



District-wide Status and Trends in Water Quality



SJRWMD

Monitoring Data

There are five types:

1. **Ambient**
2. Operational
3. Loading
4. Event
5. Experimental



Ambient Data - Status and Trends

Status - 5 years (2000 through 2004).

Trends – 15 years (1990 through 2004)



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Trends tested using non-parametric seasonal Mann-Kendall test ($p \leq 0.10$).

Surface Water Basins

1. Nassau River (NRB)
2. St. Mary's River (SMRB)
3. Lower St. Johns River (LSJRB)
4. Lake George (LG)
5. Middle St. Johns River (MSJRB)
6. Upper St. Johns River (USJRB)
7. Ocklawaha River (ORB)
8. Northern Coastal (NCB)
9. Indian River Lagoon (IRL)



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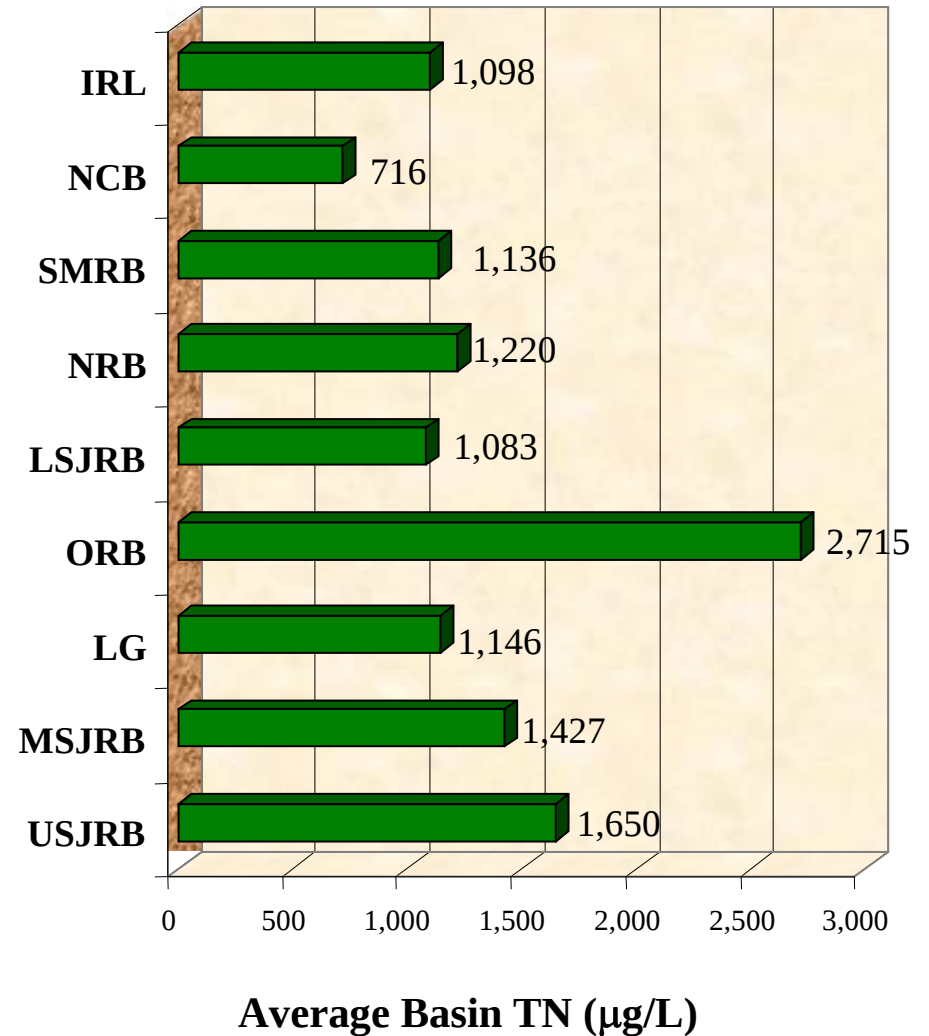
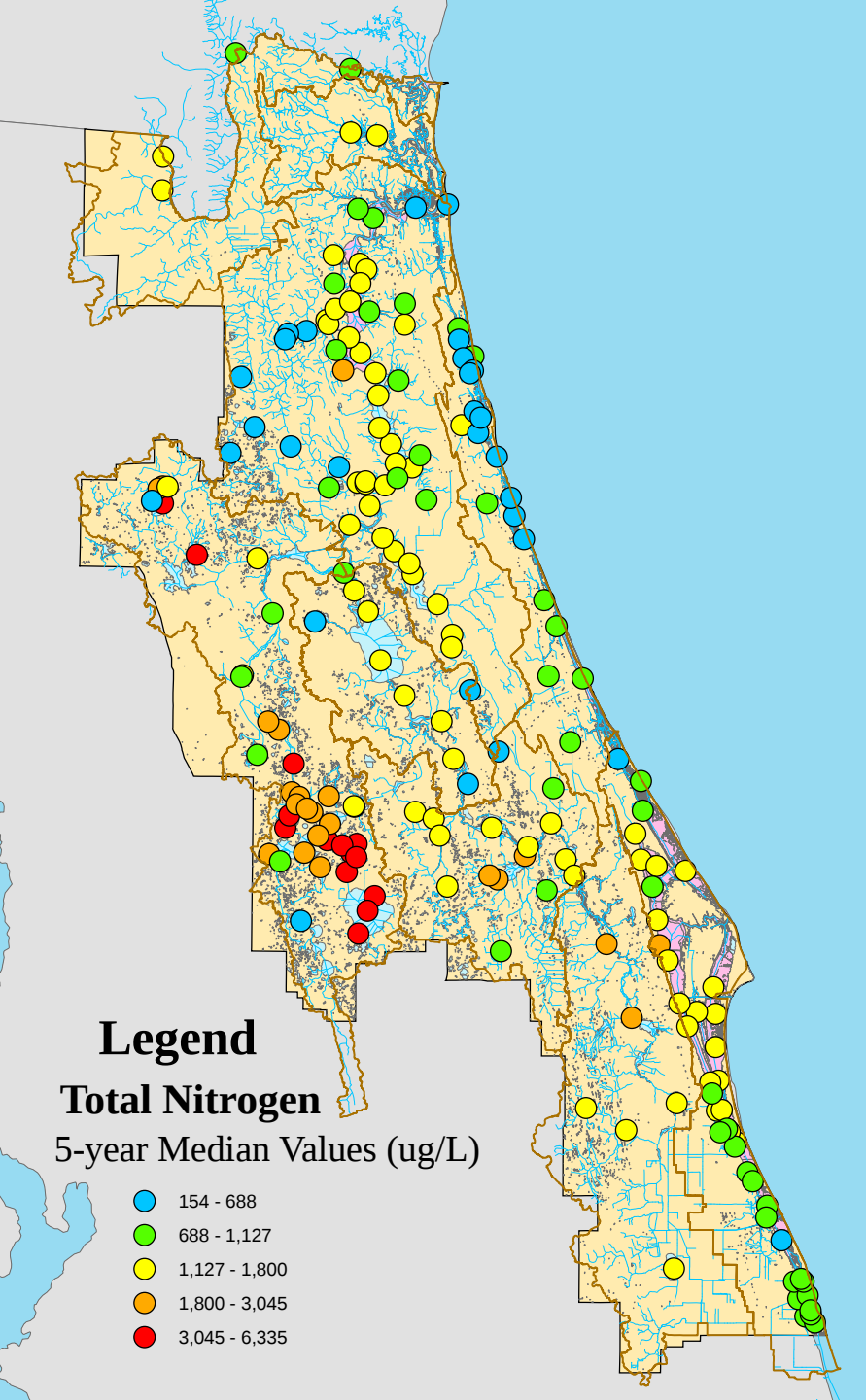
Trophic State (Productivity)

- **Total Nitrogen (TN) and Total Phosphorus (TP)** – regulate vegetation and phytoplankton (algae) growth as limiting nutrients
- **Color, Turbidity, Total Suspended Solids (TSS)** – regulate vegetation and phytoplankton growth by affecting light intensity
- **Chlorophyll a (Chl_a)** – indicates phytoplankton (algae) biomass and growth rate
- **Total Organic Carbon (TOC)** – indicates overall productivity of the basin and water body

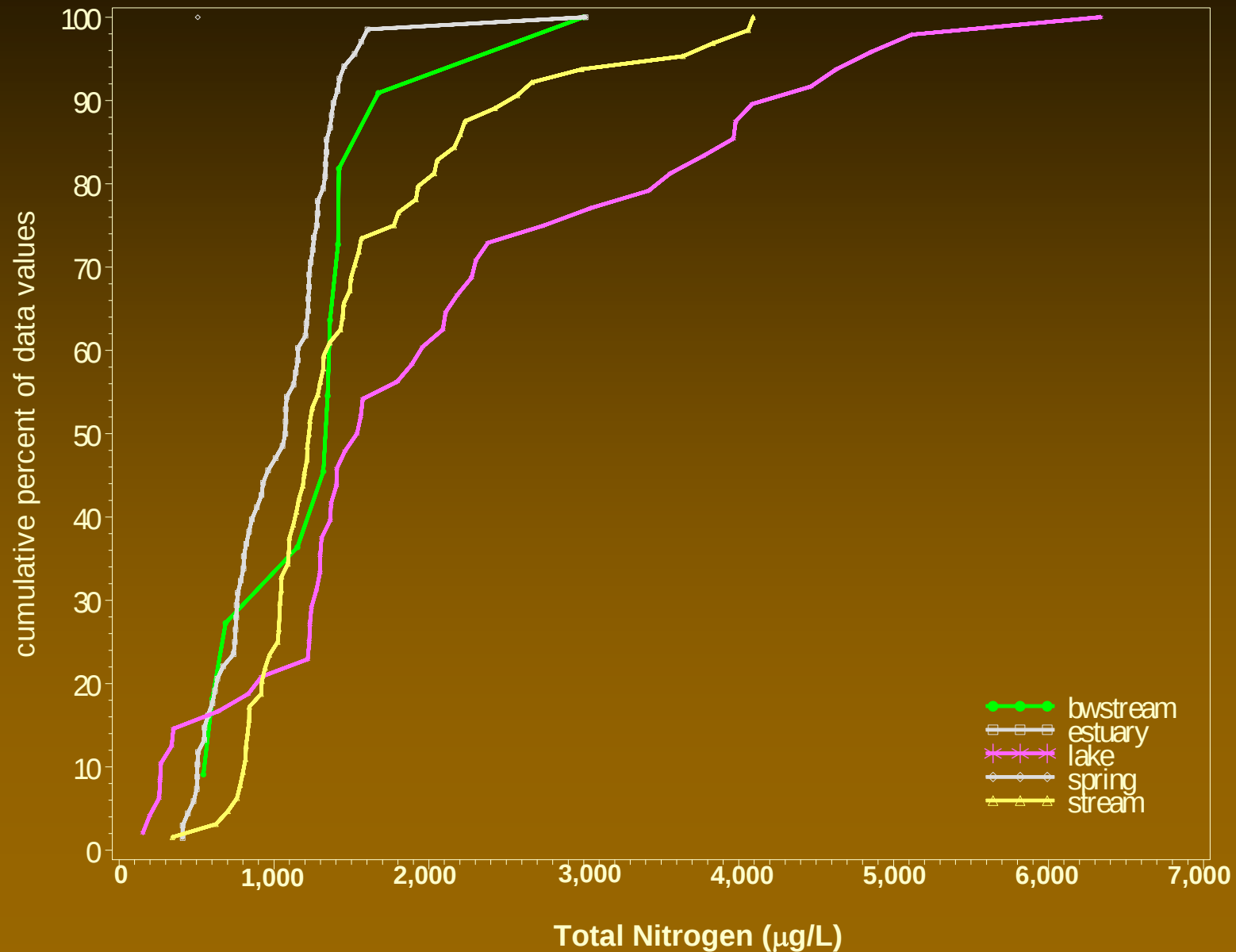


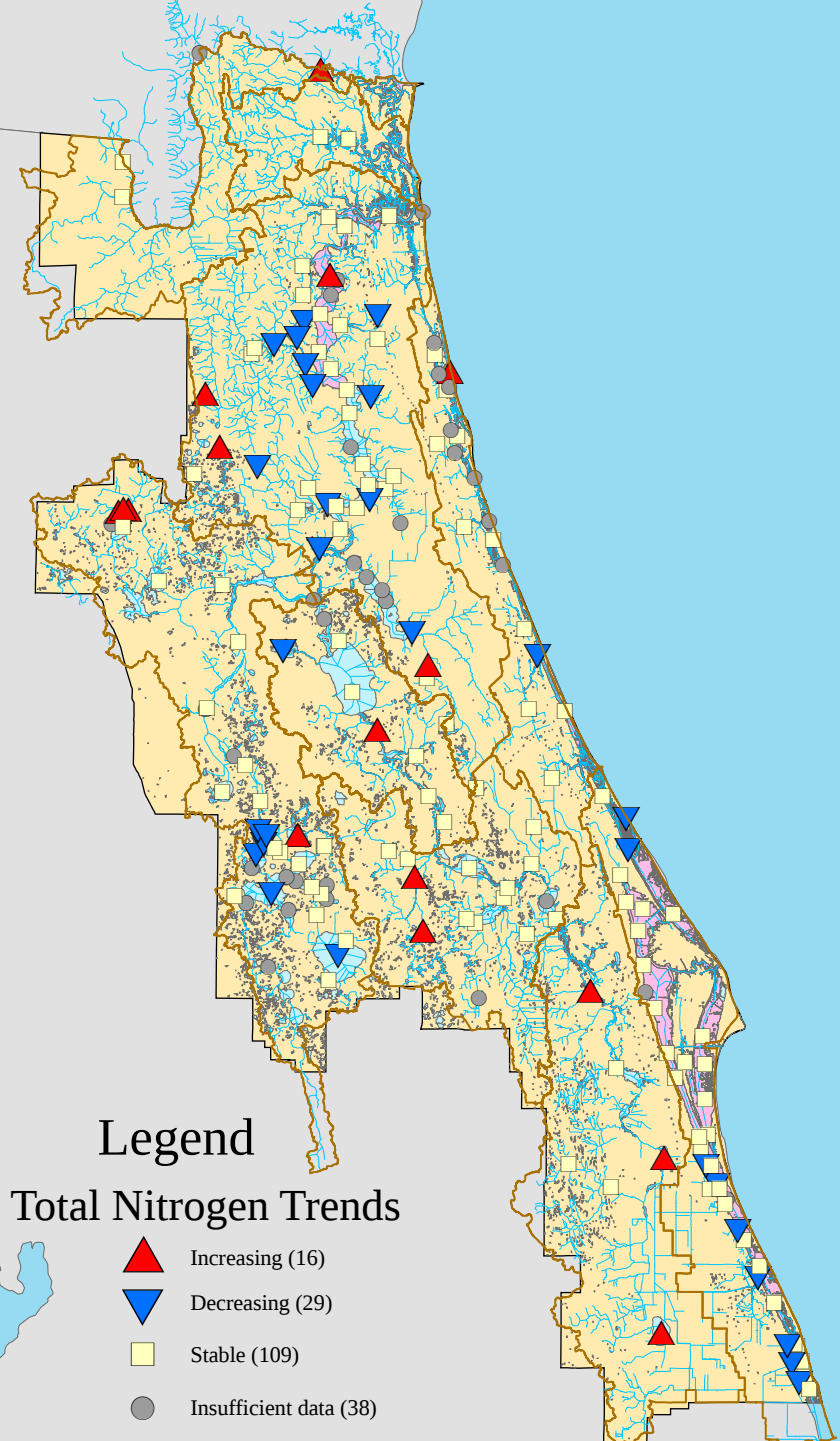
Total Nitrogen Status

(medians for 192 sites)



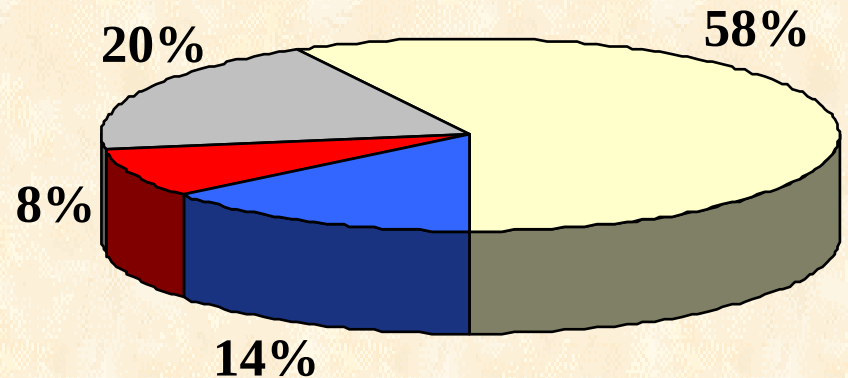
Total Nitrogen Cumulative Frequency Distribution





Total Nitrogen Trends (192 sites)

Percentage of Sampled Sites



Decreasing

Increasing

Insufficient

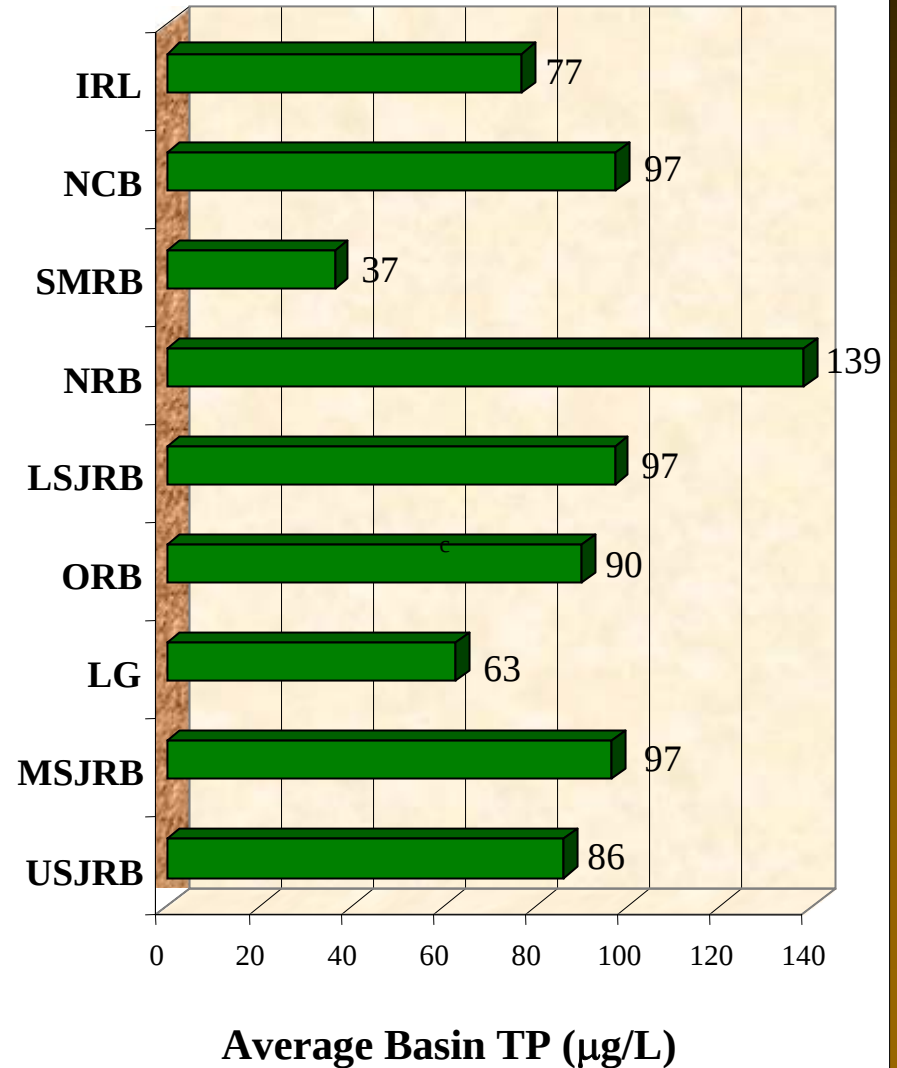
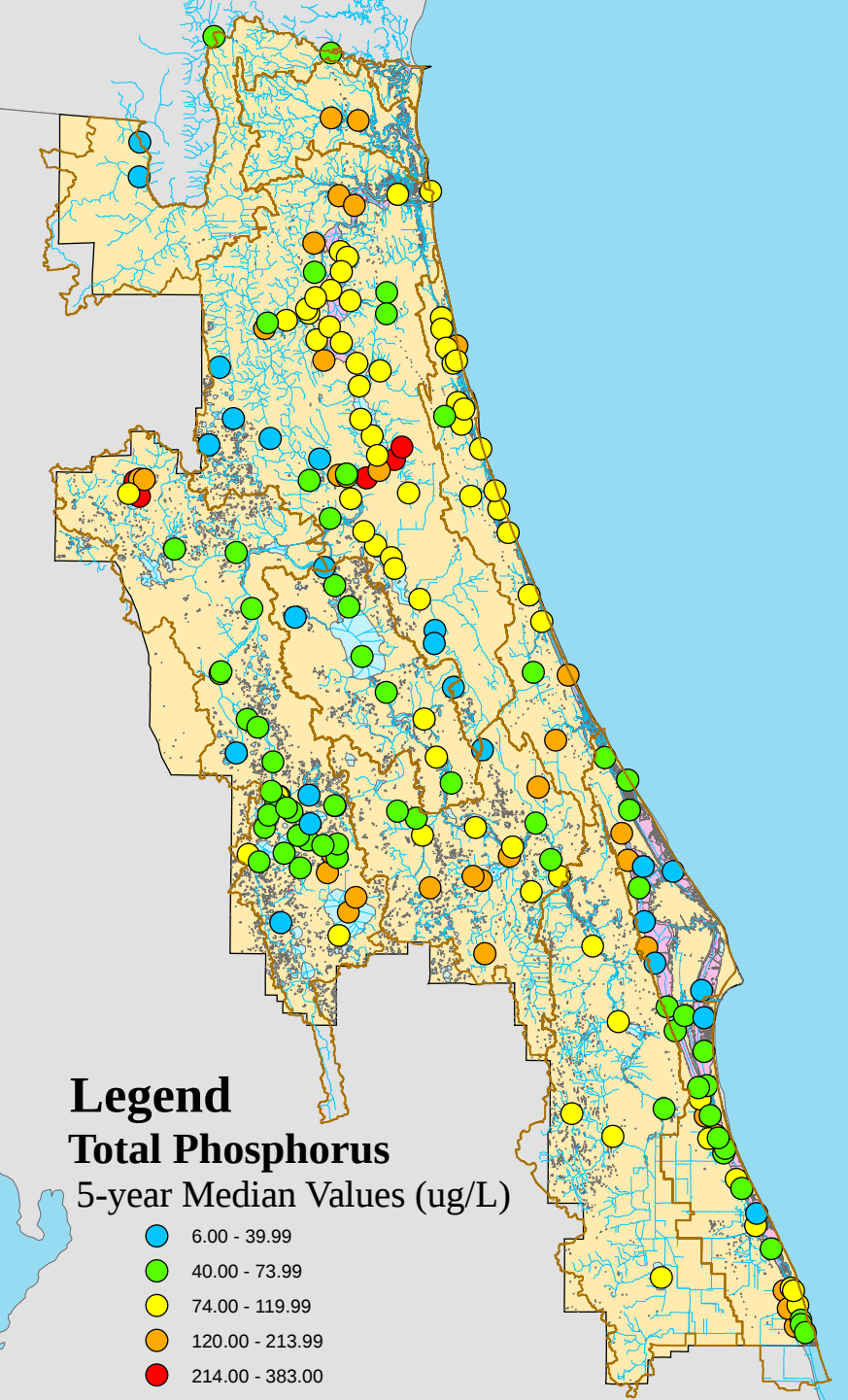
Stable

Increasing Total Nitrogen (16 sites)

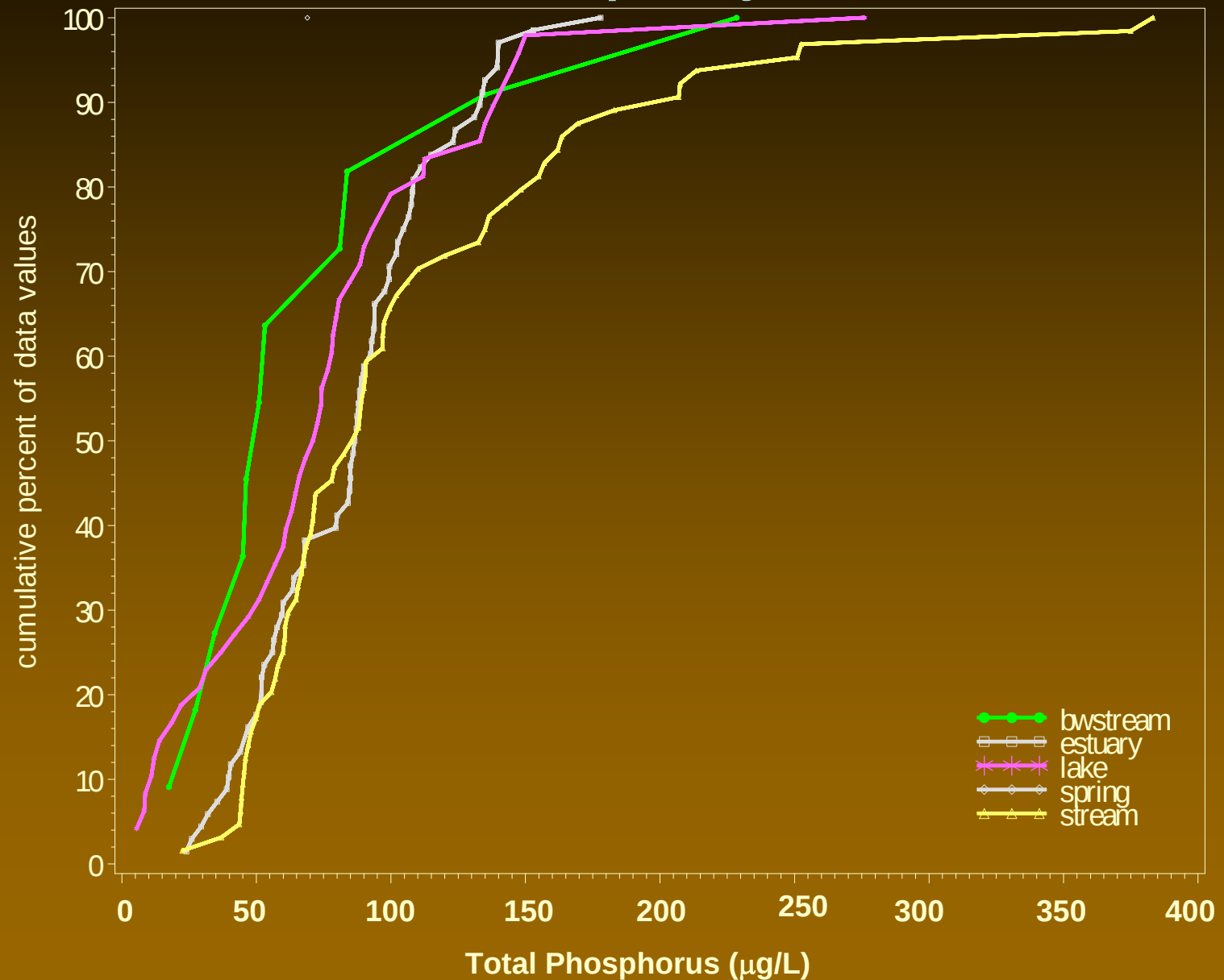
Site	Description	Basin	Type
BCL	Blue Cypress Lake at Center	USJRB	lake
LWC	Lake Washington Center	USJRB	lake
SRS	SJR at Seminole Ranch S boundary at SR 50	USJRB	stream
02235000	Wekiva River near Sanford	MSJRB	stream
20010137	Little Wekiva River at Hwy 434	MSJRB	stream
20010002	St. Johns River at Hwy 40 near Astor	LG	stream
HAT26	Hatchet Creek at SR 26 nr Newnans Lake	ORB	bwstream
LHAT26	L. Hatchet Creek at SR26-W intrsctn. CR222	ORB	stream
LHT26E	L. Hatchet Creek at CR26-Et of CR222	ORB	stream
LYC	Center of Lake Yale	ORB	lake
20030412	Kingsley Lake at center	LSJRB	lake
JAXSJR40	SJR near Piney Point	LSJRB	estuary
LSJ070	Little Haw Creek at US 305	LSJRB	bwstream
SHEEL	Lake Sheelar at center	LSJRB	lake
19010001	St. Marys River at US 17 Georgia line	SMRB	stream
GAR	Guana River 100 meters south of the dam	NCB	estuary



Total Phosphorus Status (medians for 192 sites)

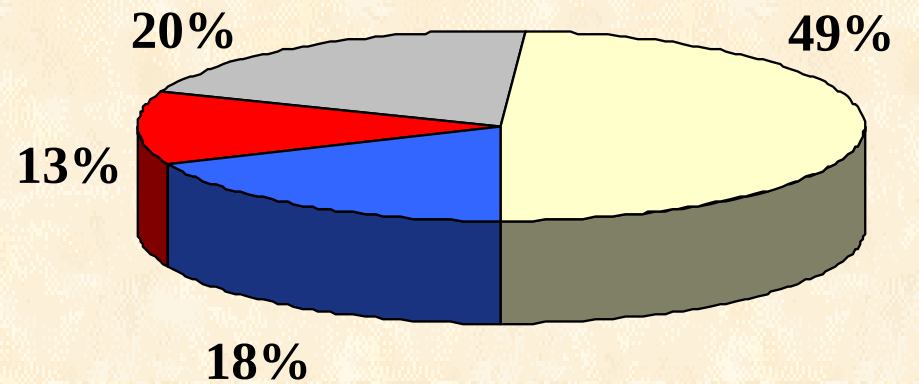


Total Phosphorus Cumulative Frequency Distribution



Total Phosphorus Trends (192 sites)

Percentage of Sampled Sites



Legend

Total Phosphorus Trends

- ▲ Increasing (27)
- ▼ Decreasing (35)
- Stable (91)
- Insufficient Data (39)

Decreasing

Insufficient

Increasing

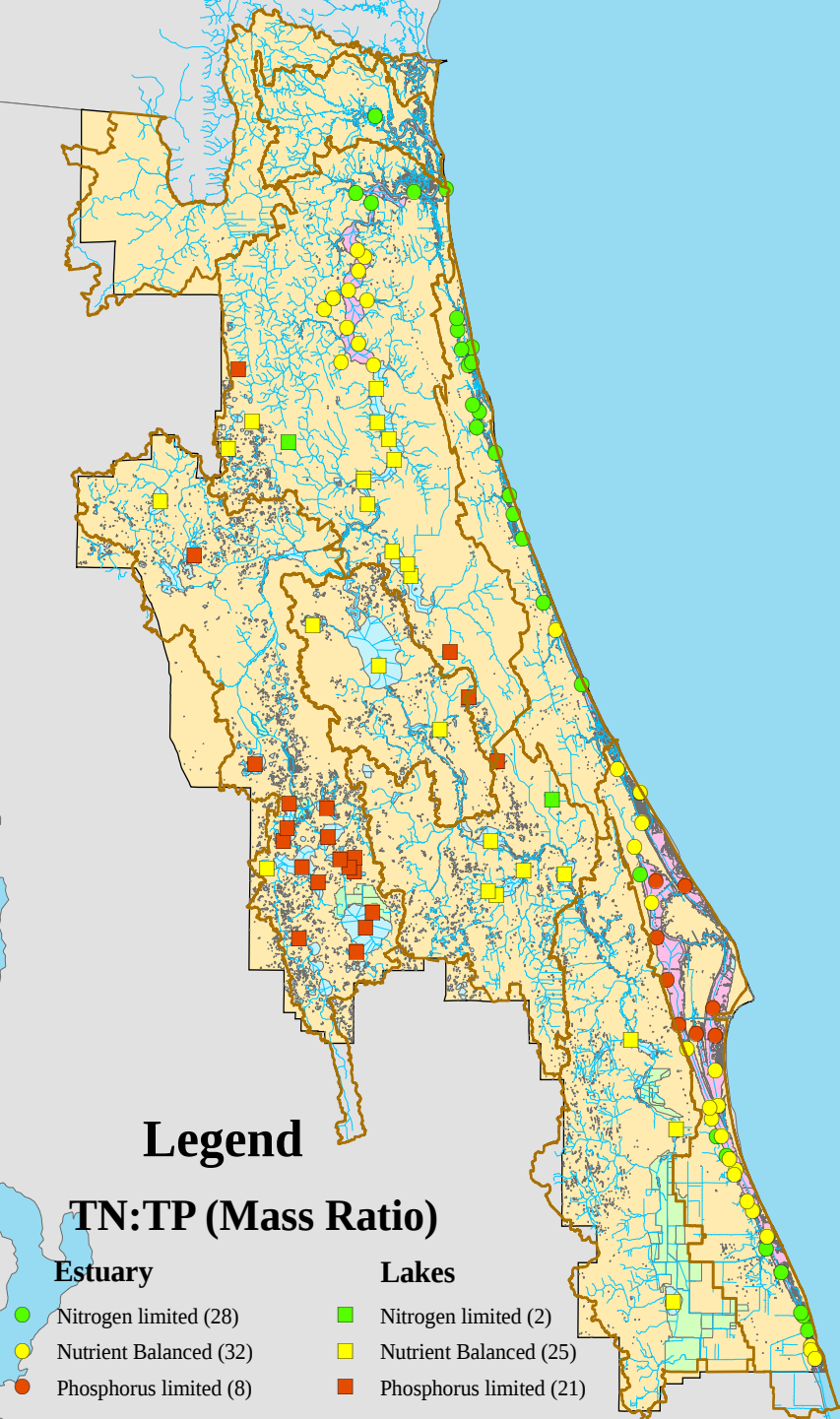
Stable

Increasing Total Phosphorus (27 sites)

Site	Description	Basin	Type
BCL	Blue Cypress Lake at Center	USJRB	lake
LPO	SJR at Lake Poinsett Outlet south of SR 520	USJRB	lake
SRS	Seminole Ranch South boundary at SR 50 in SJR	USJRB	stream
20010137	Little Wekiva River at Hwy 434	MSJRB	stream
LMAC	Lake Monroe at center	MSJRB	lake
OW-2	Lk Jesup off Grassy Point	MSJRB	lake
OW-SJR-1	Mid SJR east of Barge Canal & east of JJ Fish Camp	MSJRB	stream
SRN	Lake Harney inflow - St. Johns River at SR46 Bridge	MSJRB	stream
HAR	Center of Lake Harris	ORB	lake
LHAT26	Little Hatchet Creek on SR26; W intrsctn. CR222	ORB	stream
LYC	Center of Lake Yale	ORB	lake
NEW	Newnans Lake; center	ORB	lake
20030115	Moncrief Creek near mouth	LSJRB	estuary
JAXSJR04	SJR at Red Marker 34	LSJRB	estuary
JAXSJR40	SJR Near Piney Point 100 M Sw of Green CM #5	LSJRB	estuary
MP72	SJR at Mandarin Pt btw CM 10 & 11 Center	LSJRB	estuary
SJP	SJR at Palatka (us 17)	LSJRB	lake
SJRCC	SJR Below Rice Creek Center Channel	LSJRB	lake
SRP	St. Johns River at Racy Point	LSJRB	lake
27010579	Tomoka River at 11th Street Bridge	NCB	stream
CCC	Casa Cola Creek	NCB	estuary
GAR	Guana River 100 m S of the dam	NCB	estuary
MAT	Matanzas R. S of Washington Oaks CM 109	NCB	estuary
MR312	Matanzas River at SR 312	NCB	estuary
27010875	IRL at ICWW at CM 12 near Halov	IRL	estuary
IRLHUS	IRL at Horse Creek at US 1	IRL	estuary
IRLVNC	IRL at Vero North Canal at US 1	IRL	stream



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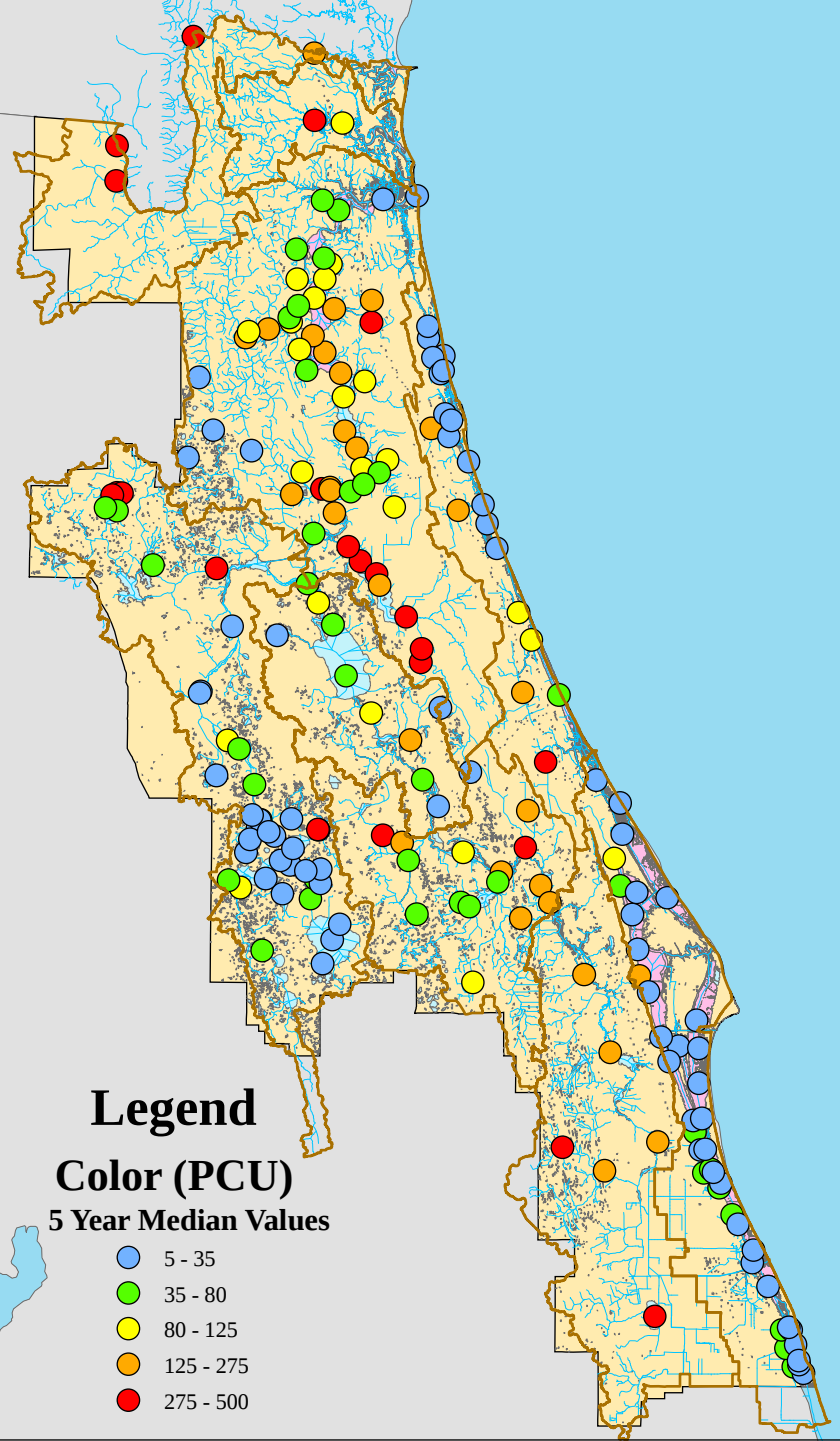


TN:TP Ratio

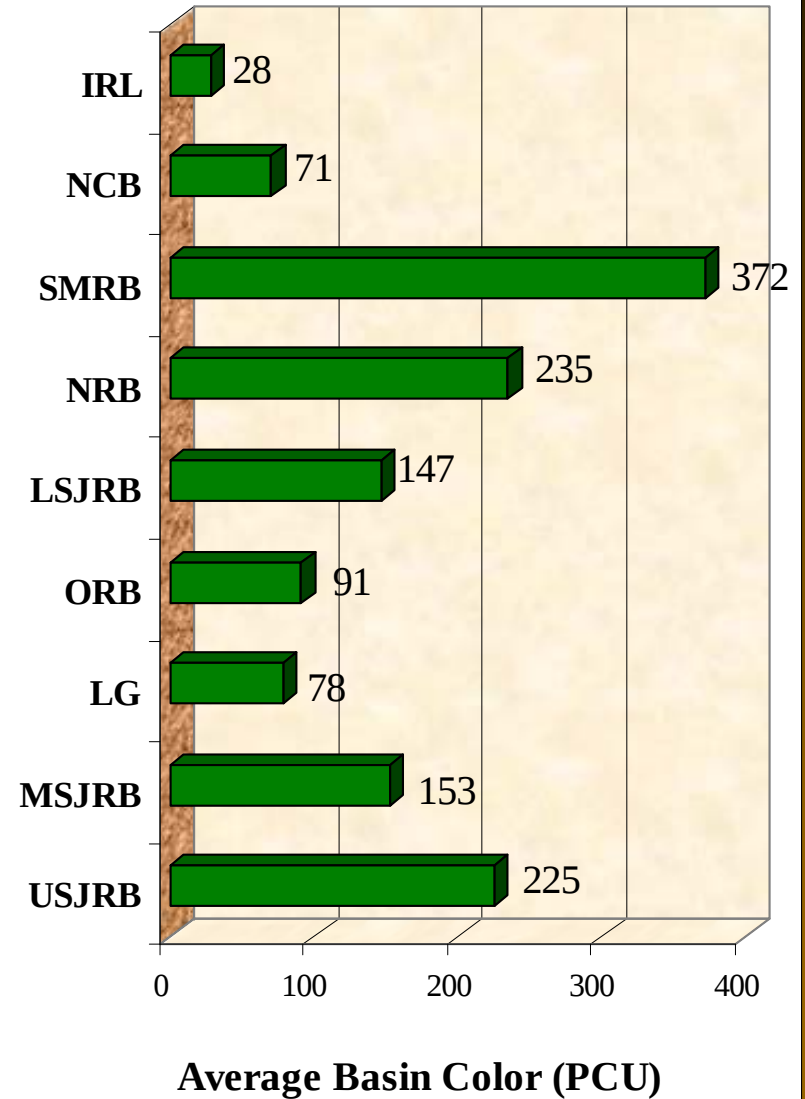
Indicator of Limiting Nutrient

LIMITING NUTRIENT	Estuary	Lake	Total
N limited	28	2	30
Nutrient Balanced	32	25	57
P limited	8	21	29
Total	68	48	116

BASIN	WB Type	N limited	Balanced	P limited	Total
IRL	estuary	8	20	8	36
NCB	estuary	15	1		16
NRB	estuary	1			1
LSJRB	lake	1	12	3	16
	estuary	4	11		15
ORB	lake		2	17	19
LG	lake		3		3
MSJRB	lake	1	5	1	7
USJRB	lake		3		3
Total		30	57	29	116

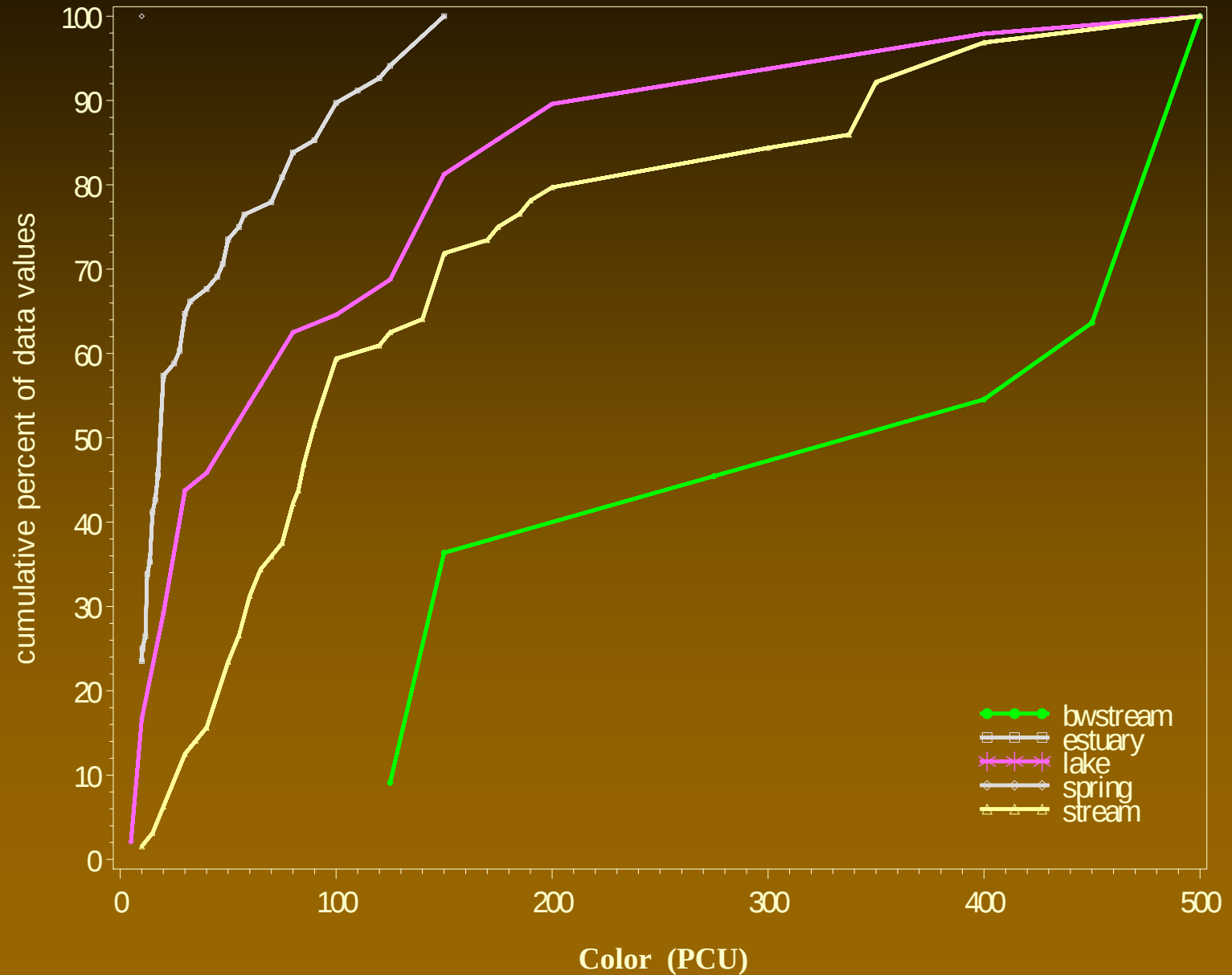


Color Status (medians for 192 sites)



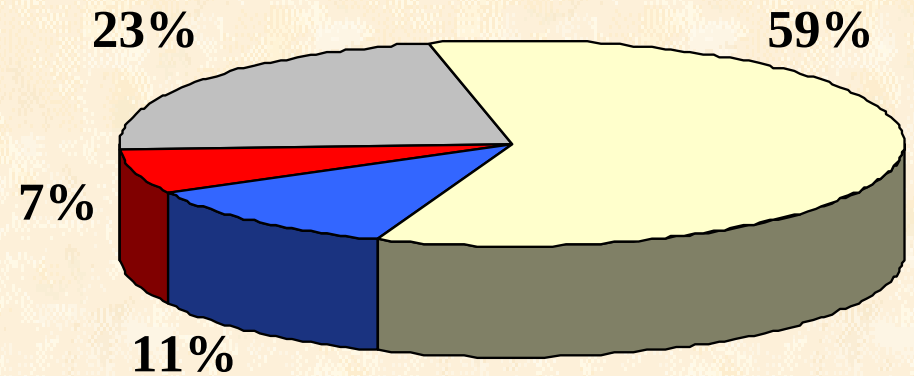
Color Status

Cumulative Frequency Distribution



Color Trends (192 sites)

Percentage of Sampled Sites



Legend

Color (PCU)

Trend

- ▲ Increasing (13)
- ▼ Decreasing (22)
- Stable (113)
- Insufficient Data (44)

Decreasing

Insufficient

Increasing

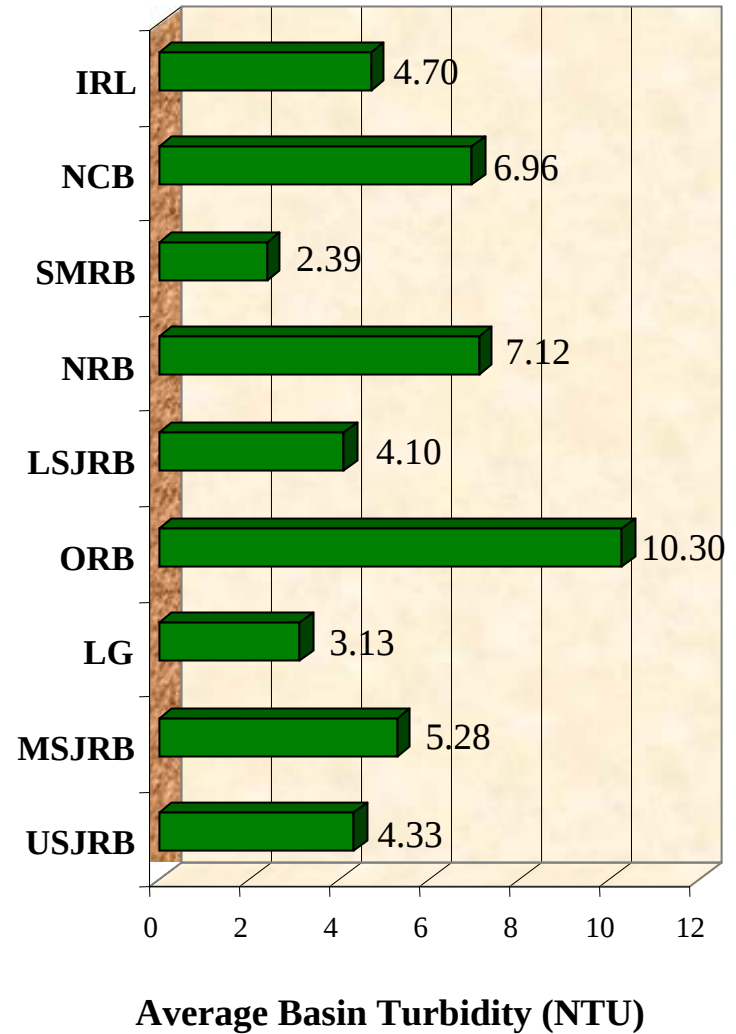
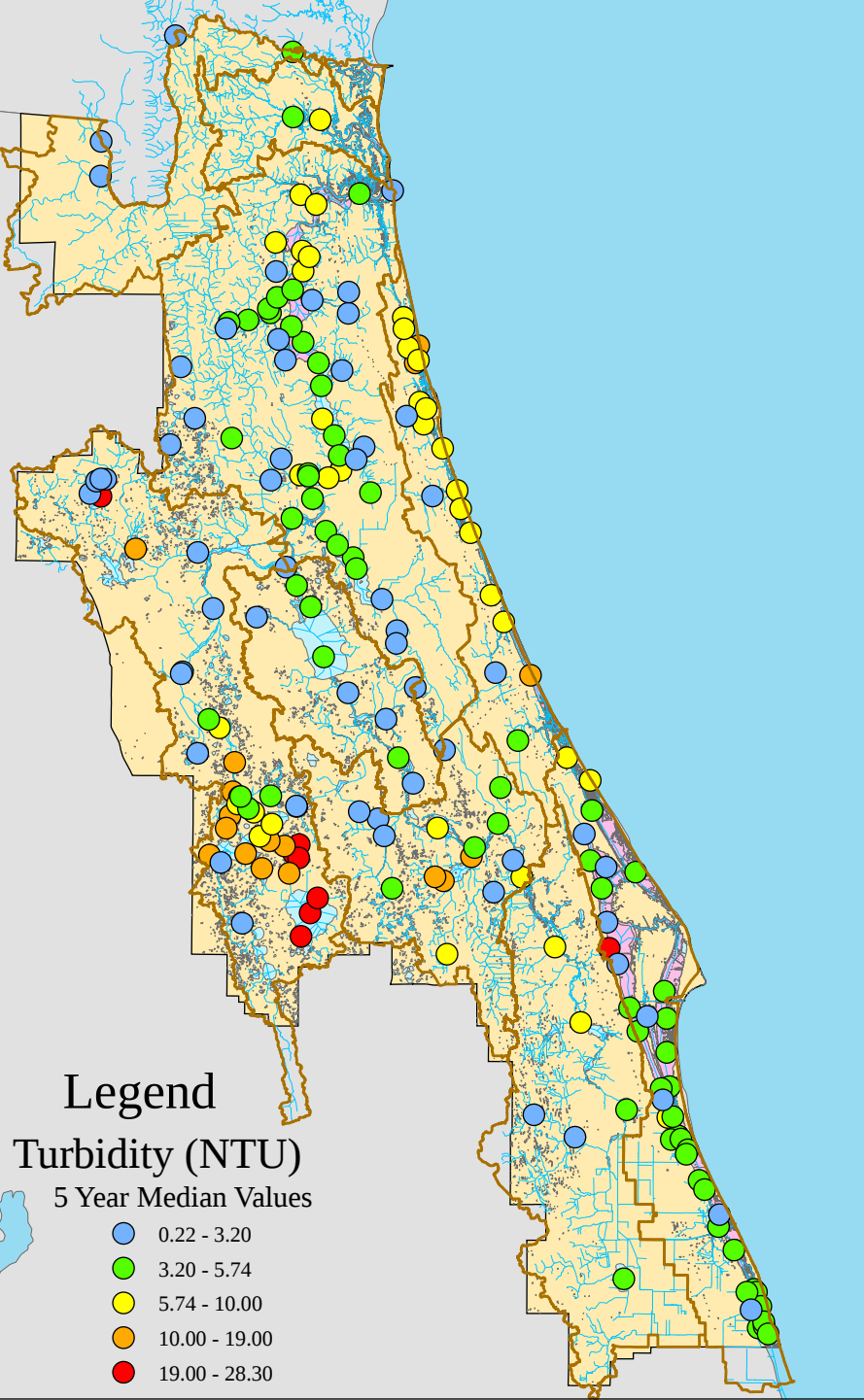
Stable

Increasing Color (13 sites)

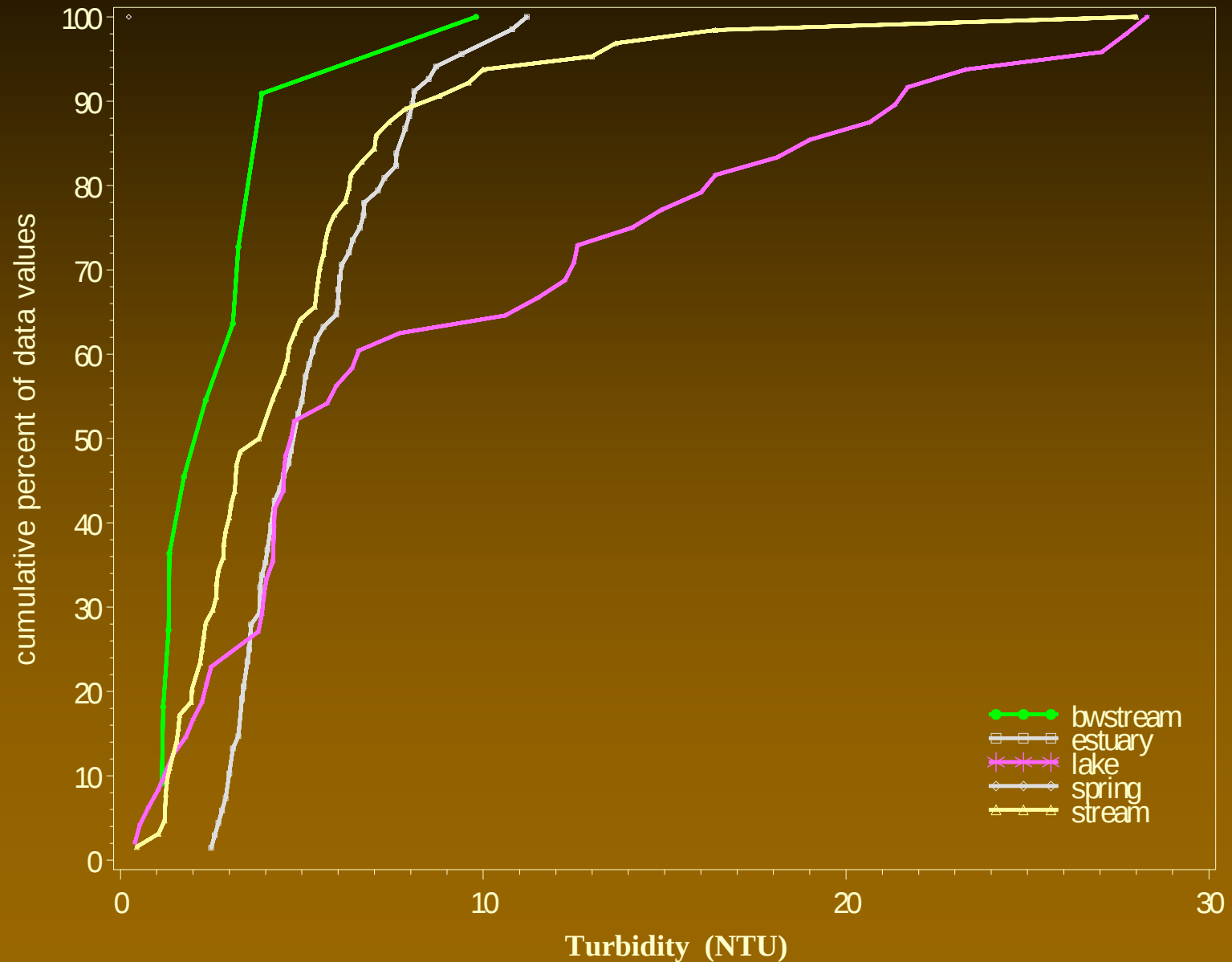
Site	Description	Basin	Type
BCL	Blue Cypress Lake at Center	USJRB	lake
HAR	center of Lake Harris	ORB	lake
LHT26E	Little Hatchet Creek at CR26; east of CR222	ORB	stream
LOL	Center Lake Lochloosa	ORB	lake
LYC	center of Lake Yale	ORB	lake
2235000	Wekiva River near Sanford	MSJRB	stream
BWCCPB	Blackwater Creek at Carter Property Bridge	MSJRB	bwstream
DMR	Deep Creek at Maytown Rd.	MSJRB	bwstream
LSJ070	Little Haw Creek at US 305	LSJRB	bwstream
SRP	St. Johns River at Racy Point	LSJRB	lake
NRI	Nassau River near Italia	NRB	stream
19010006	St. Marys River at SR 2	SMRB	bwstream
IRLB02	IRL IN BRL CM23 midway between NASA and 528 Causeways	IRL	estuary



Turbidity Status (medians for 192 sites)

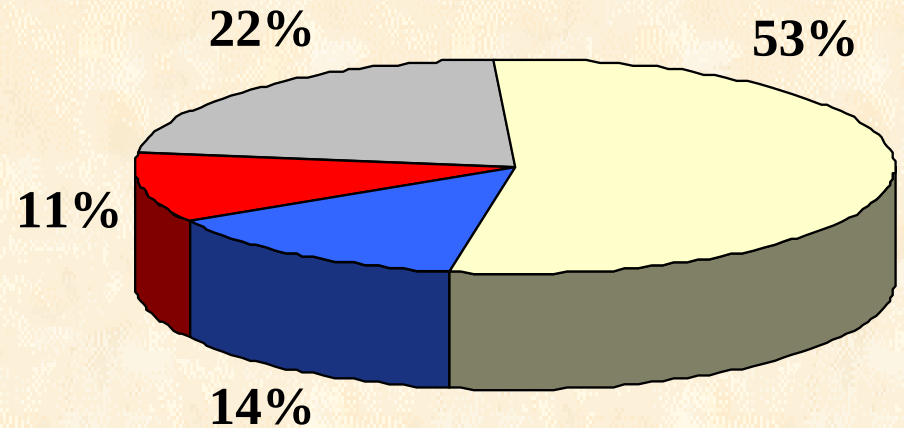


Turbidity Cumulative Frequency Distribution



Turbidity Trends (192 sites)

Percentage of Sampled Sites



Legend

Turbidity

Trend

- ▲ Increasing (21)
- ▼ Decreasing (26)
- Stable (103)
- Insufficient (42)

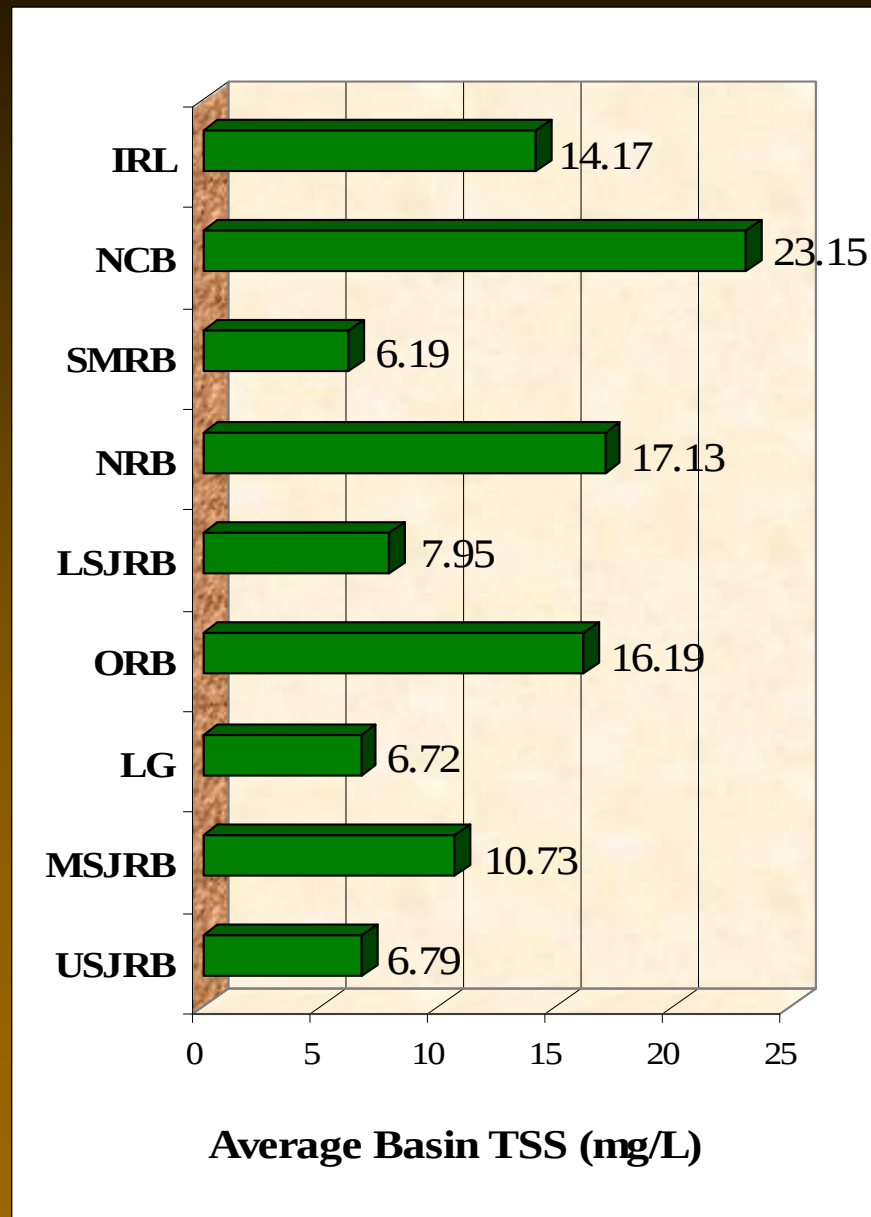
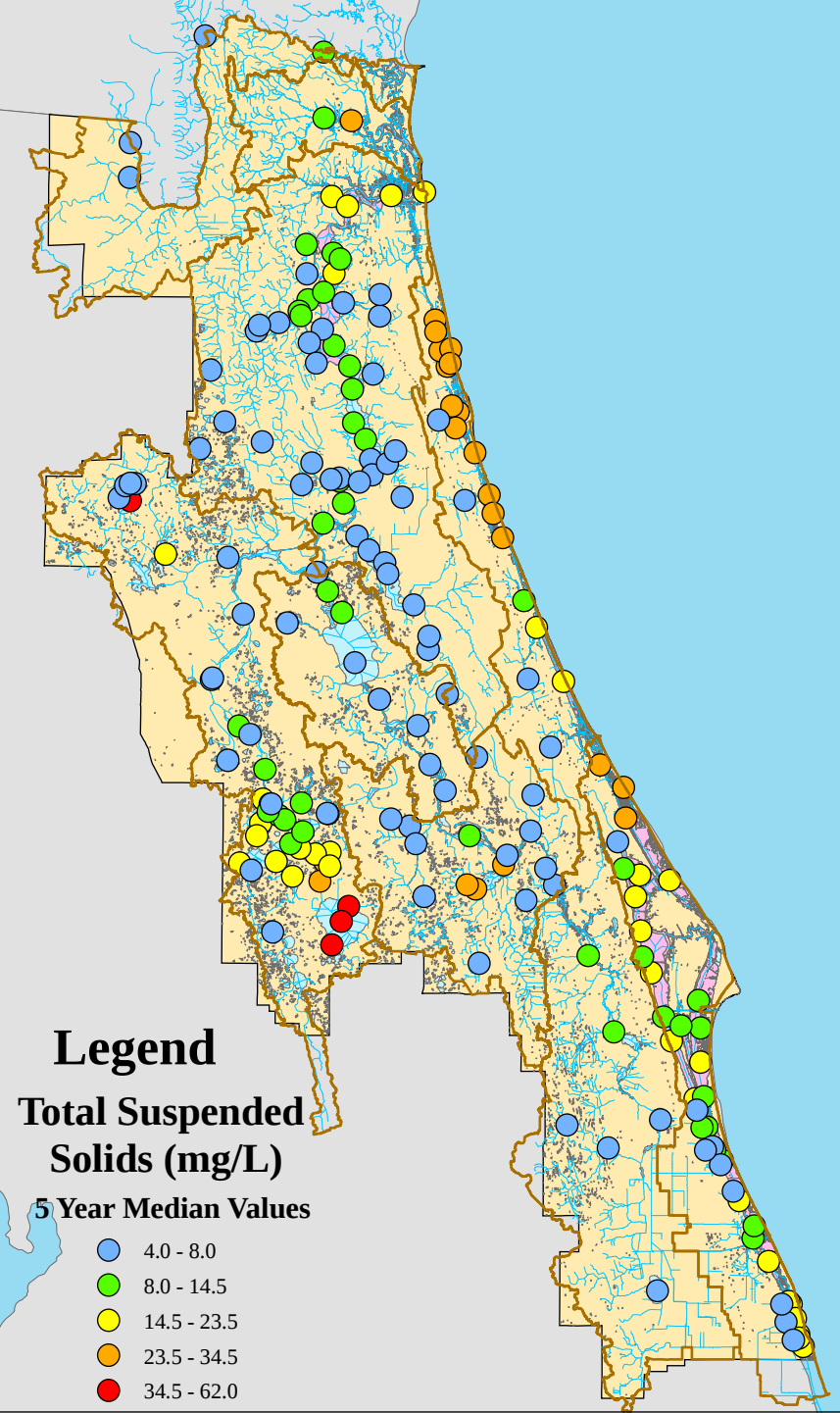
- | | |
|----------------|--------------|
| ■ Decreasing | ■ Increasing |
| ■ Insufficient | ■ Stable |

Increasing Turbidity (21 sites)

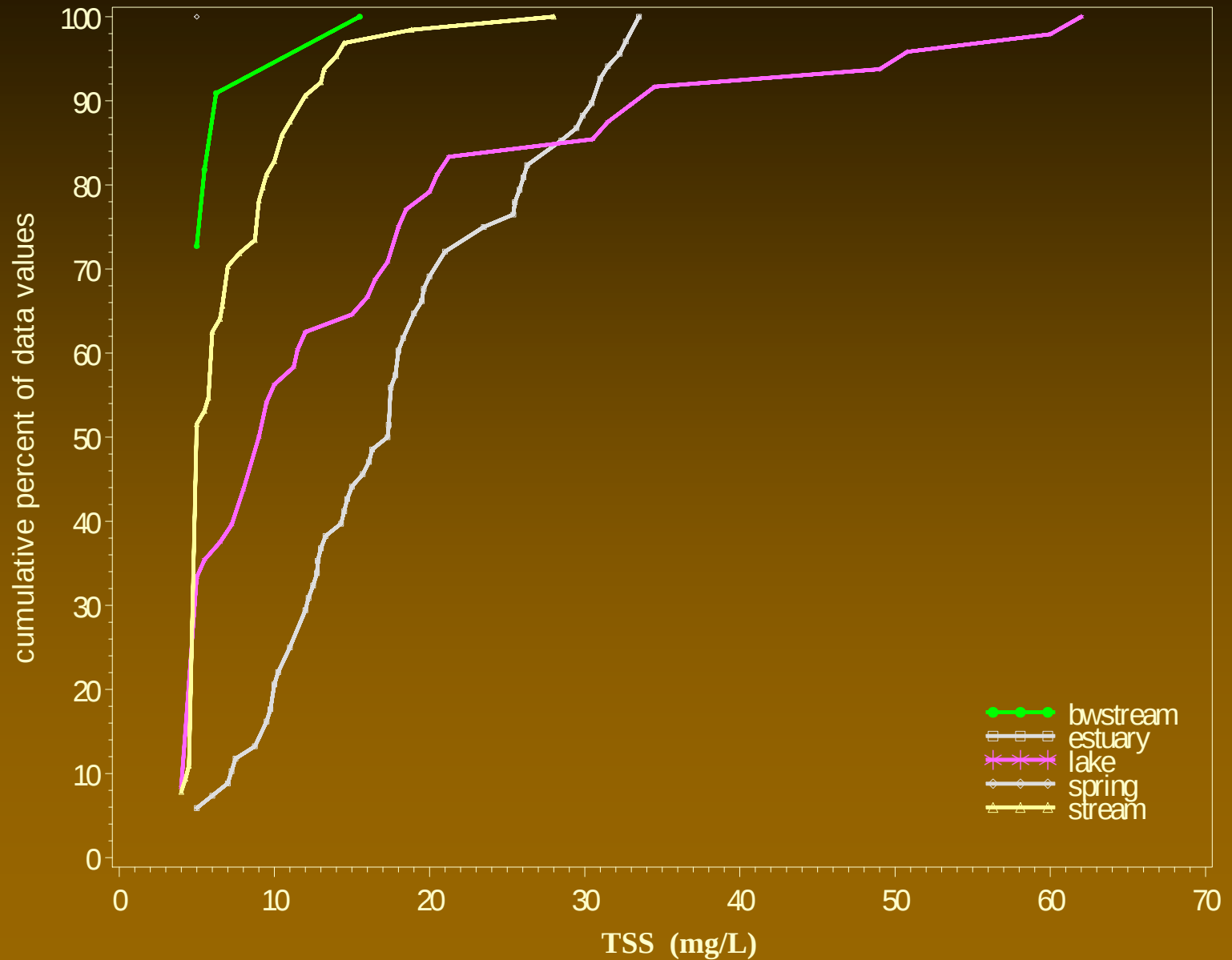
Site	Description	Basin	Type
LPO	SJR at Lake Poinsett Outlet south of SR 520	USJRB	lake
LWC	Lake Washington Center	USJRB	lake
SRS	Seminole Ranch South boundary at SR 50 in SJR	USJRB	stream
LYC	Center of Lake Yale	ORB	lake
LOL	Center Lake Lochloosa	ORB	lake
SRN	Lake Harney inflow - St. Johns River at SR46 Bridge	MSJRB	stream
OW-SJR-1	Mid SJR east of Barge Canal & east of JJ Fish Camp	MSJRB	stream
NBC	North Fork of Black Creek at SR 21	LSJRB	bwstream
SHEEL	Lake Sheelar Center	LSJRB	lake
SJM37	SJR at CM 37 Federal Point	LSJRB	lake
GEN	Lake Geneva near Keystone	LSJRB	lake
20030115	Moncrief Creek near mouth	LSJRB	estuary
CCC	Casa Cola Creek	NCB	estuary
GAR	Guana River 100 meters south of the Dam	NCB	estuary
IRLI18	IRL near west shore 1.2 KM S of Pinada CSWY	IRL	estuary
IRLI07	IRL 1.8 km S of SR 406 near west shore	IRL	estuary
27010875	Indian River at ICWW CM 12 near Halov	IRL	estuary
IRLI10	IRL 2.8 km S of NASA CSWY west side	IRL	estuary
IRLI21	IRL E of mouth od Eau Gallie River	IRL	estuary
IRLI23	IRL center just of S of Melbourne CSWY	IRL	estuary
IRLI15	IRL center 2.3 km S of SR 520 (0.5 km of WWTP discharge)	IRL	estuary



Total Suspended Solids Status (medians for 192 sites)

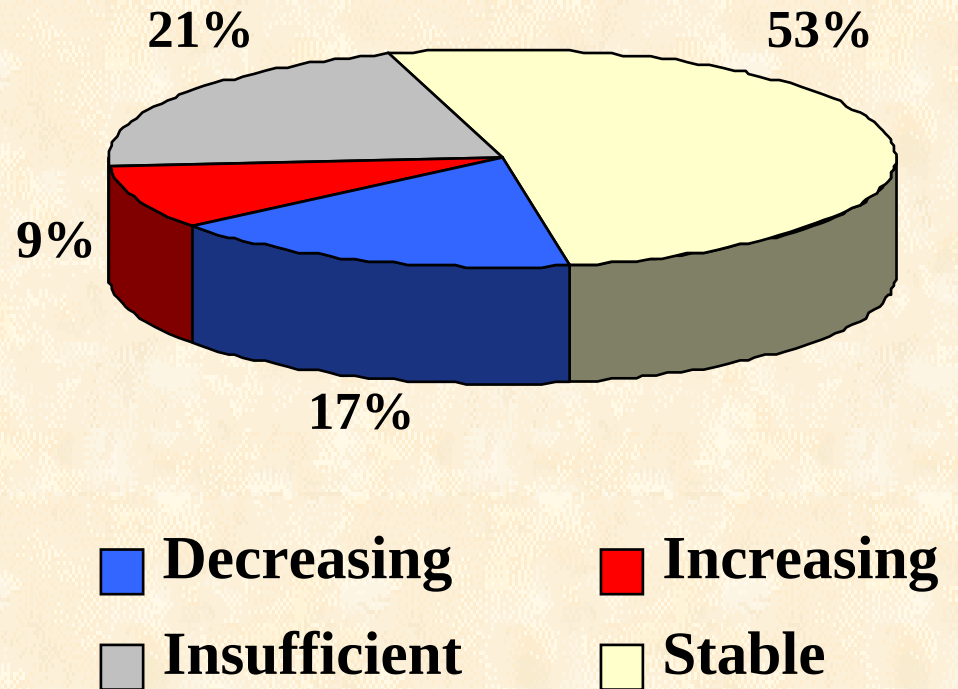
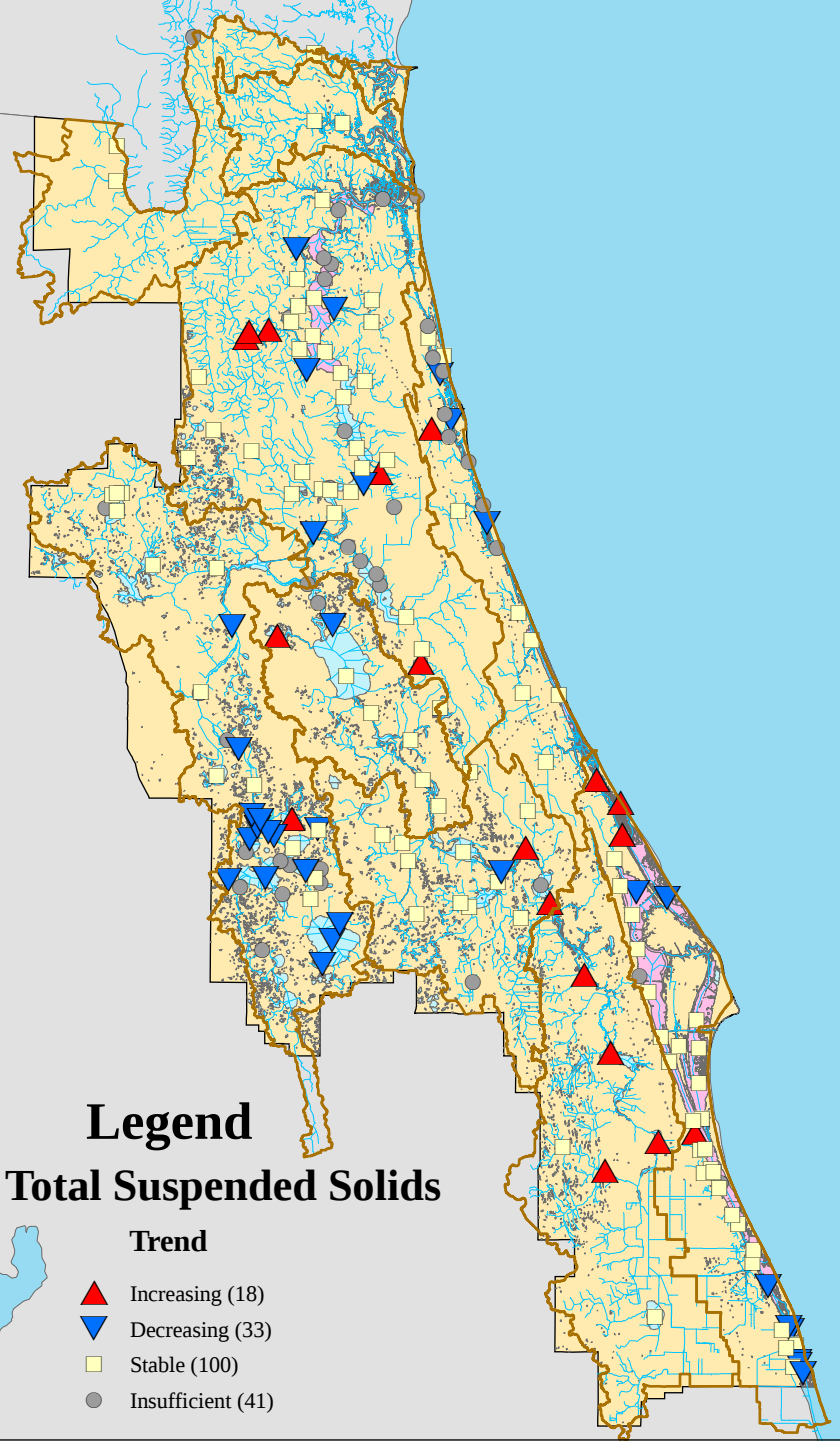


Total Suspended Solids Cumulative Frequency Distribution



Total Suspended Solids Trends (192 sites)

Percentage of Sampled Sites

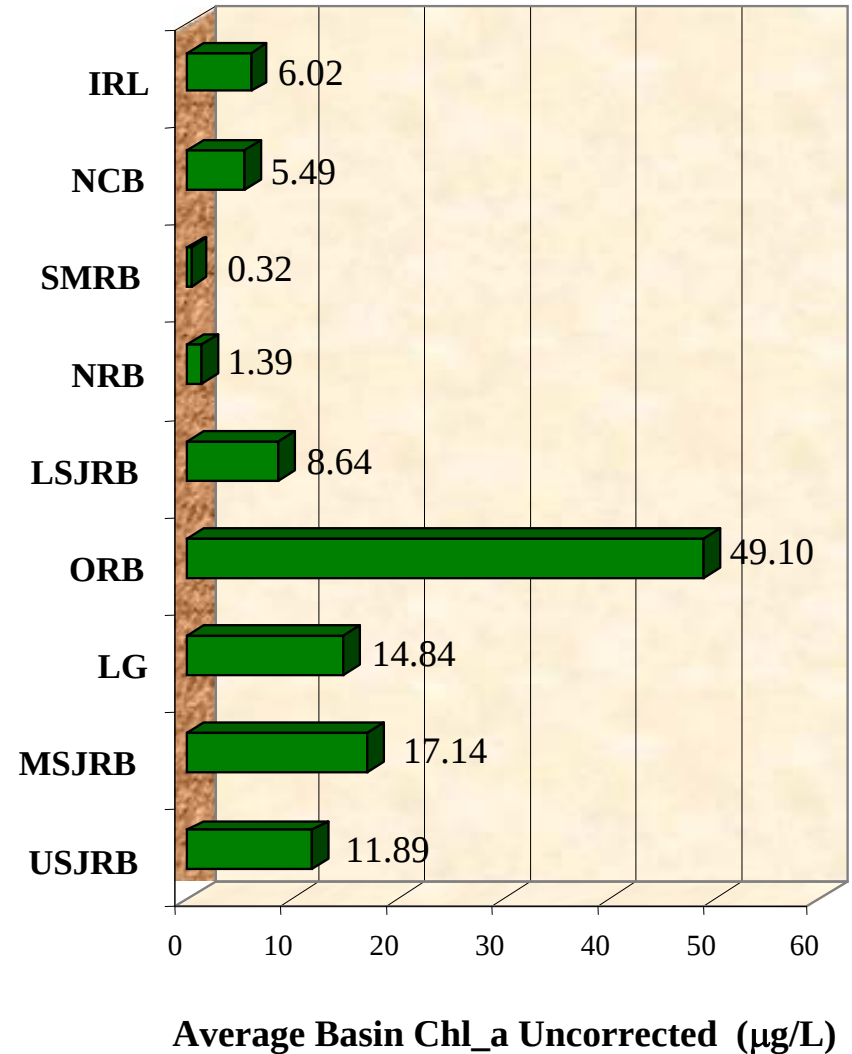
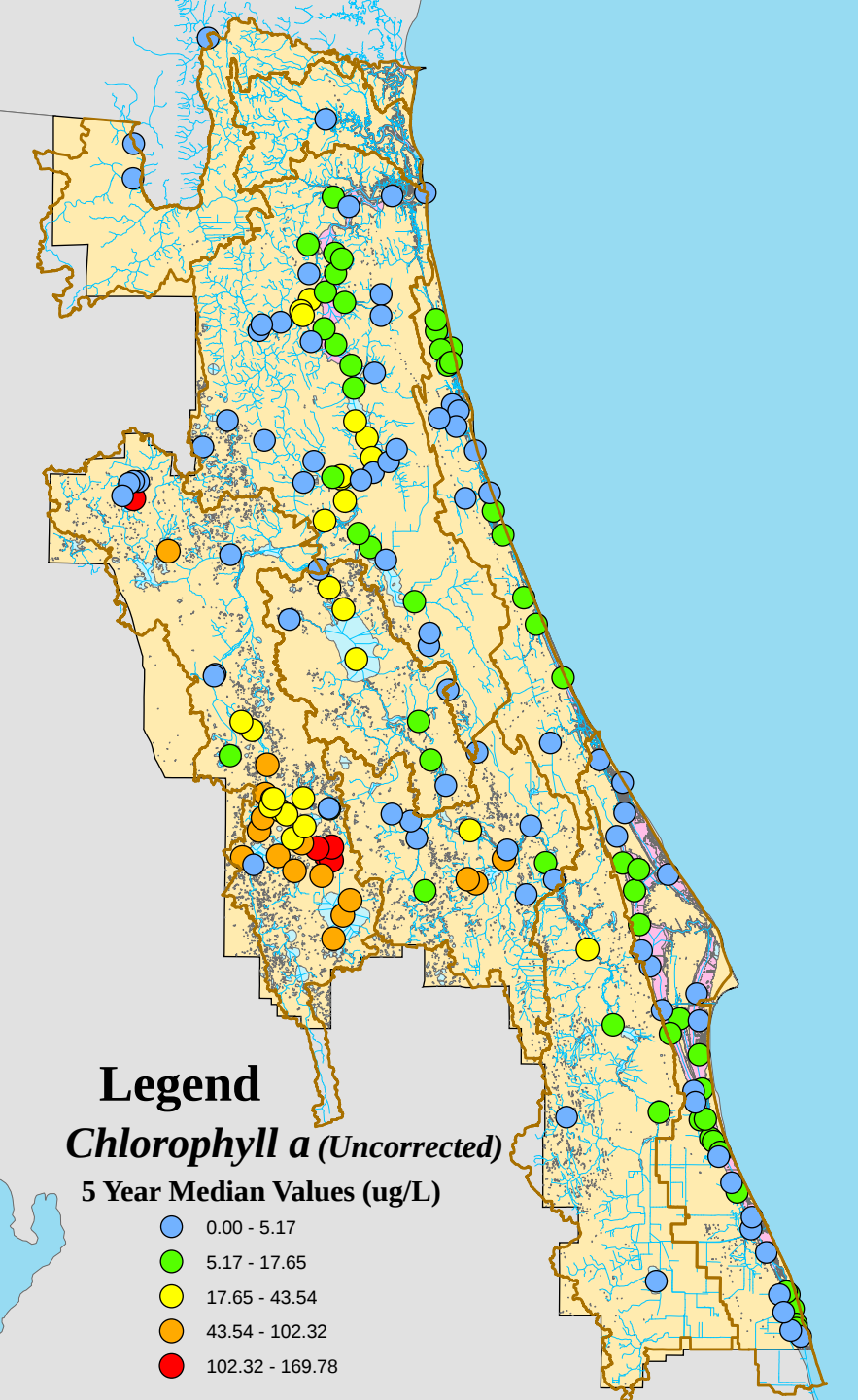


Increasing Total Suspended Solids (18 sites)

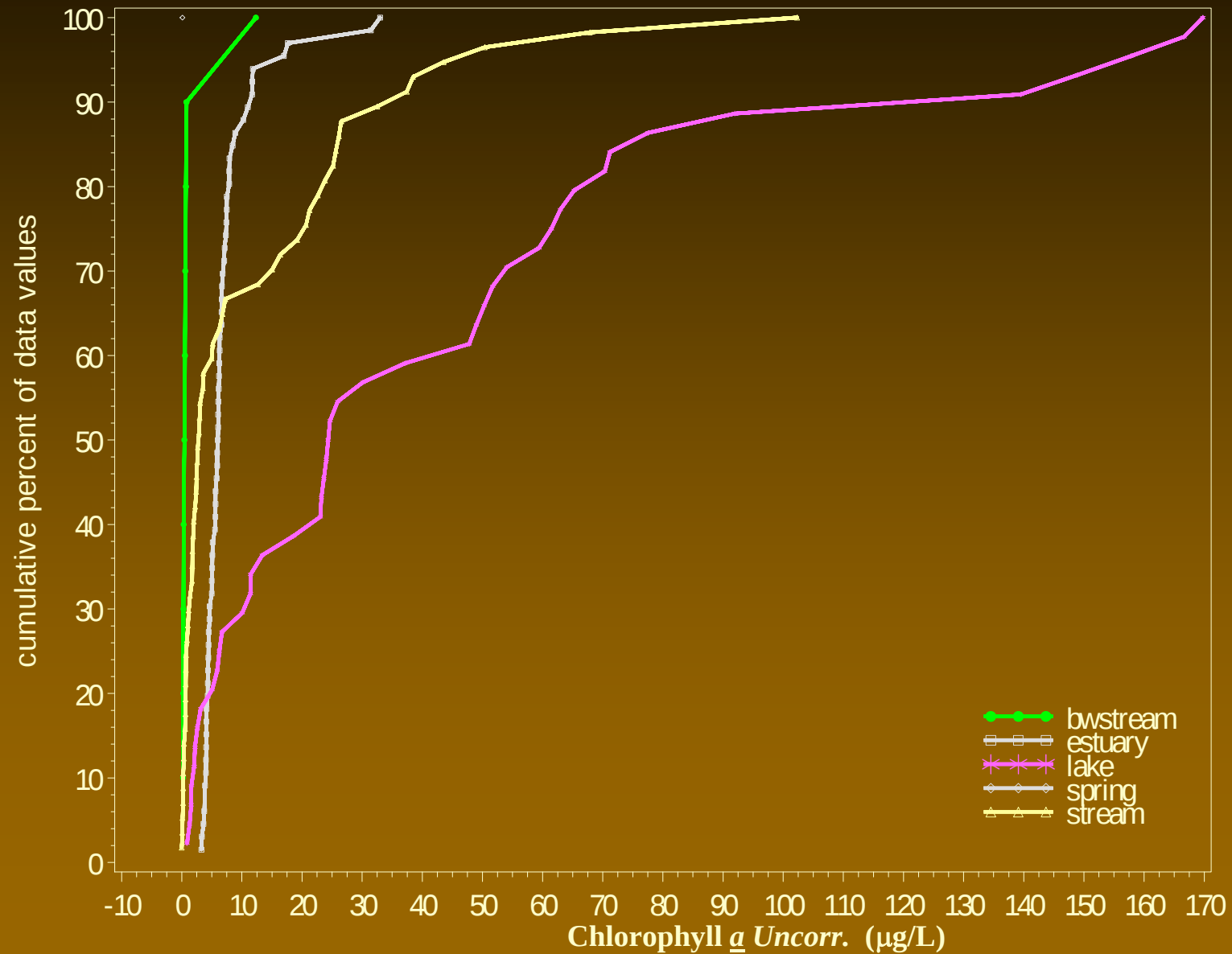
Site	Description	Basin	Type
JGS	Jane Green Creek at USGS Gage (Ten Mile Road)	USJRB	bwstream
LPO	SJR at Lake Poinsett Outlet south of SR 520	USJRB	lake
LWC	Lake Washington Center	USJRB	lake
SRS	Seminole Ranch South boundary at SR 50 in SJR	USJRB	stream
DMR	Deep Creek at Maytown Rd.	MSJRB	bwstream
SRN	Lake Harney inflow - St. Johns River at SR46 Bridge	MSJRB	stream
KER	Lake Kerr between Kauffmans Island and Pt. Pleasant	LG	lake
LYC	Center of Lake Yale	ORB	lake
BLC	Black Creek at Hwy 209	LSJRB	bwstream
BSF	South Fork of Black Creek at Hwy 218	LSJRB	bwstream
CLD	Center of Lake Disston	LSJRB	lake
DPB	Deep Creek at Railroad Bridge	LSJRB	stream
NBC	North Fork of Black Creek at SR 21	LSJRB	bwstream
MTC	MOULTRIE CREEK AT SR 207	NCB	stream
IRLHUS	IRL at Horse Creek at US1	IRL	estuary
IRLV05	IRL in ML S of CM47 at S canal discharge	IRL	estuary
IRLV11	IRL in ML E of Cedar Island and West of Bethune Beach	IRL	estuary
IRLV17	IRL in ML S of CM7 near Barlow's Crab Bldg. and Oak Hill Dock	IRL	estuary



Chlorophyll a Status (median values for 192 sites)

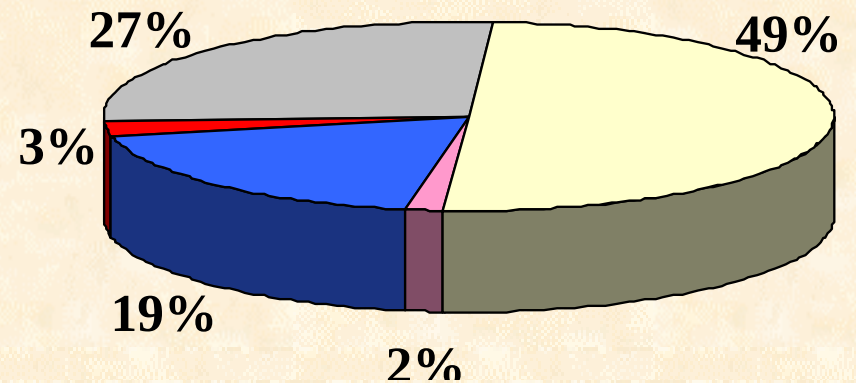


Chlorophyll-a Cumulative Frequency Distribution



Chlorophyll a Trends (192 sites)

Percentage of Sampled Sites



Decreasing Increasing Stable
No data Insufficient data

Legend

Chl_a (Uncorr.) Trends

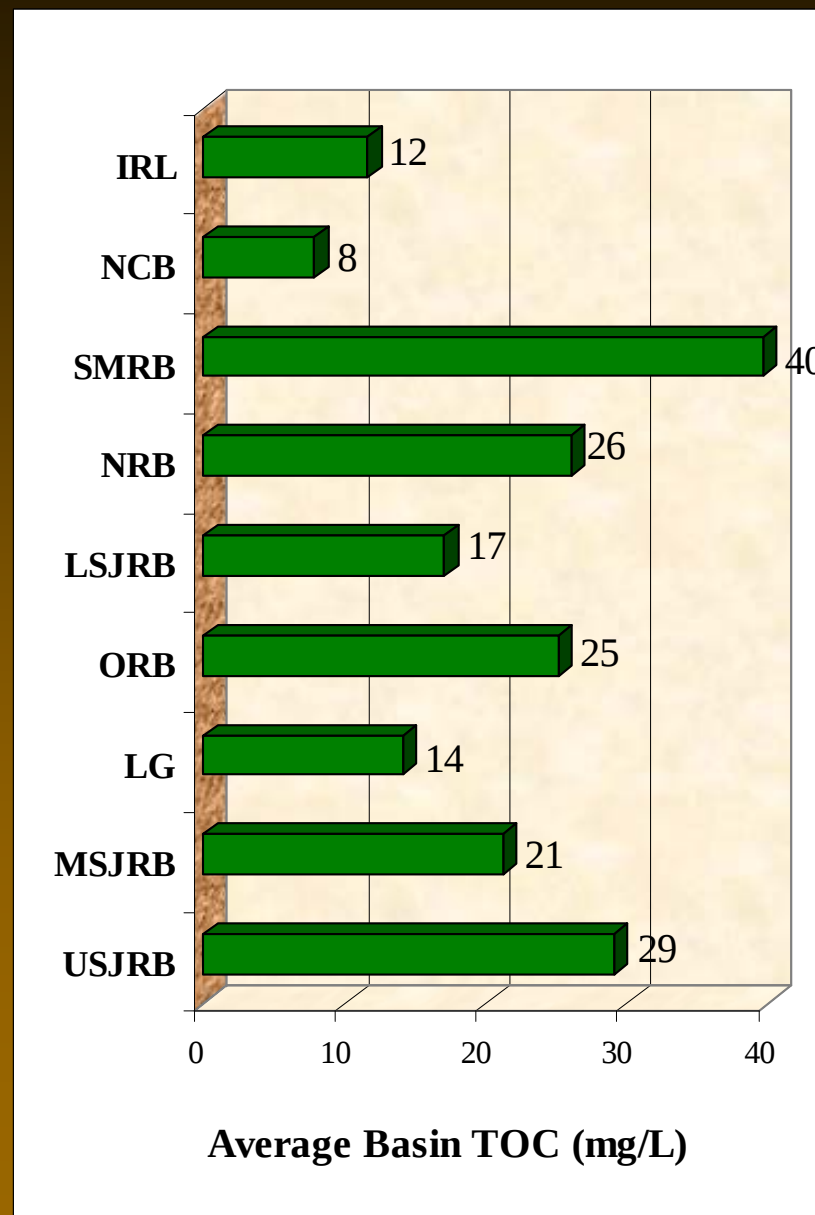
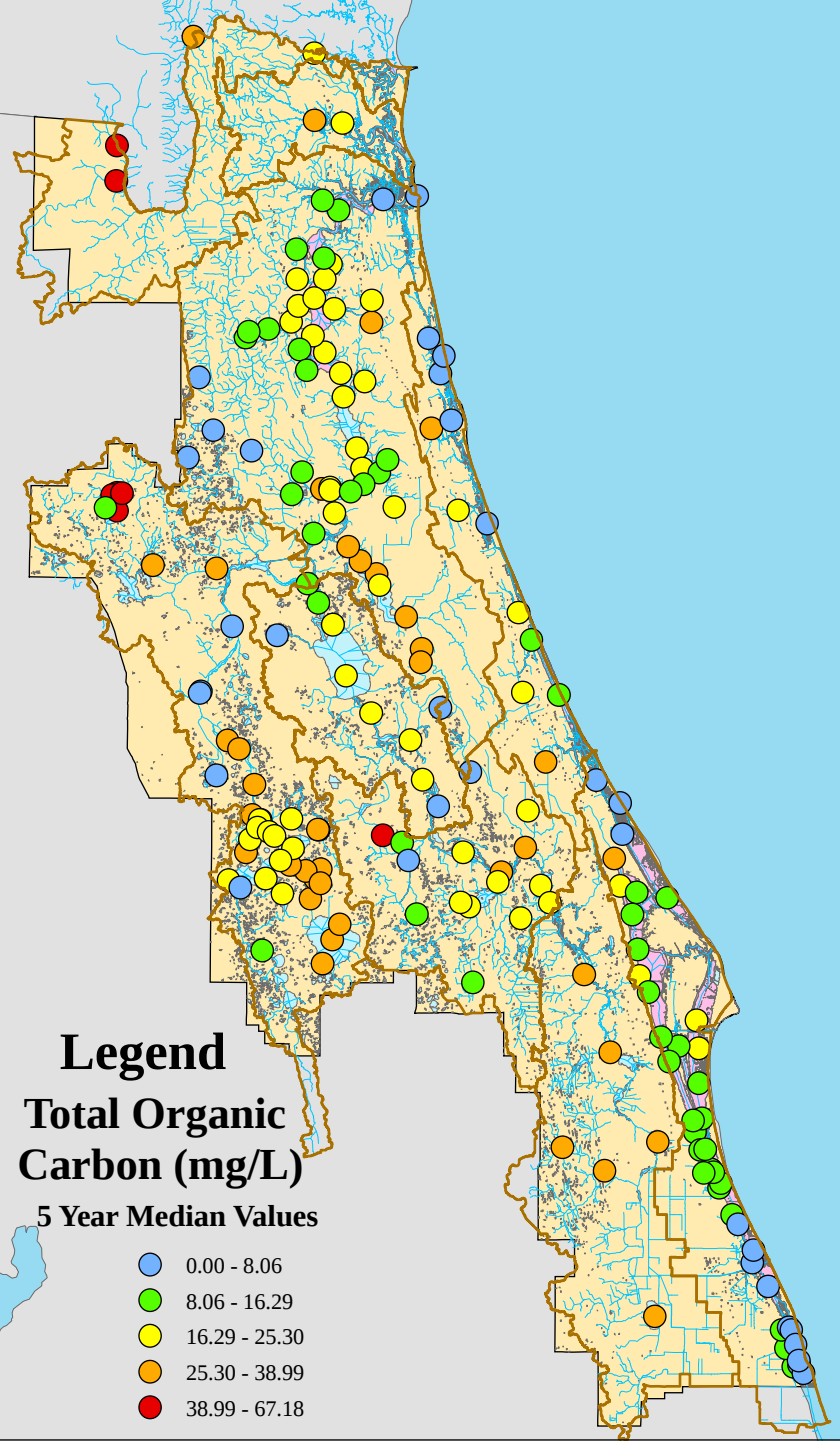
- Increasing (5)
- Decreasing (36)
- Stable (96)
- Insufficient Data (52)
- No Data (3)

Sites with Increasing Trends of Chlorophyll a (5 sites)

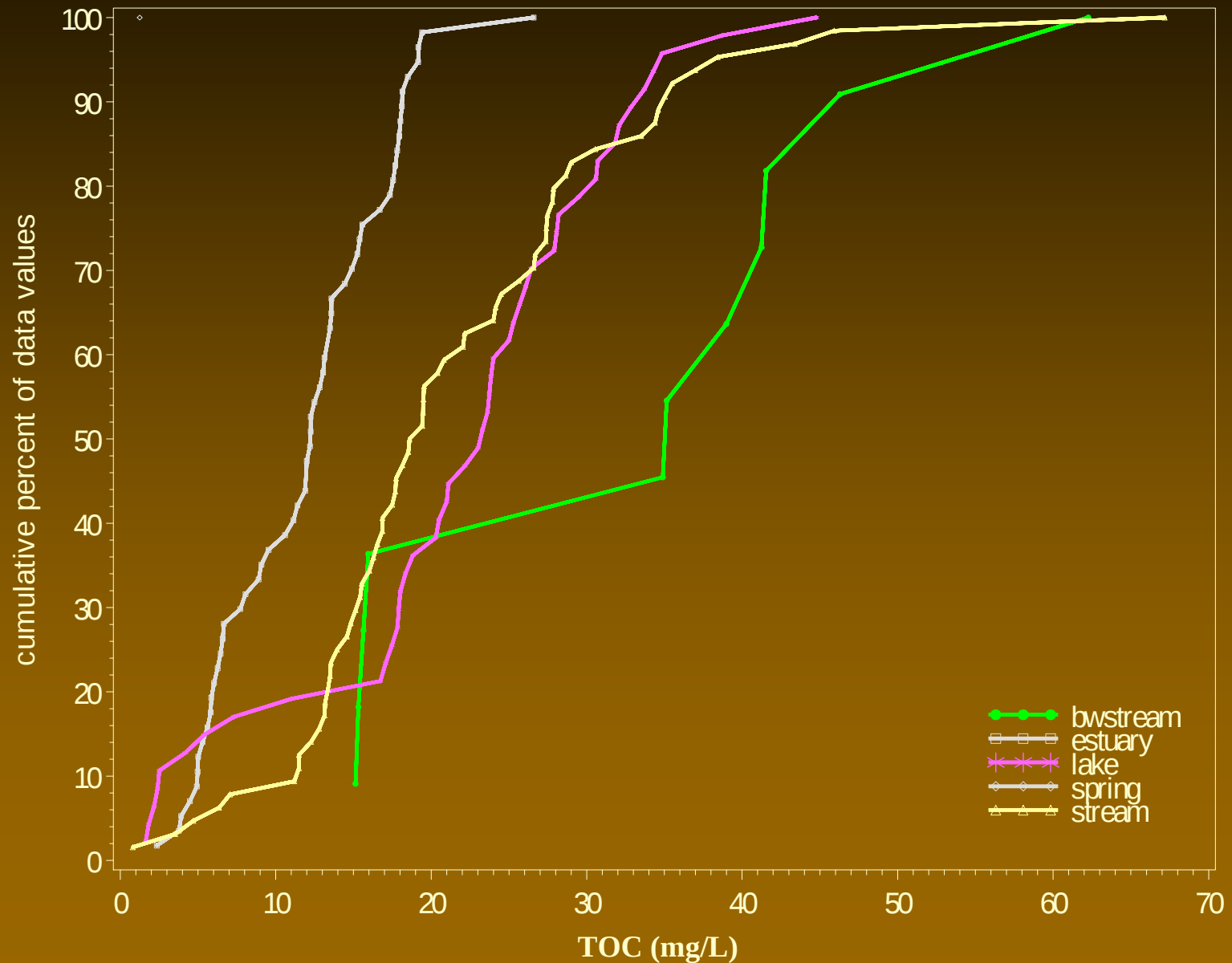
Site	Description	Basin	Type
LOL	Center Lake Lochloosa	ORB	lake
LYC	Center of Lake Yale	ORB	lake
20030115	Moncrief Creek near mouth	LSJRB	estuary
BLC	Black Creek at Hwy 209	LSJRB	bwstream
GAR	Guana River 100 meters south of the Dam	NCB	estuary



Total Organic Carbon Status (median values for 192 sites)

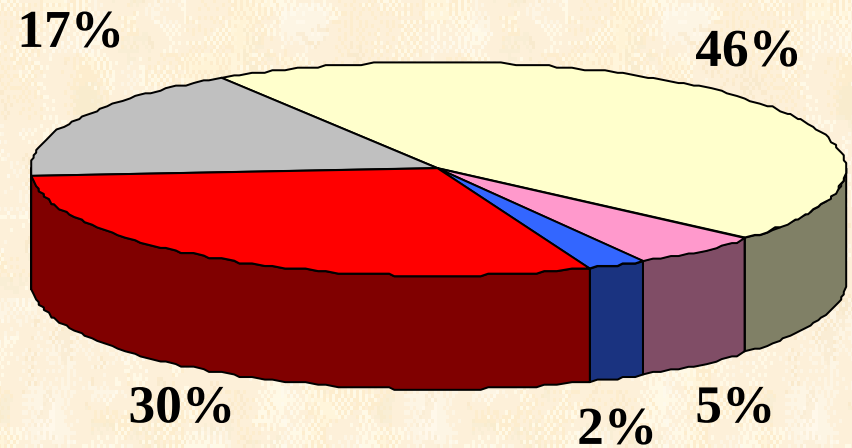


Total Organic Carbon Cumulative Frequency Distribution



Total Organic Carbon Trends (192 sites)

Percentage of Sampled Sites



■ Decreasing ■ Increasing ■ Stable
■ No data ■ Insufficient data

Legend TOC Trends

- ▲ Increasing (58)
- ▼ Decreasing (4)
- Stable (87)
- Insufficient Data (33)
- No Data (10)



End



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