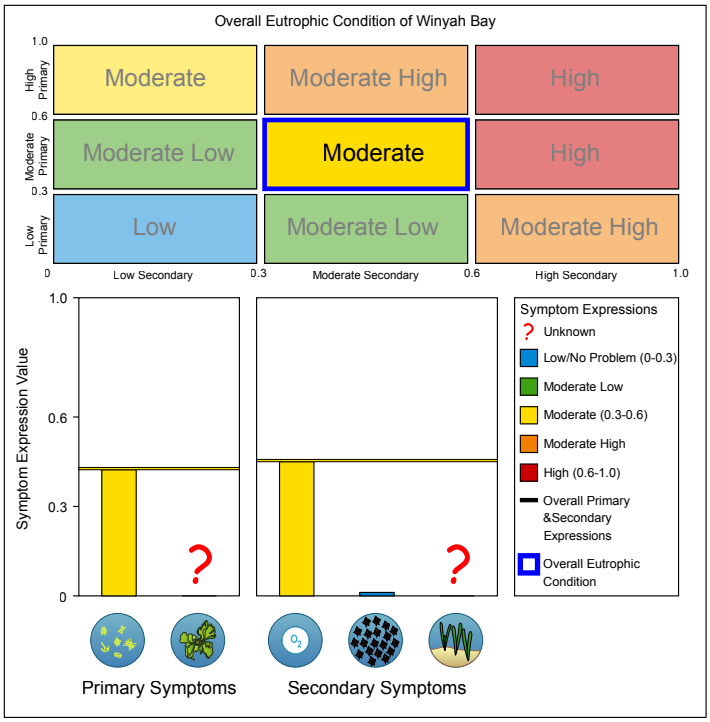
Assessment of Estuarine Trophic Status based on the three factors evaluated in NEEA.

Influence/eutro/future	Unknown	Low	Mod Low	Moderate	Mod High	High
ASSETS	Unknown	High	Good	Moderate	Poor	Bad

Reliability and Confidence				
?	*	**	***	
Unknown	Low	Moderate	High	

EUTROPHIC CONDITION





WATERSHED AND ESTUARY CHARACTERISTICS

Estuary		Landuse / Population		Watershed Details / Input Loads	
Area (km^2)	89	Urban (km^2)	2,546 (5.5%)	Area (km^2)	46,959
Tidal fresh zone area (km^2)	12	Agriculture (km^2)	16,576 (35.6%)	Mean elevation (m)	131
Mixing zone area (km^2)	60	Forest (km^2)	22,815 (48.9%)	Max. elevation (m)	1,233
Saltwater zone area (km^2)	17	Wetland (km^2)	4,652 (10%)	Watershed: estuary ratio	527.6
Volume (1,000 x m^3)	449,450	Range (km^2)	21 (0%)	TSS (tonne y^{-1})	117,000
Depth (m)	5.05	Barren (km^2)	0 (0%)	DIN (kg y^{-1})	37,800,000
Tide Height (m)	0.85	Total (km^2)	46,609 (0%)	DIP (kg y^{-1})	Unknown
Residence Time (d)	7	Population	2,036,872	TSS/est. area (tonne km^{-2} y^{-1})	1,315
		Popn: est. area ratio	22,886	DIN/est. area (kg km^{-2} y^{-1})	424,719
				DIP/est. area (kg km^{-2} y^{-1})	Unknown