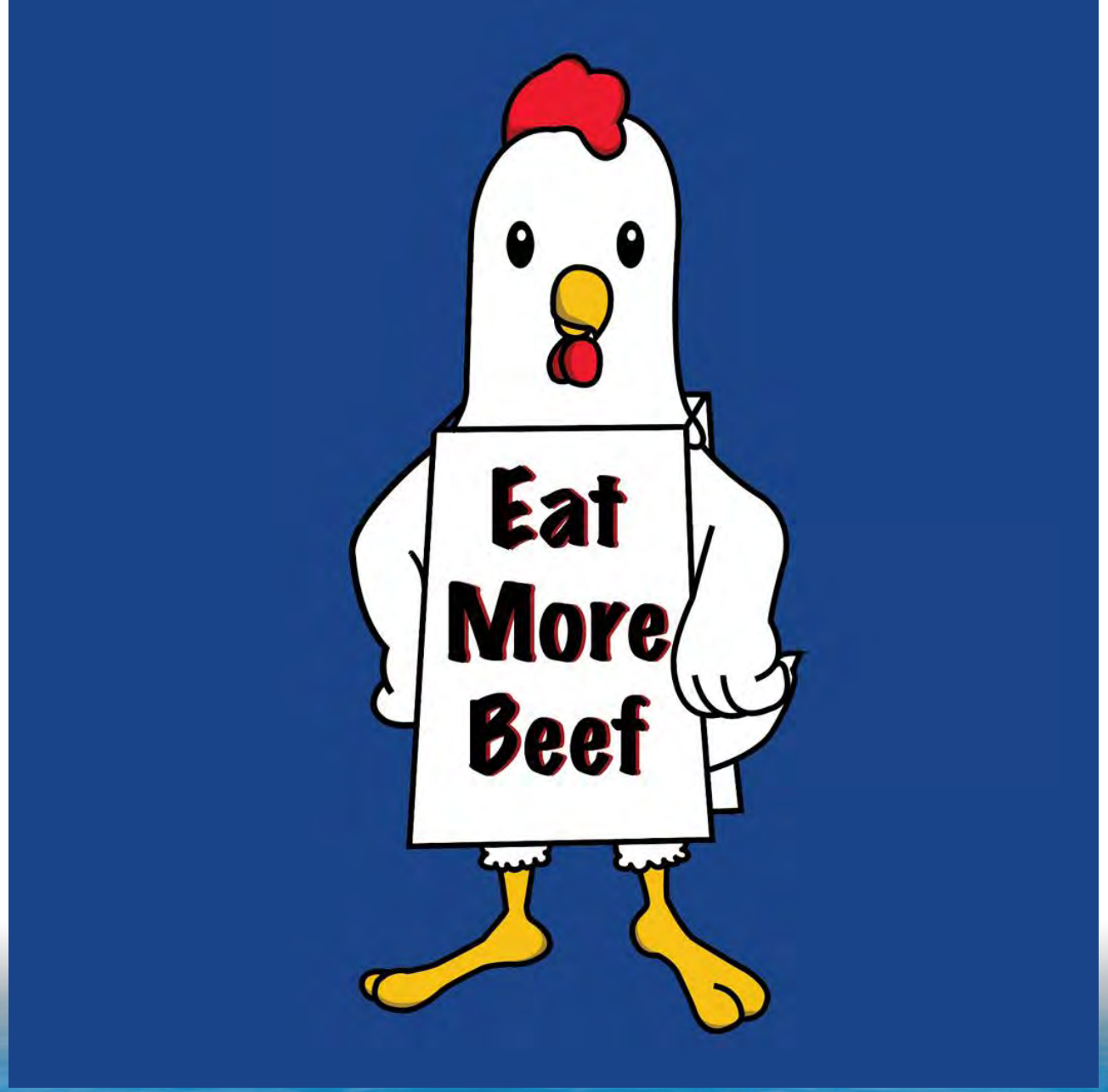
BIOSOLIDS APPLICATION UPPER ST. JOHNS RIVER

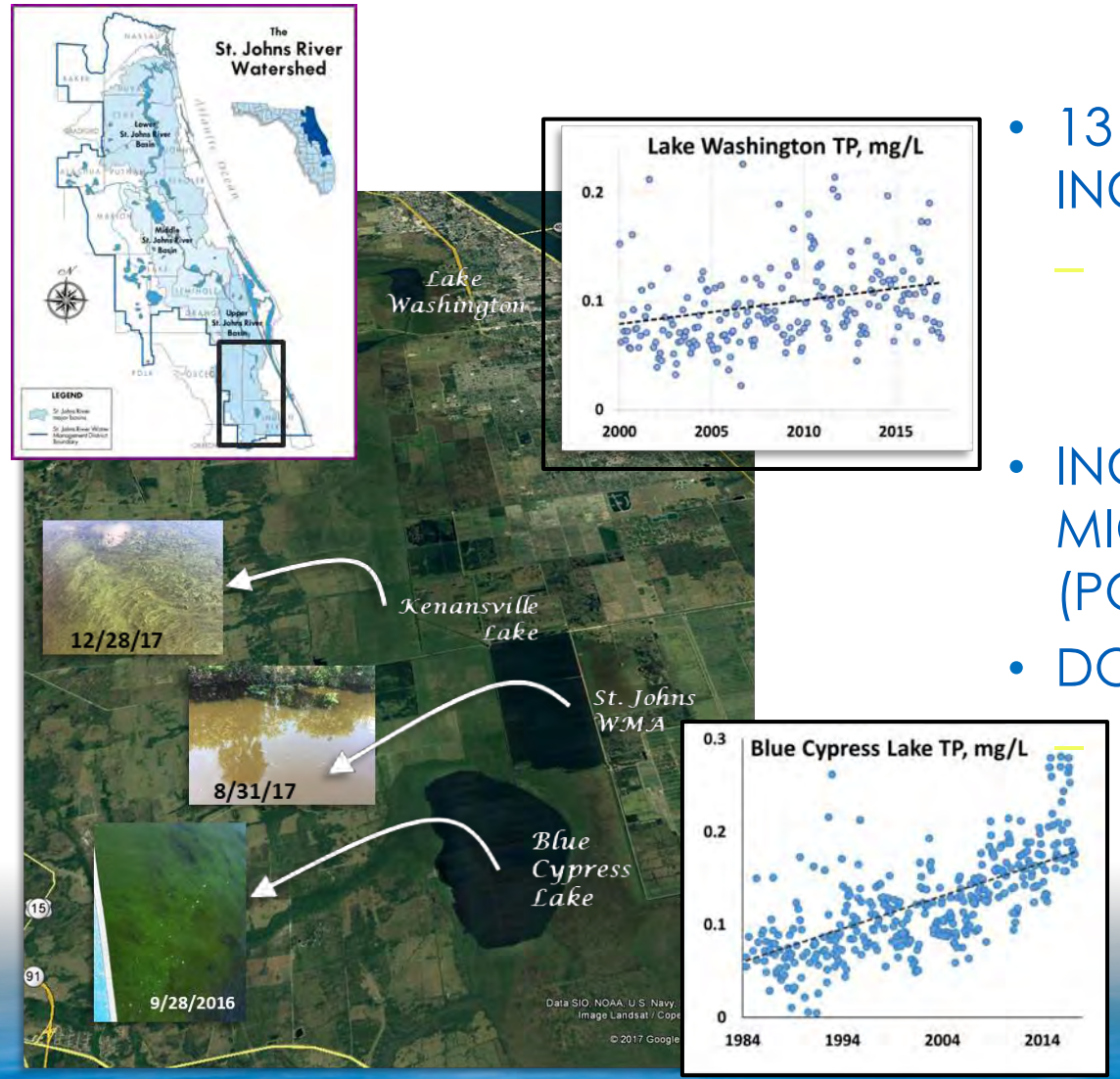
DEREK BUSBY
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT

FLORIDA STORMWATER ASSOCIATION
ANNUAL MEETING – JUNE, 2019


Eat
More
Beef

2018 MYCROCYSTIS BLOOM BLUE CYPRESS LAKE

DOWNSTREAM WATER QUALITY

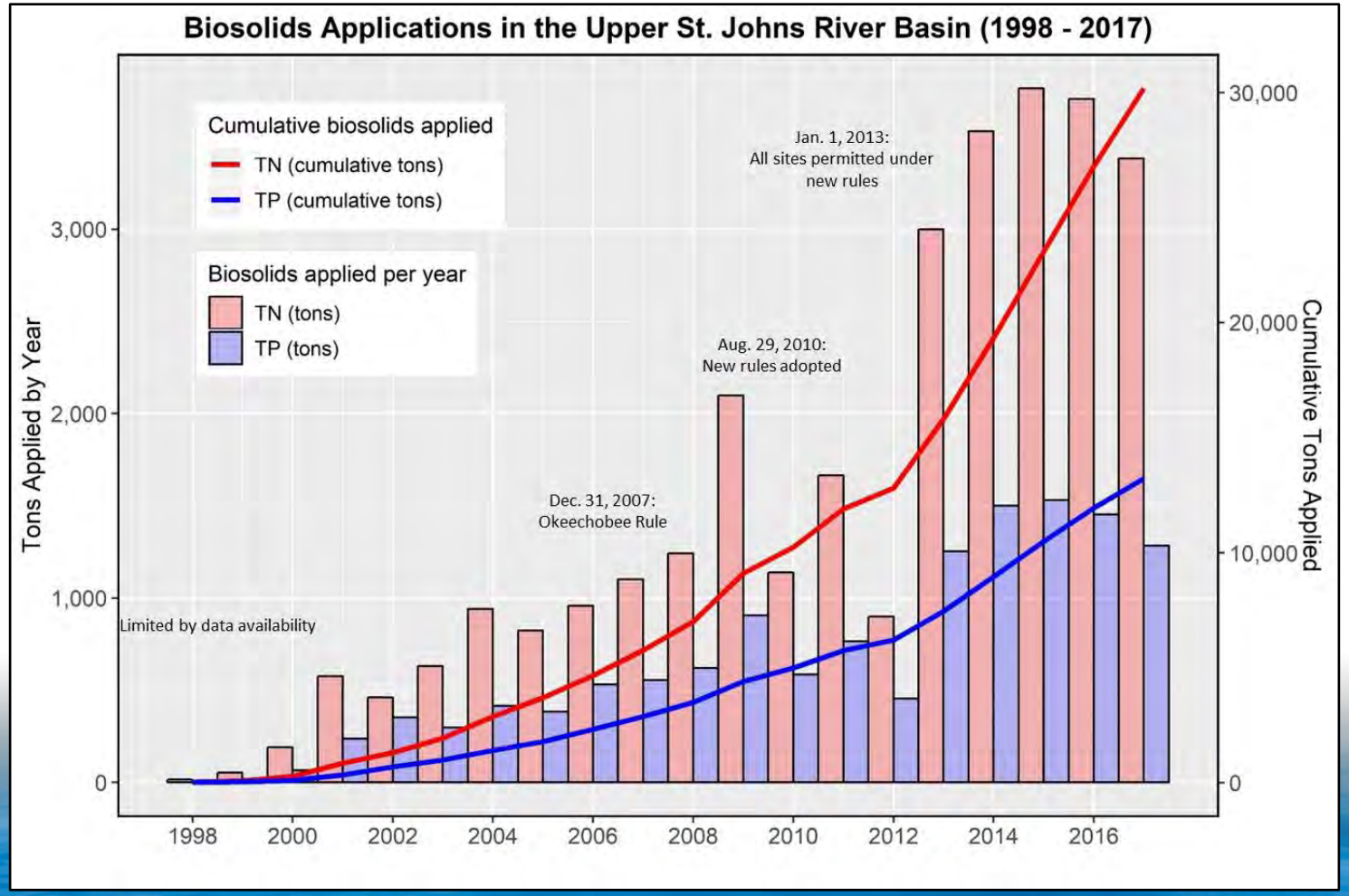


- 13 OF 37 WQ SITES EXHIBIT INCREASING TP TRENDS
  - BLUE CYPRESS LAKE: INCREASING CHLOROPHYLL A
- INCREASED INCIDENCE OF MICROCYSTIS IN CLASS 1 (POTABLE) WATERS
- DOWNSTREAM TMDL TARGETS
  - 31 SEGMENTS ALREADY IMPAIRED

HOW MUCH EXTRA P?

26,000 lbs. elemental Phosphorus

USJR BASIN BIOSOLIDS APPLICATIONS

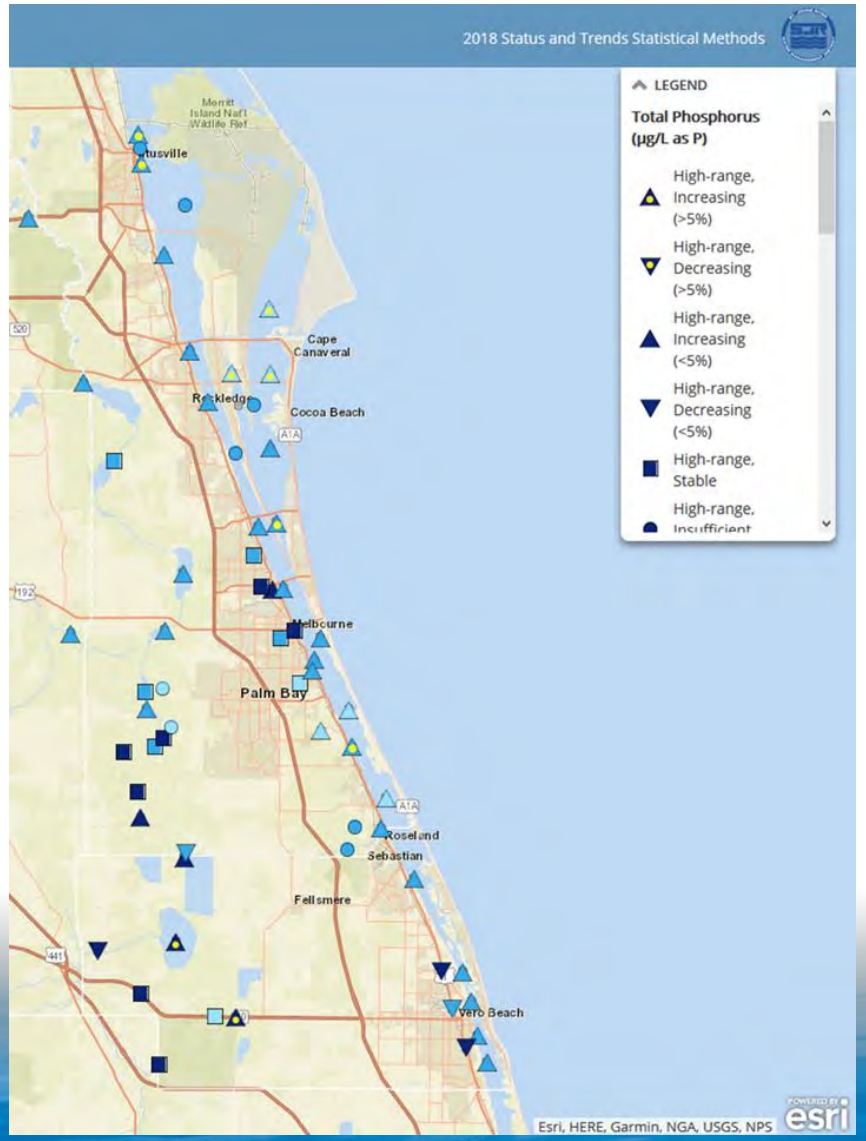


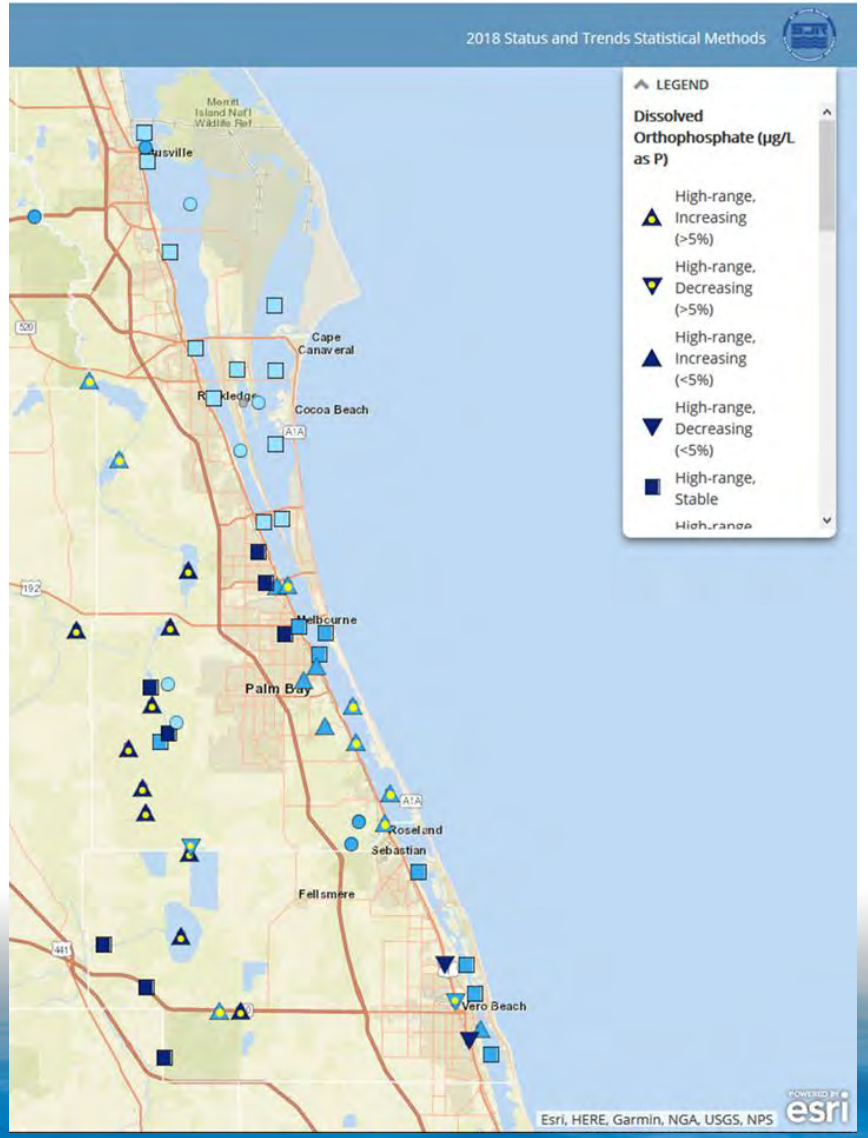
UPPER ST. JOHNS RIVER BASIN
2018 STATUS AND TRENDS ASSESSMENT
TRENDS OVER PAST 15 YEARS

	Number of Sites		
	Decreasing	Stable	Increasing
Total Phosphorus	5	19	13
Phosphate	4	12	19
Total Nitrogen	22	14	1
Total Organic Carbon	12	24	1
Total Suspended Solids	20	17	0
Turbidity	26	11	0

https://www.sjrwmd.com/data/water-quality/

HTTPS://WWW.SJRWMD.COM/DATA/WATER-QUALITY/#STATUS-TRENDS





POSSIBLE CAUSES

Blue Cypress Marsh Hydrology?

- No – Soil oxidation would account for only a few hundred pounds of phosphorus

Land use change?

- No - Minimal changes in affected watersheds

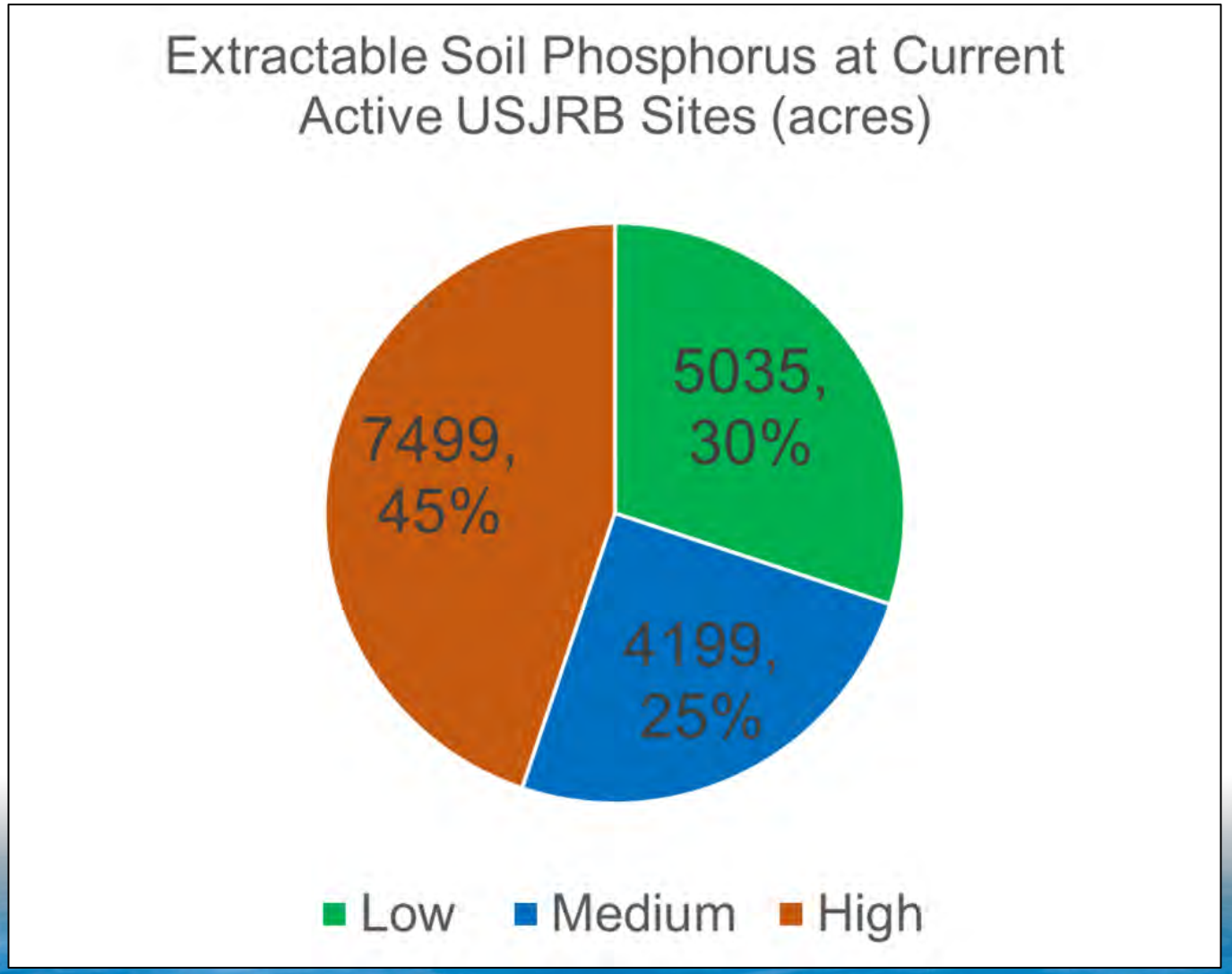
POSSIBLE CAUSES

- Increasing erosion?
  - No – neither turbidity nor total suspended solids have increased
- Increased fertilizer use?
  - No – potassium and nitrogen concentrations unchanged in streams; only increasing P

LINES OF EVIDENCE

- Timing of increased phosphorus concentration coincides with increased biosolids applications
- Increased phosphorus concentration in watersheds with biosolids but not other watersheds
- Increasing phosphorus but not nitrogen
- Elevated phosphorus is primarily soluble reactive phosphorus

CURRENT FIELD CONDITIONS



IMPLICATIONS

- DEP Biosolids TAC
  - Met on four occasions from September 2018 to January 2019
- Local Controls
  - Indian River County
- FDEP Rulemaking