

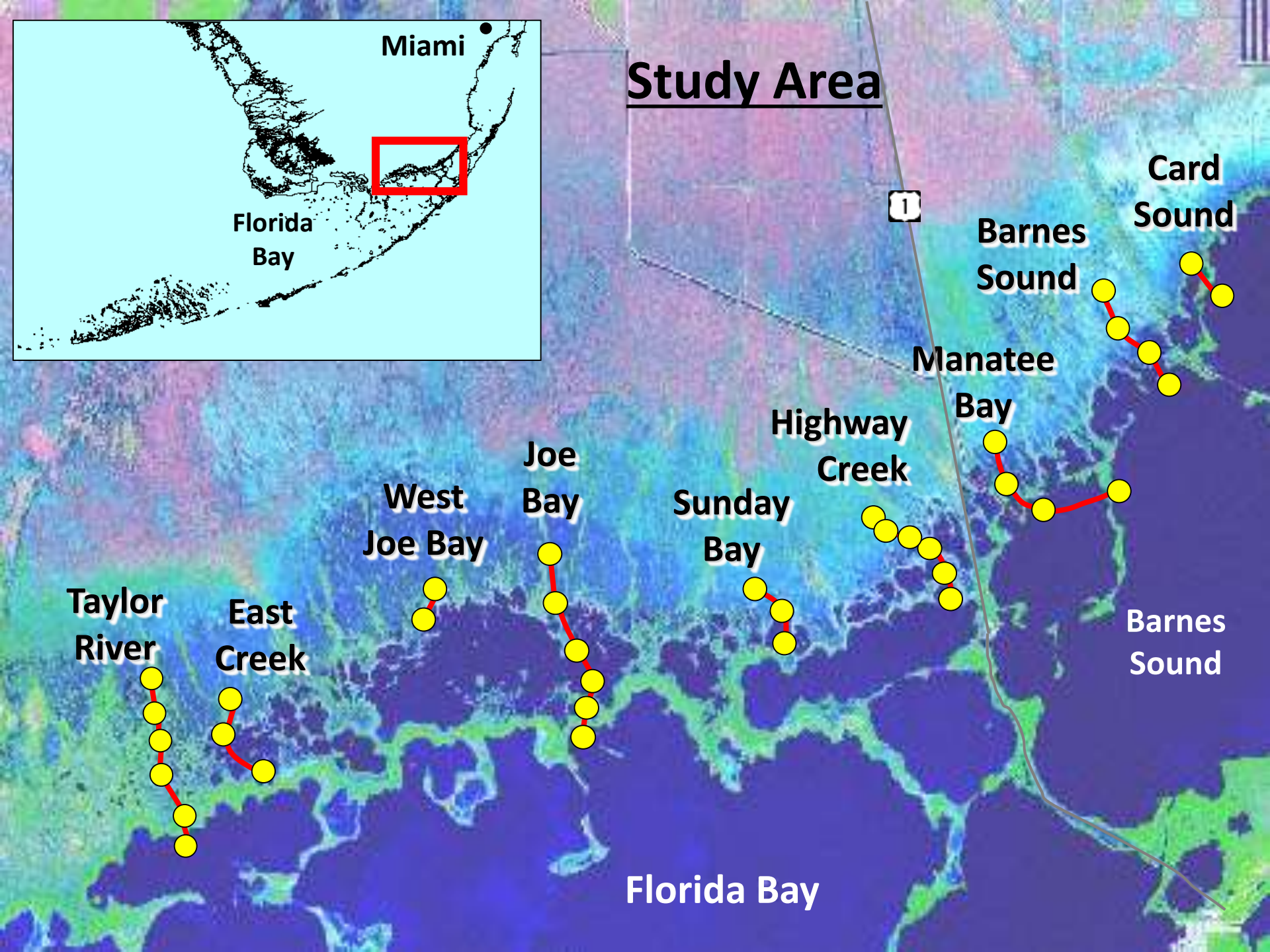
Response of the SAV Community in the Coastal Mangrove Zone of Florida Bay to Record Rainfall and Increased Freshwater Flow

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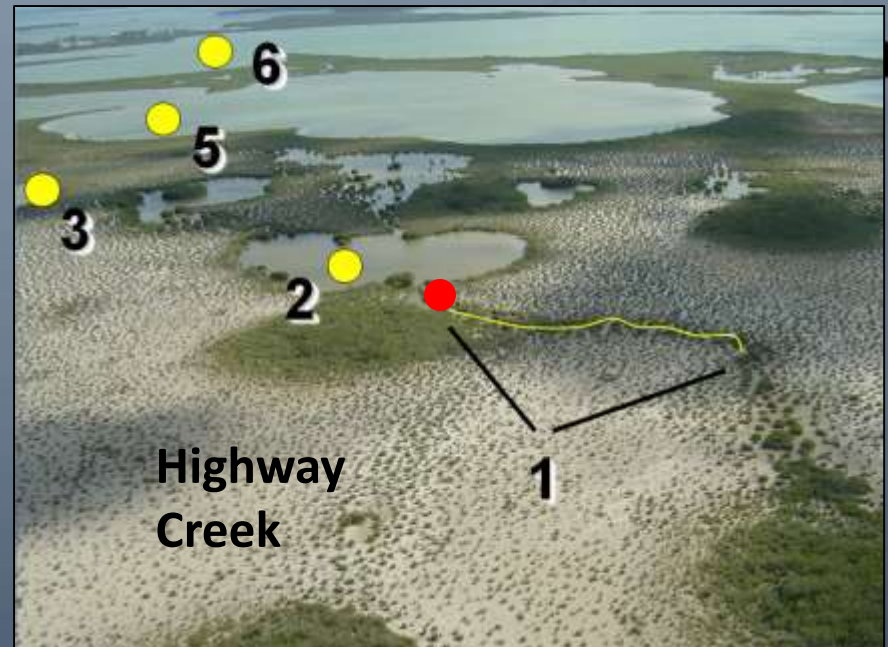
Everglades Science Center

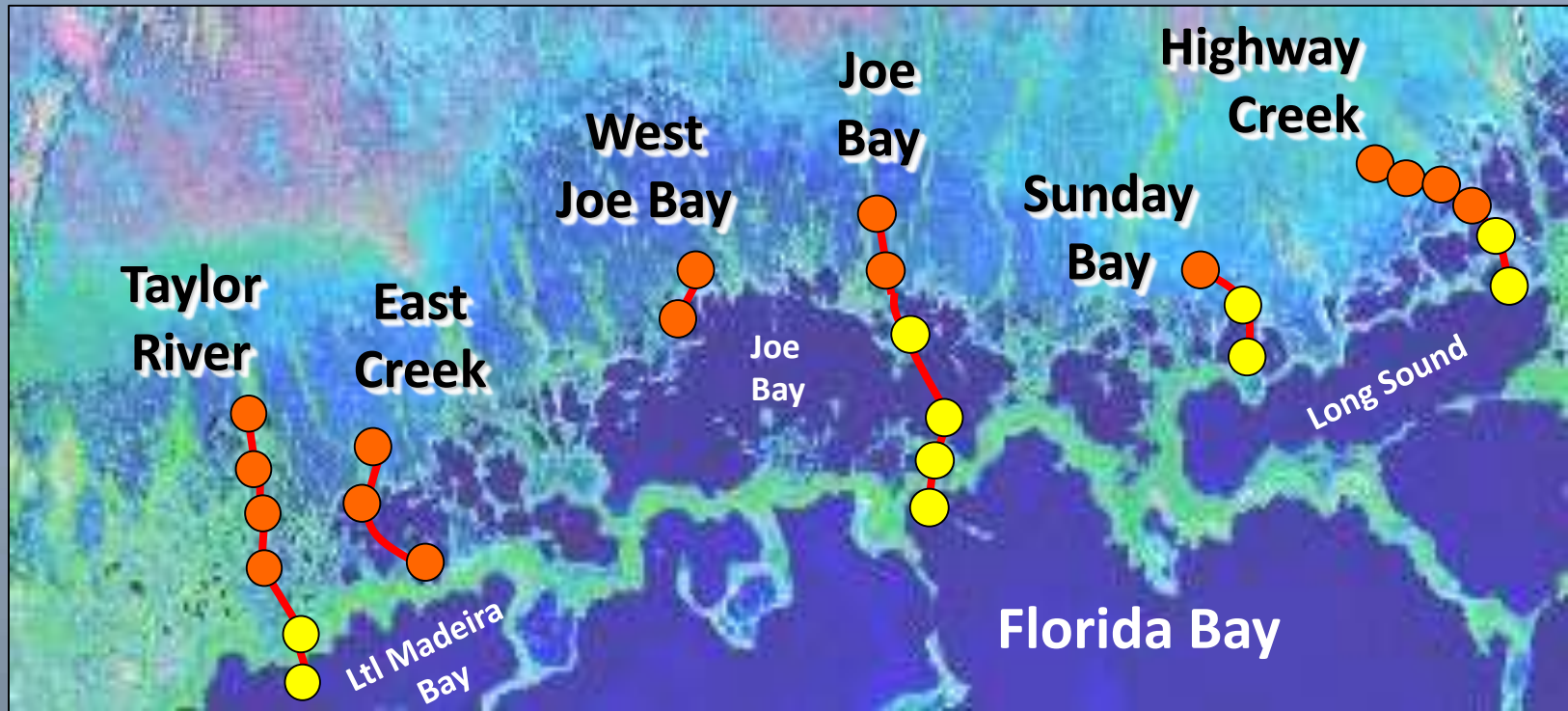
Study Area



Methods

- **Bimonthly SAV surveys**
 - Point intercept percent coverage method using 0.25 m² quadrat with 25 points
 - Water temperature, Water depth, Salinity, Sediment depth, Water clarity measured at each station on day of survey
- Dataloggers at each site record hourly water level, temperature, salinity
- Ordination used to group stations based on their salinity profile

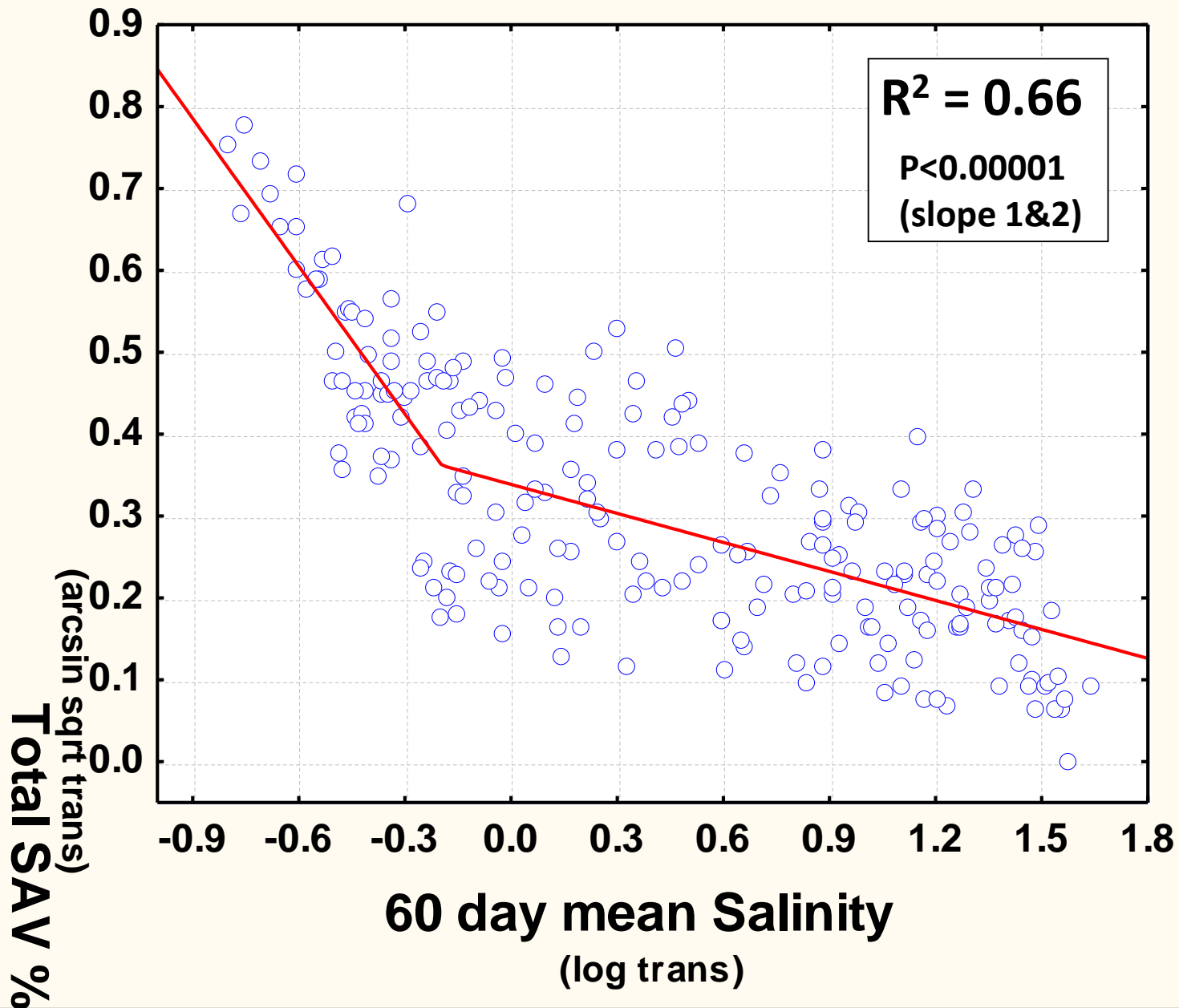




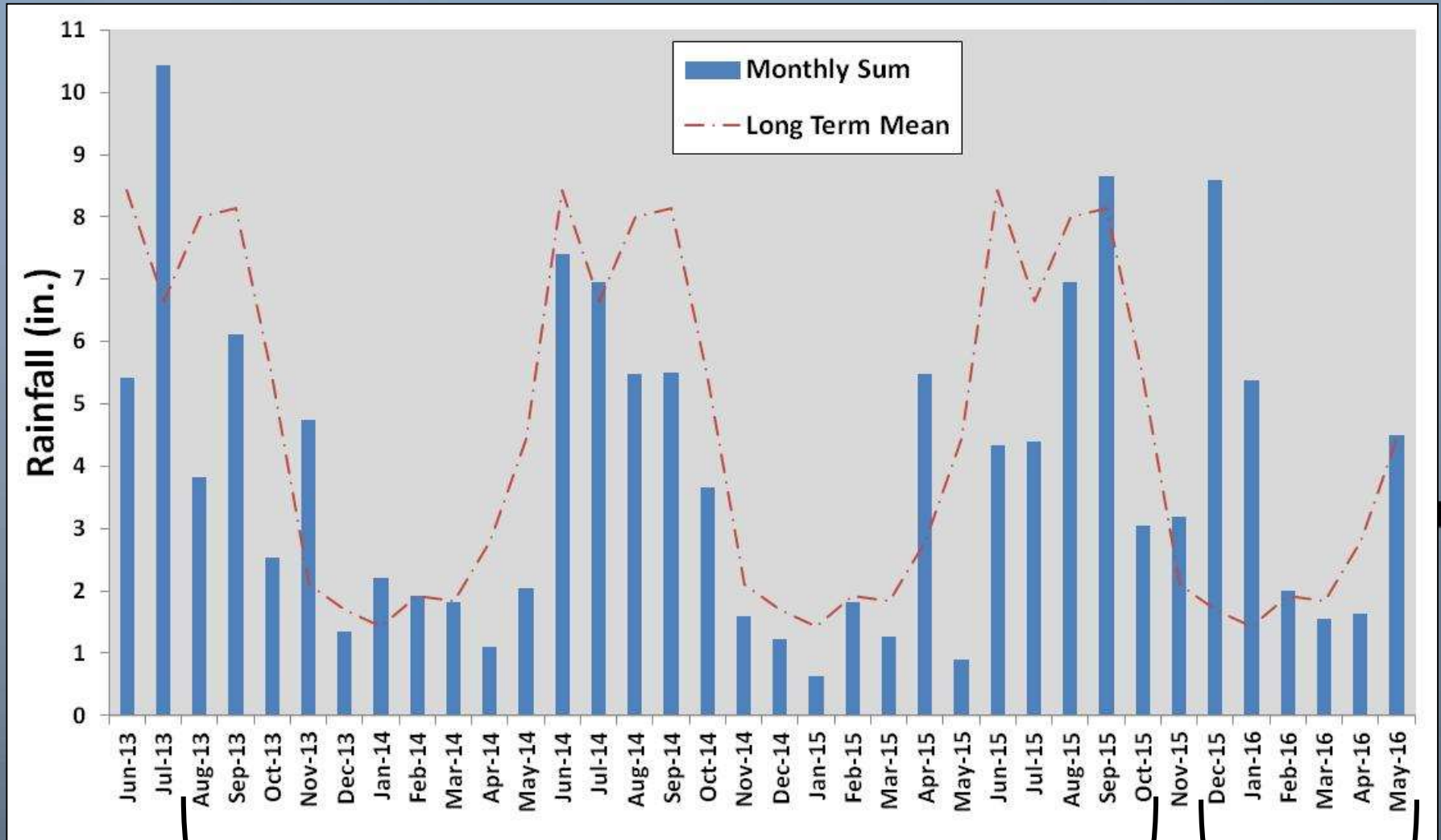
- **Upstream group**: Mixed assemblage of fresh to brackish water plants & algae: *Chara hornemanii*, *Utricularia sp.*, *Ruppia maritima*, *Najas marina*
 Low annual mean salinity (4-10 psu). High annual salinity variability (Cv = 100-160%)

- **Downstream group**: Dominated by *Halodule wrightii*, or a mixture of *Halodule* and *Ruppia*
 Annual mean salinity (11-21 psu). Moderate annual salinity variability (Cv = 50-90%)

Upstream SAV and 60day Mean Salinity Regression



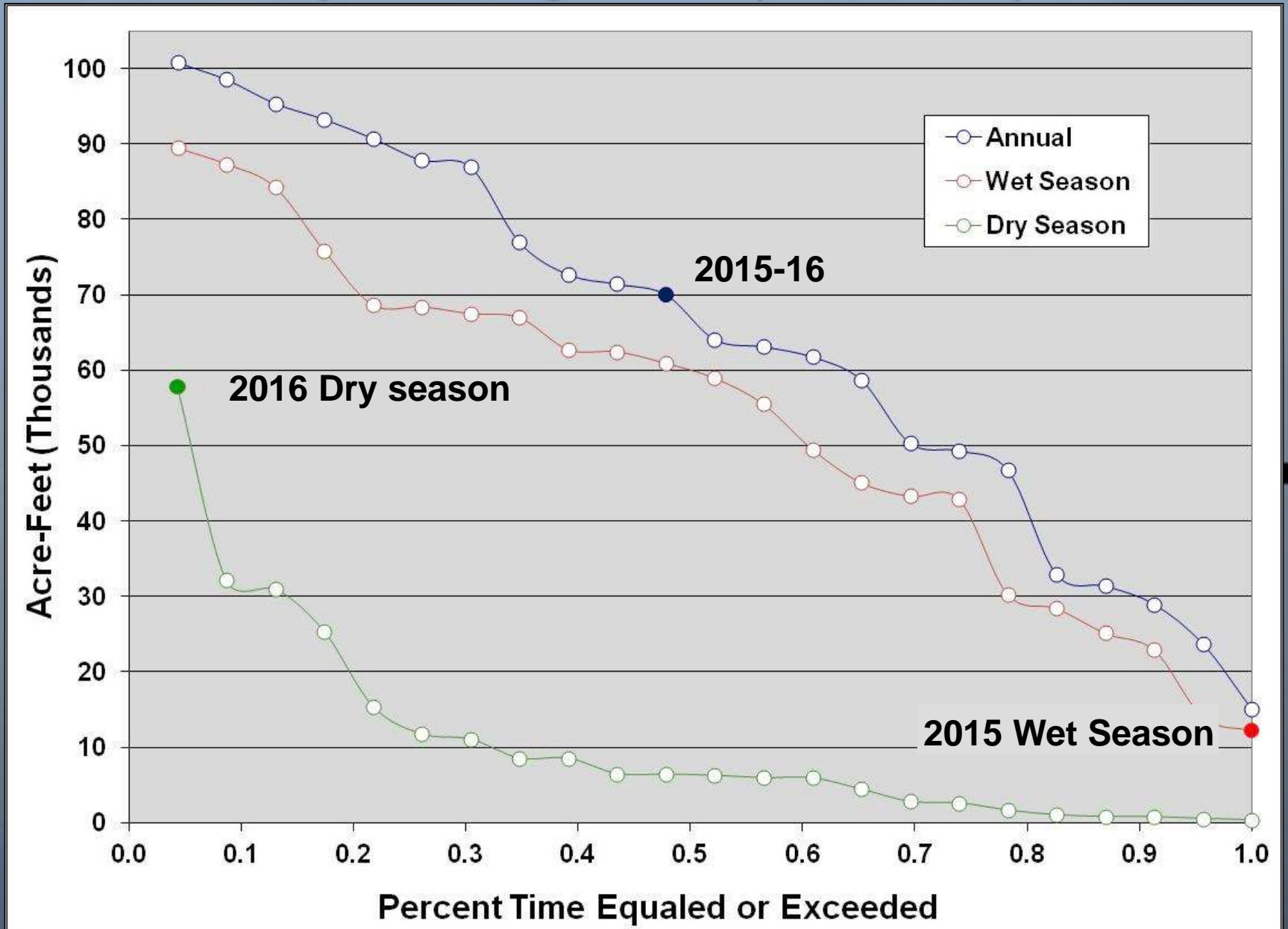
Monthly Rainfall Sums (South of Tamiami Trail) June 2013 - May 2016



30" Rainfall Deficit

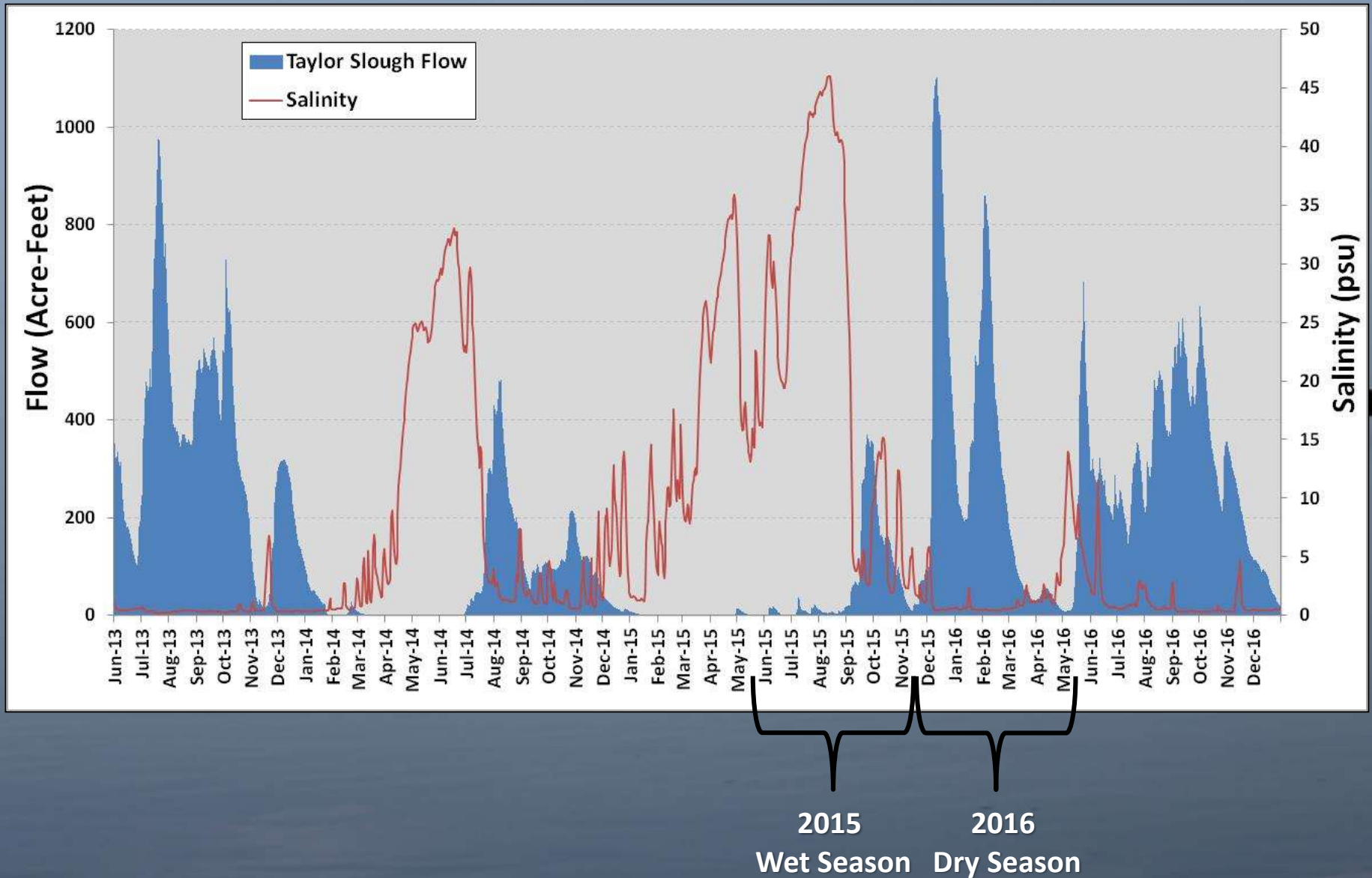
Wettest Dry Season on record = 25"
Wettest Nov-Jan period on record

Taylor Slough Flow (1993-2016)

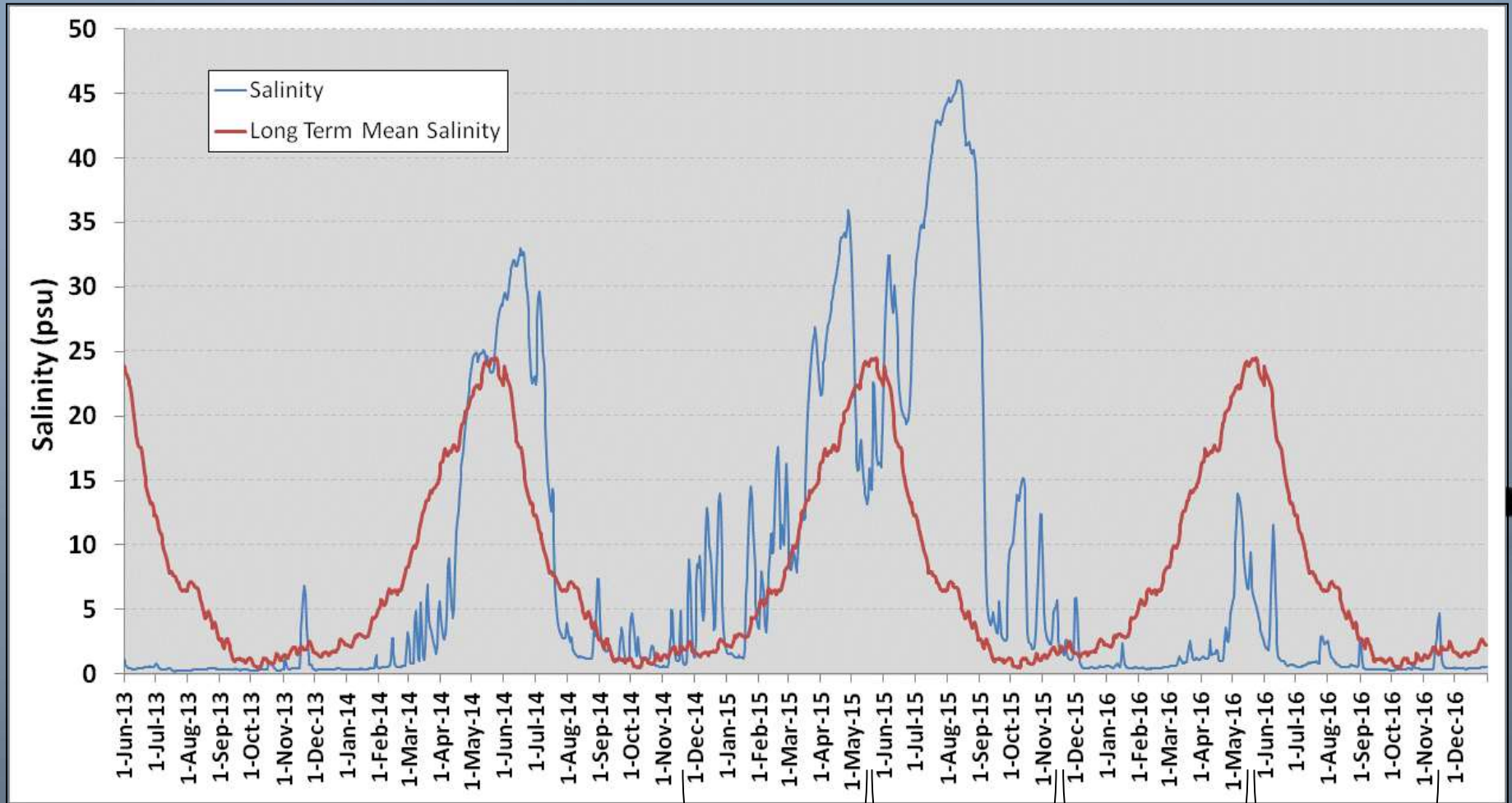


Taylor Slough Flow & Salinity in Coastal Mangrove Zone

June 2013 - Jan 2017

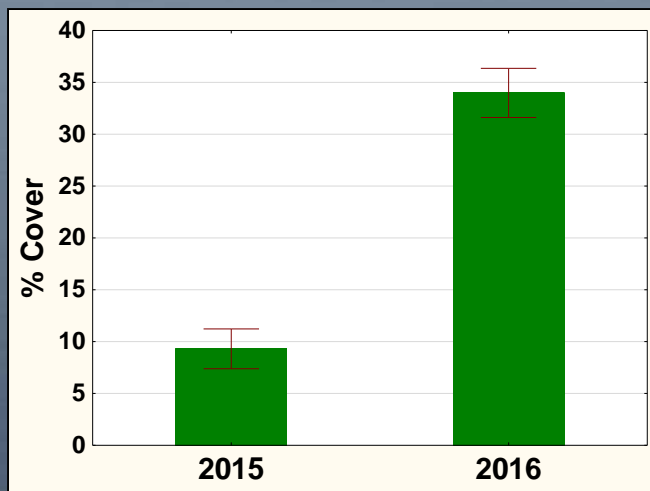
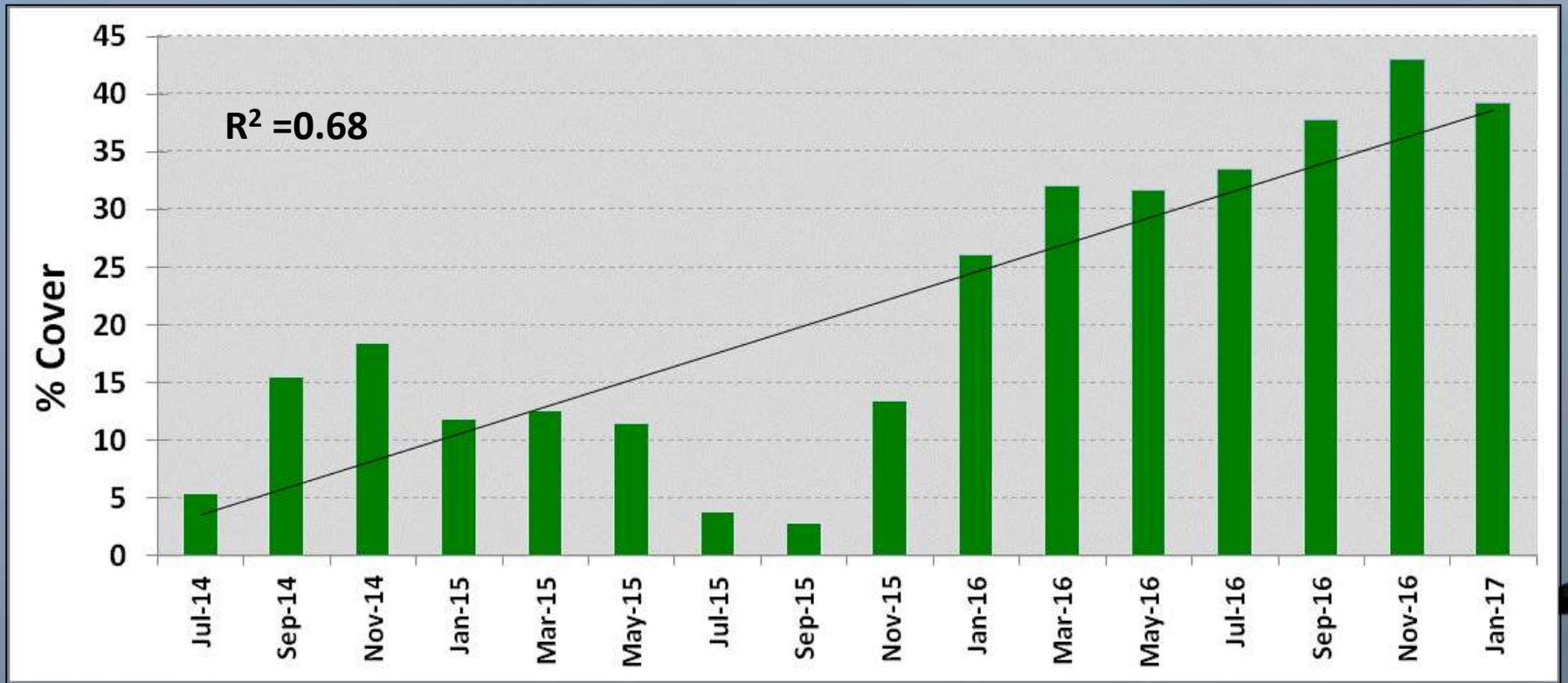


Salinity in Coastal Mangrove Zone June 2013 - Jan 2017



2015 Dry 2015 Wet 2016 Dry 2016 Wet

Seasonal salinity	14.3	21.3	2.2	1.1
Long term mean	10.9	6	10.9	6

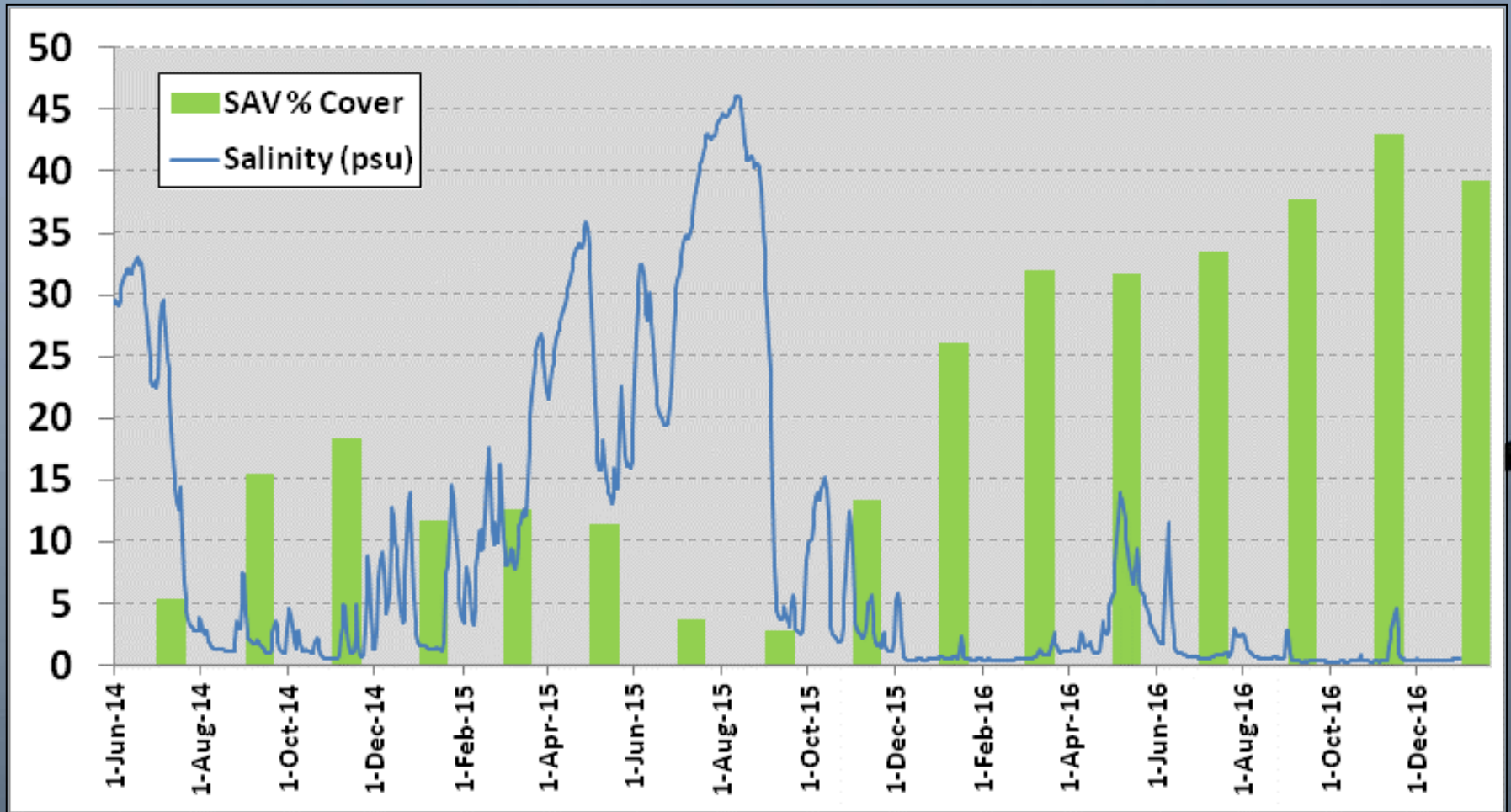


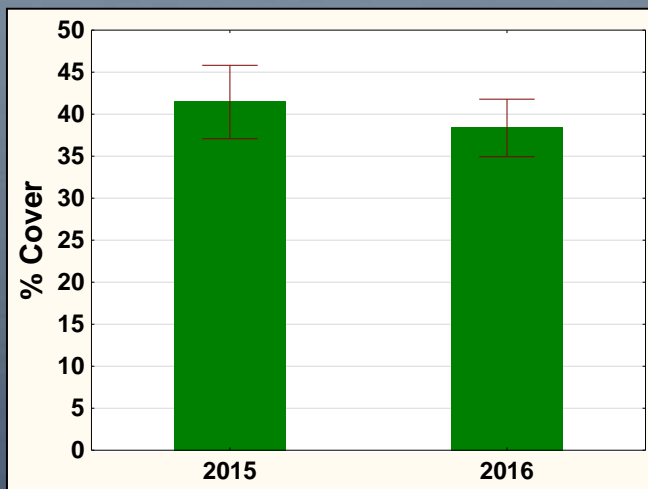
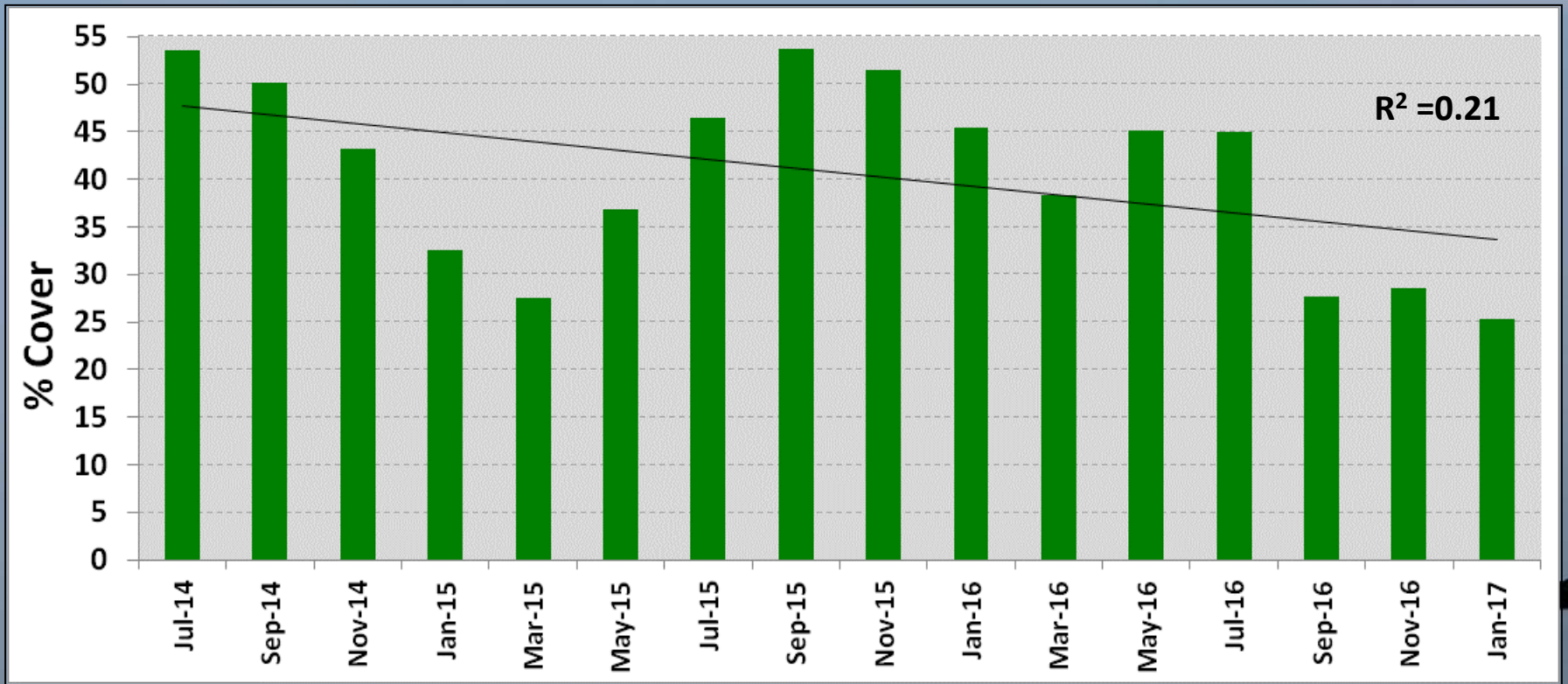
Upstream SAV Trend

(Chara, Utricularia, Ruppia)

$F(1, 10)=65.344, p=.00001$

Upstream SAV % Cover & Salinity



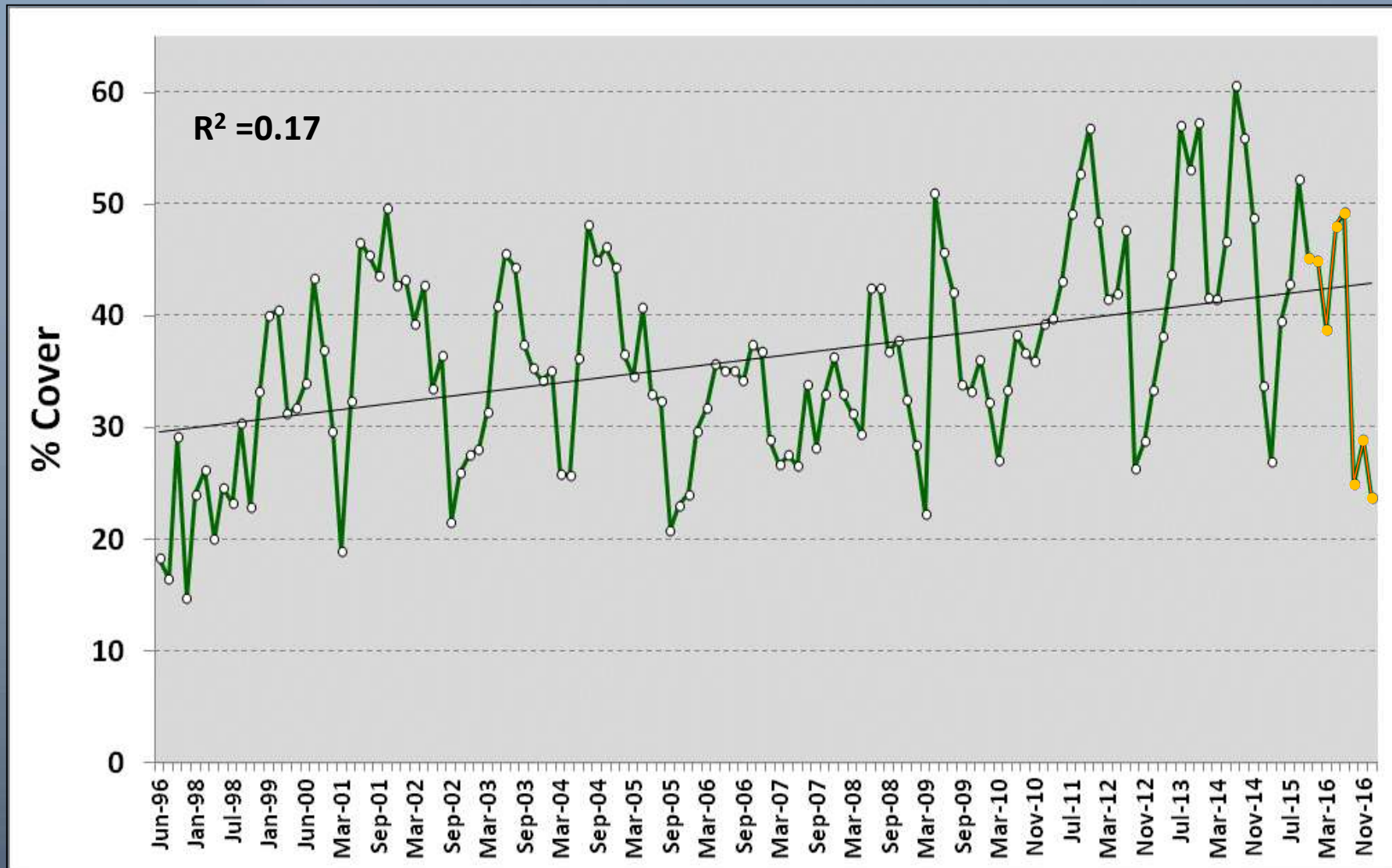


Downstream SAV Trend

*(dominated by Halodule,
sparse Ruppia)*

$F(1, 10) = .30824, p = .59096$

Halodule time series; 20 yr POR (1996-2016)



Conclusions

- Indications are that increased flow to the coastal mangrove zone would be highly beneficial to the historic SAV community and that the plants would respond rapidly to change
 - Increased from <5% cover to >40% in a year;
No dry season die-off
- *Halodule* community showed a negative but not atypical response
 - But “don’t worry, I’ll be back and moving into your area soon”