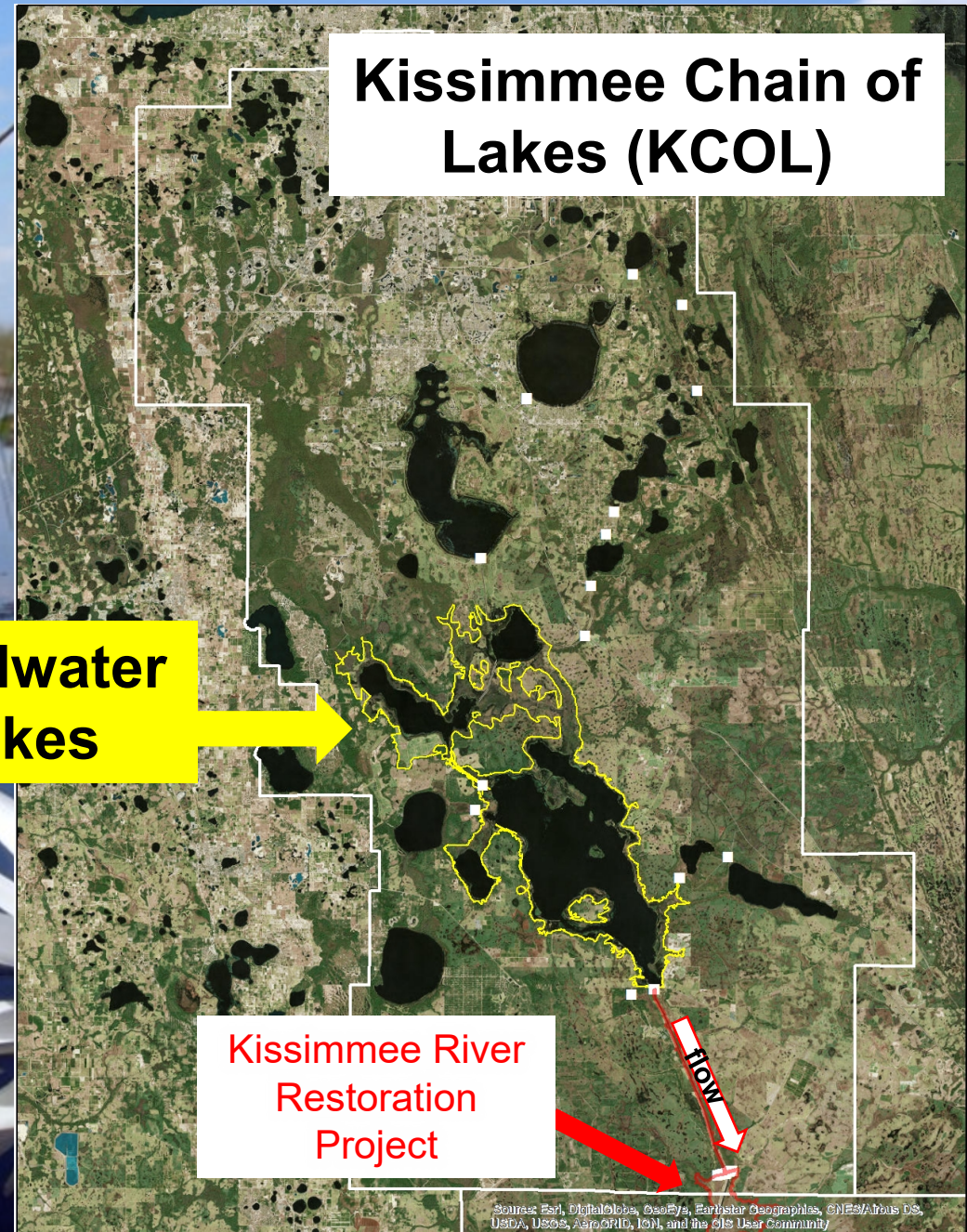
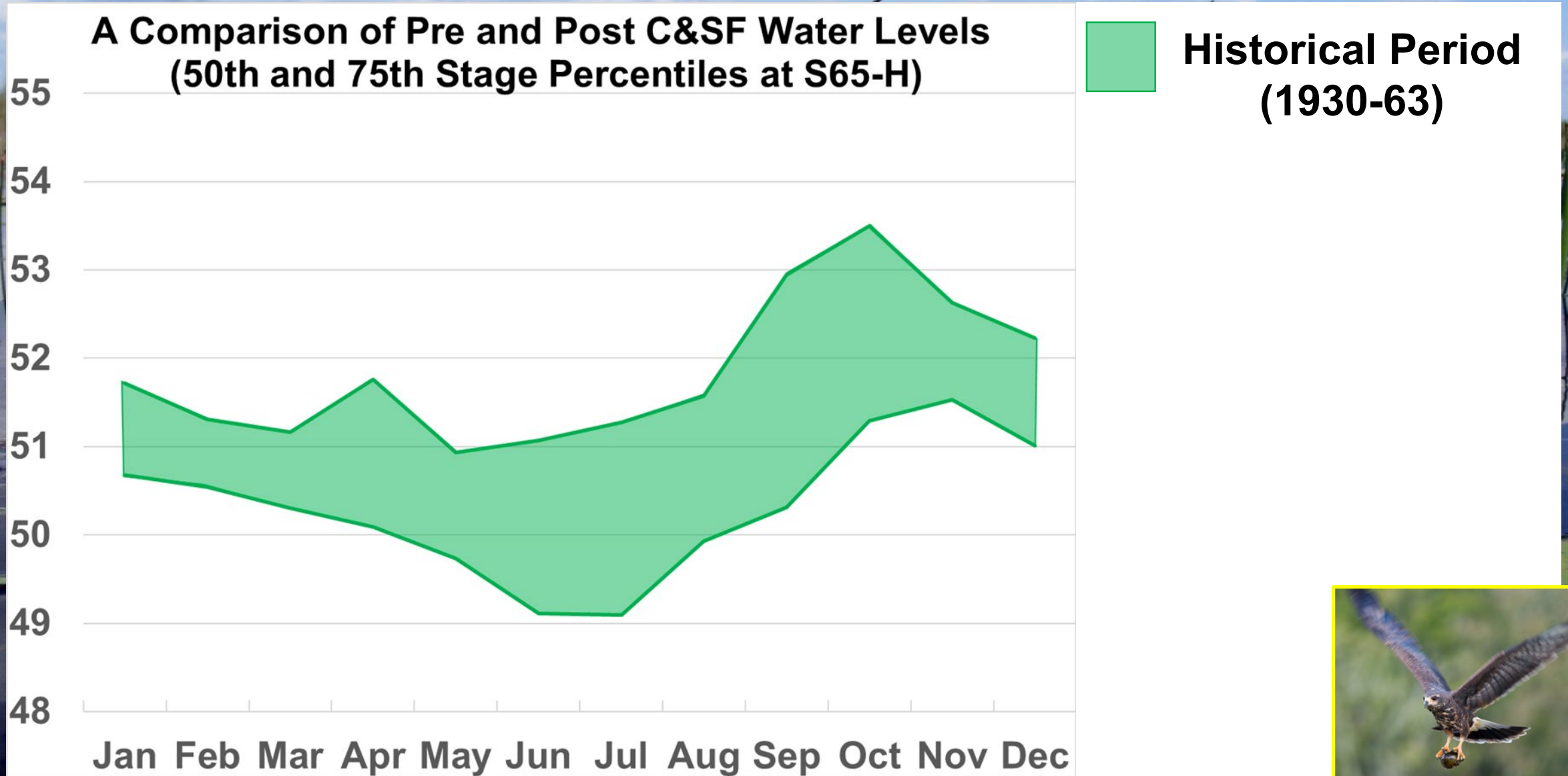


Effects of Kissimmee River Restoration on Upstream Lakes: A Look at Littoral Vegetation

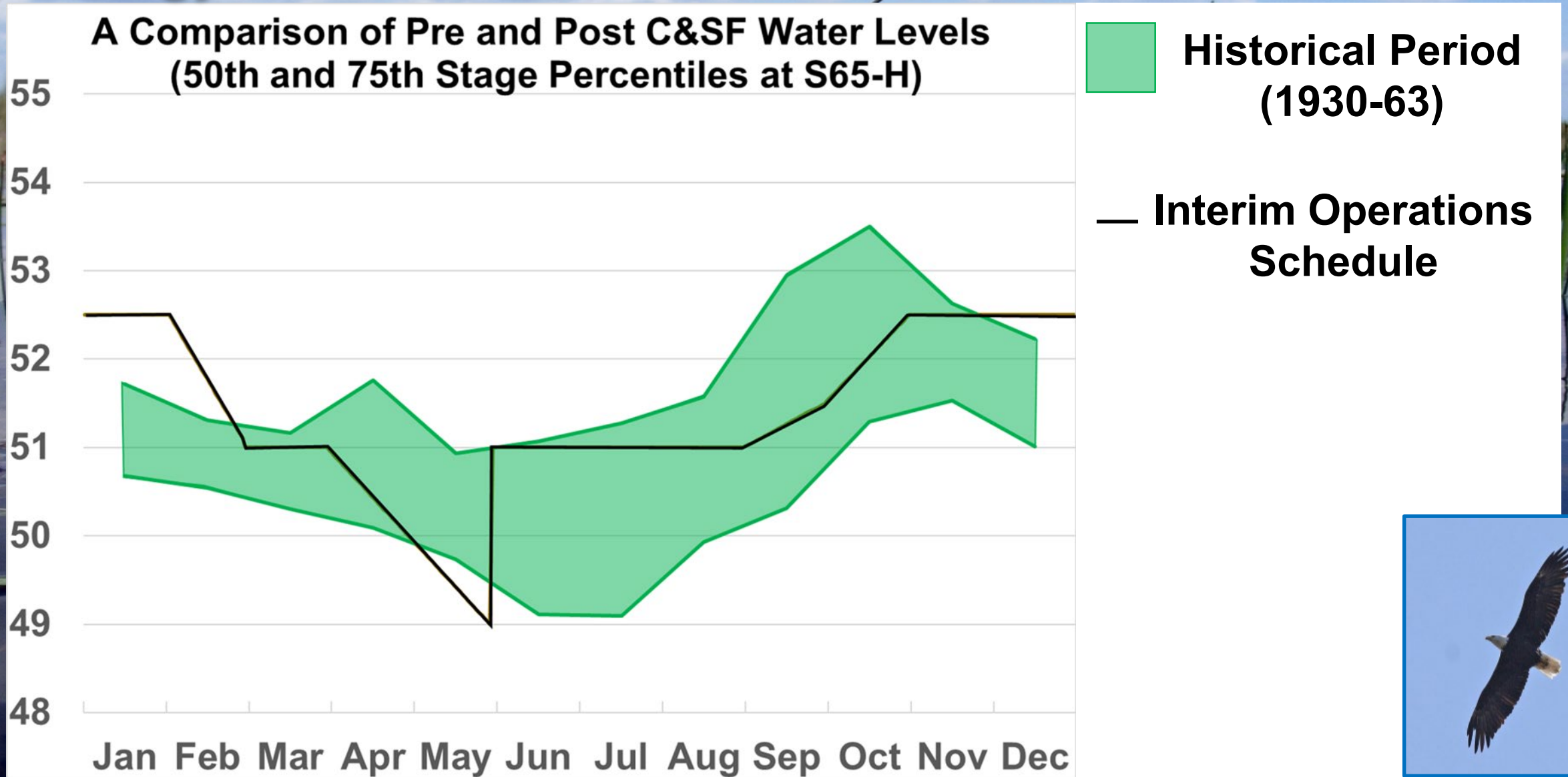
Camille Carroll
SFWMD



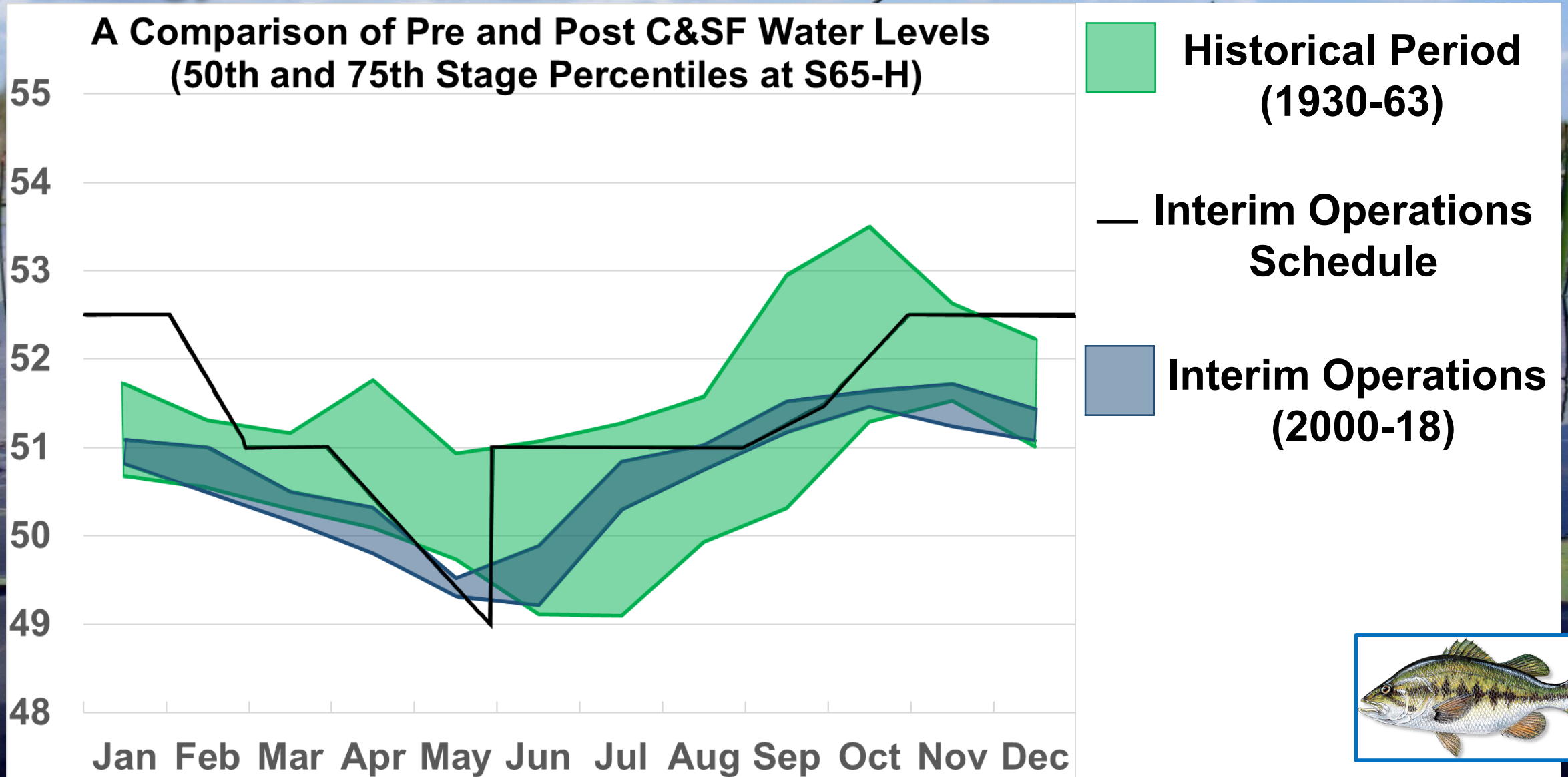
The major impact of water regulation schedules on KCOL hydrology is loss of water level fluctuation



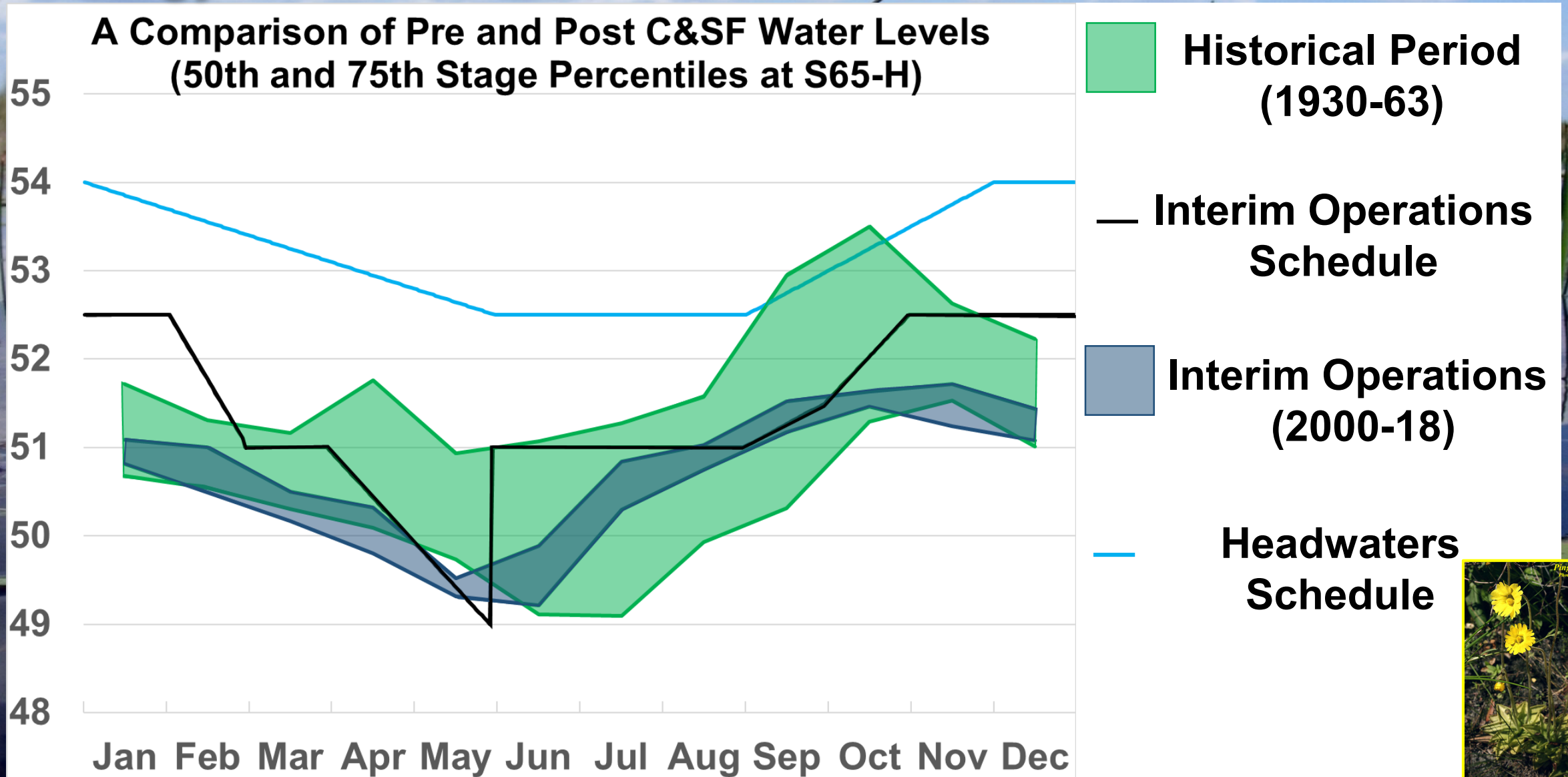
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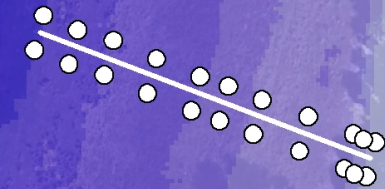


Our monitoring program is designed to measure changes in the quantity and quality of littoral vegetation



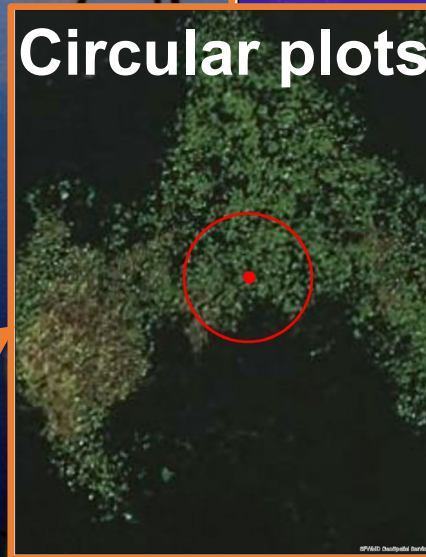
Transects with square plots

Low Pool
49 feet NGVD



High Pool
54 feet NGVD

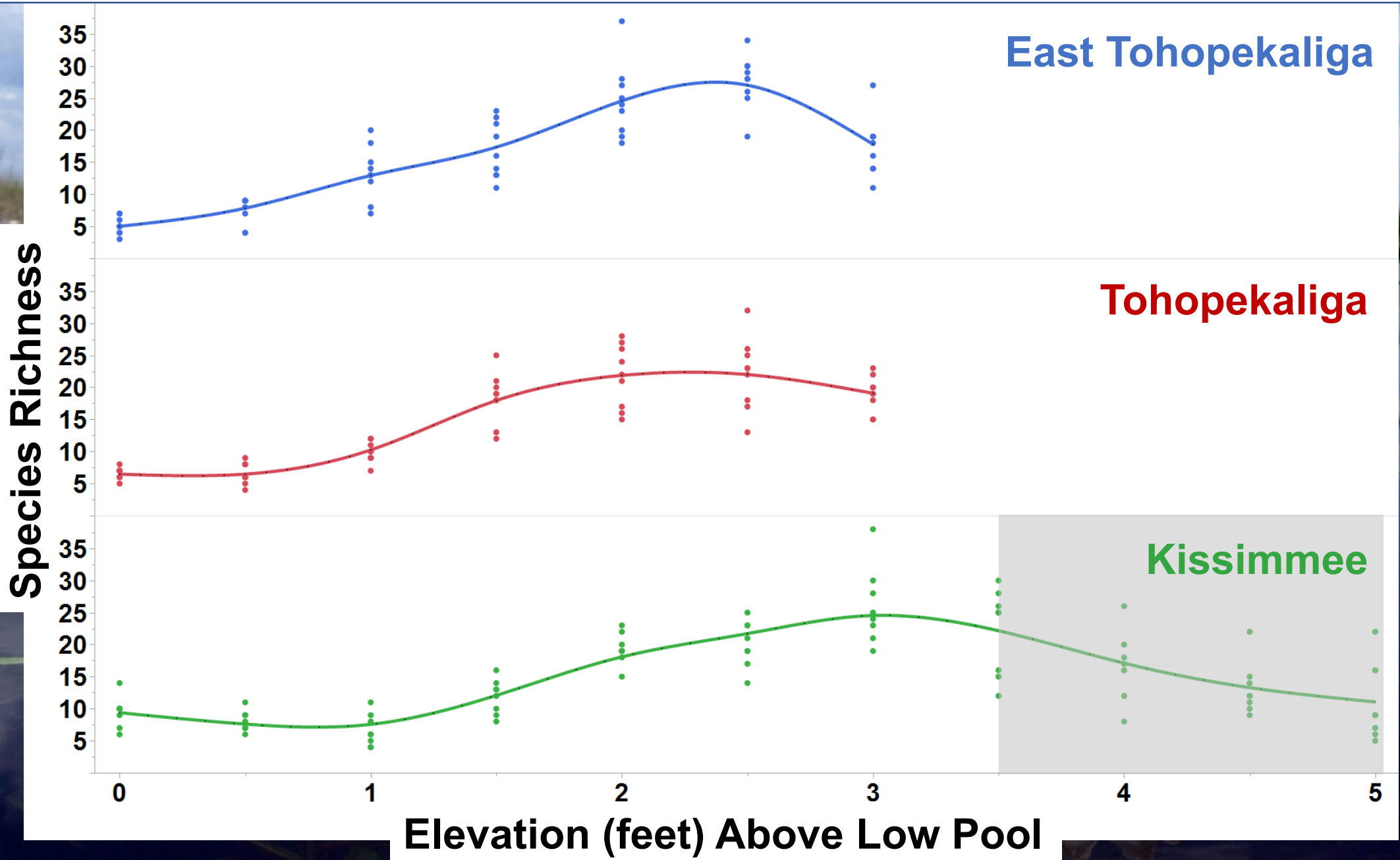
Circular plots

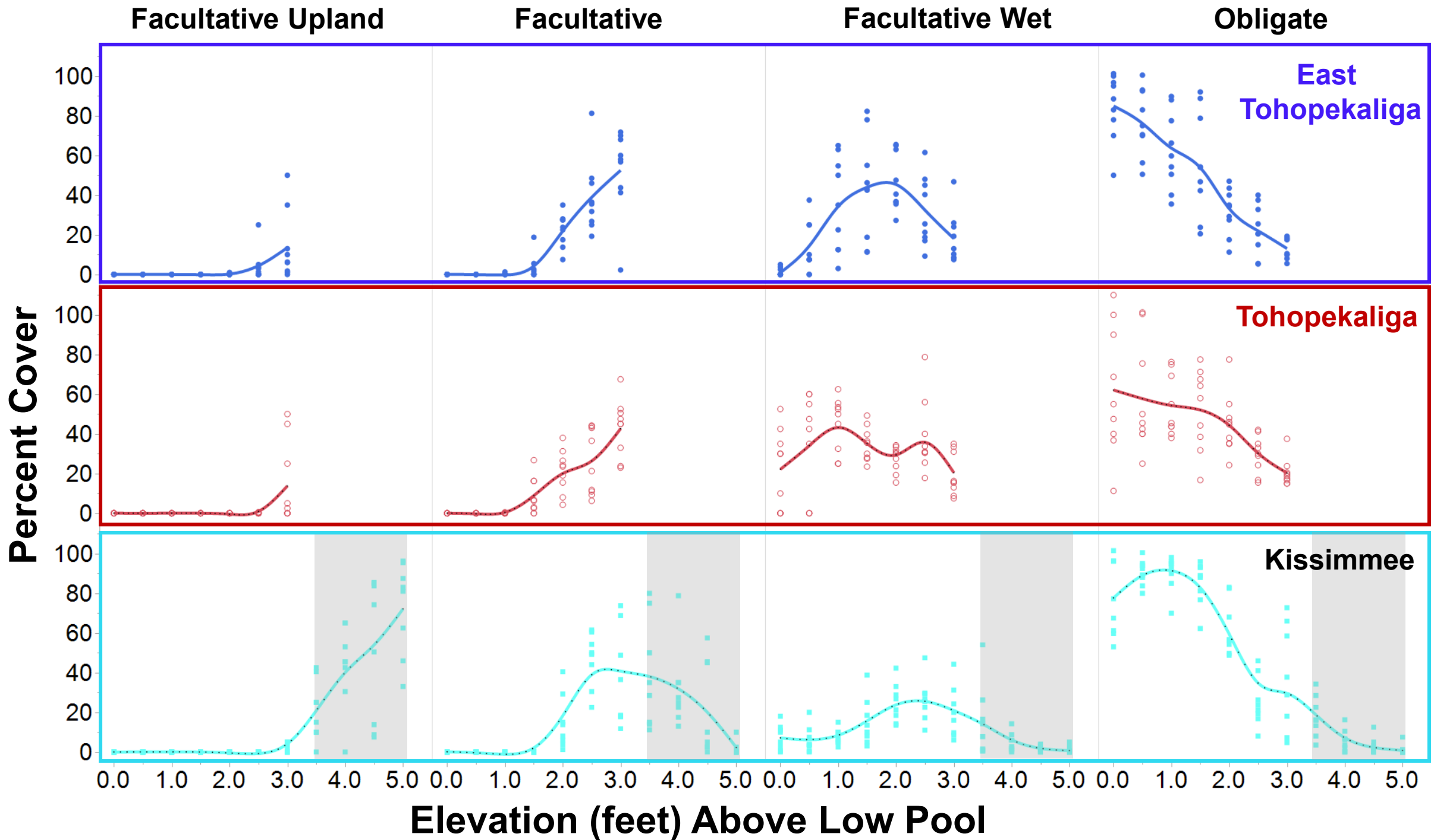


Cluster and ISA results show distinct plant communities are distributed along a depth gradient

Elevation	Lake		
	Kissimmee	Tohopekaliga	East Tohopekaliga
Upland	<i>Paspalum notatum</i> * <i>Richardia scabra</i> * <i>Scoparia dulcis</i>	N/A	N/A
High-pool	<i>Andropogon spp.</i> <i>Rhynchospora spp.</i> <i>Eragrostis atrovirens</i> * <i>Axonopus furcatus</i>	<i>Axonopus furcatus</i> <i>Cyperus spp.</i> <i>Centella asiatica</i> <i>Andropogon spp.</i> <i>Rhynchospora spp.</i>	<i>Rhynchospora spp.</i> <i>Axonopus furcatus</i> <i>Andropogon spp.</i>
Mid	<i>Luziola fluitans</i> <i>Panicum repens</i> *	<i>Luziola fluitans</i>	<i>Luziola fluitans</i>
Low-pool	<i>Pontederia cordata</i> <i>Alternanthera philoxeroides</i> *	<i>Pontederia cordata</i> <i>Typha spp.</i>	<i>Typha spp.</i> <i>Pontederia cordata</i>

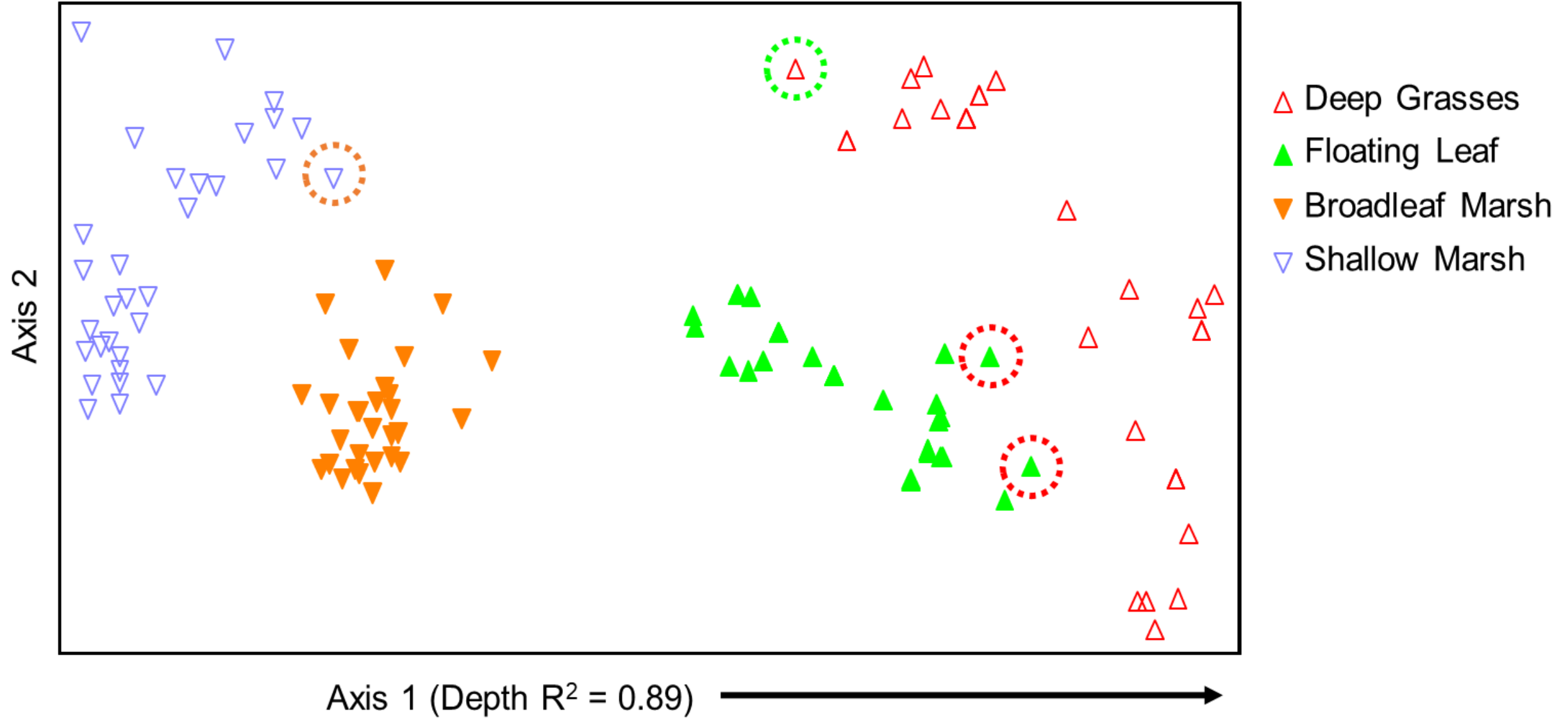
On all lakes species richness peaks 0.5 feet below high pool elevation



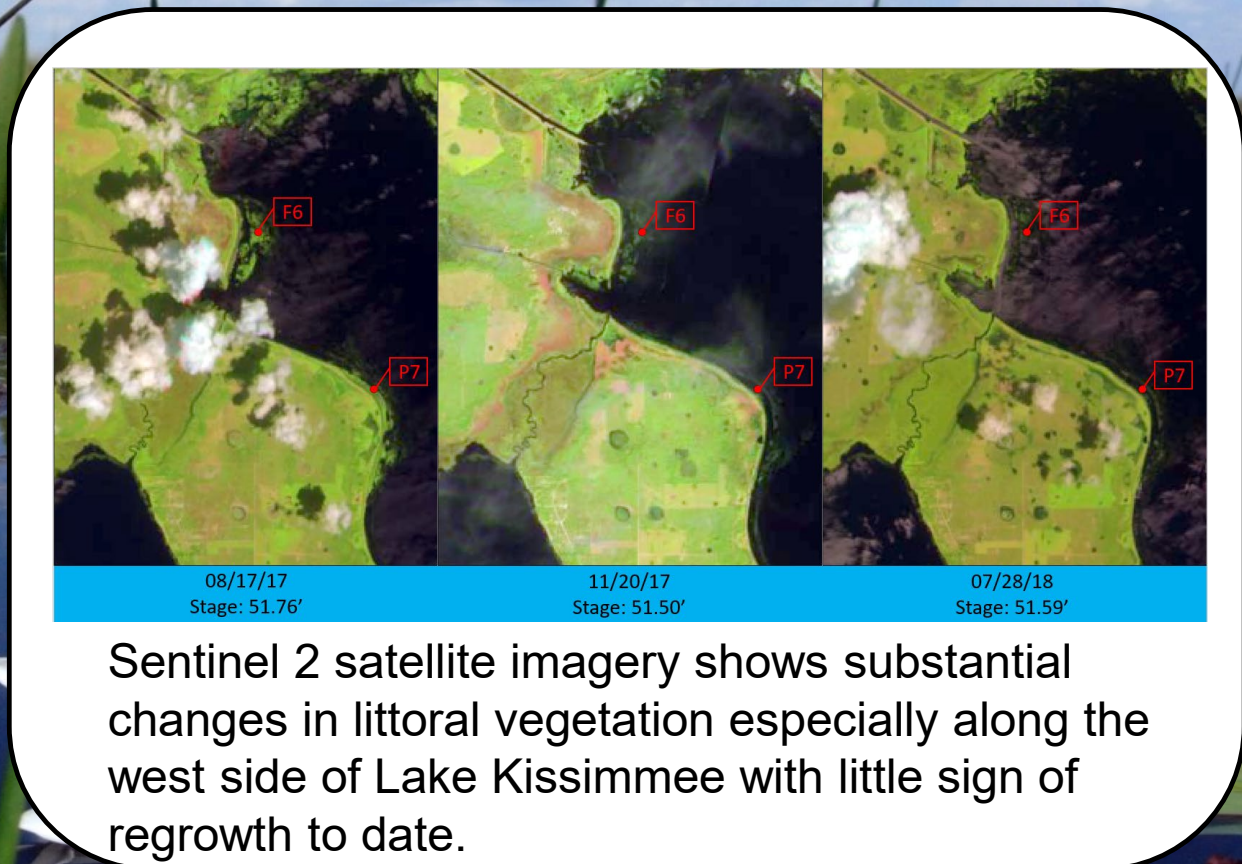
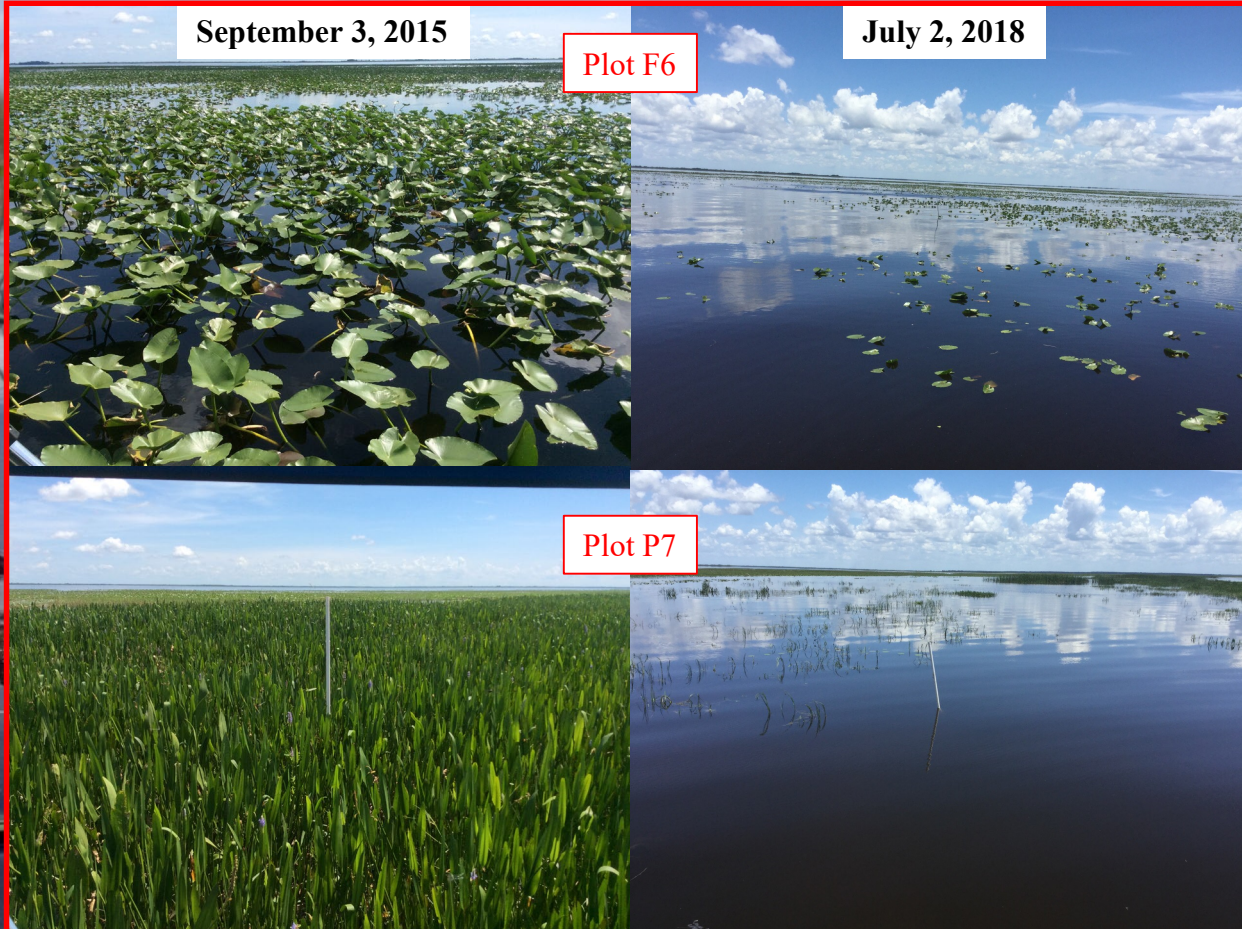


Analyzing circular plot data with NMS detects shifts in species composition

A. NMS of Community Plots



Circular plot sampling coupled with satellite imagery gives concrete evidence of changes in plant communities



Sentinel 2 satellite imagery shows substantial changes in littoral vegetation especially along the west side of Lake Kissimmee with little sign of regrowth to date.

Baseline results from the monitoring program show:

- data collected to date reflect what we expect to see based on current hydrology
- we can detect changes in target plant communities
- the program is in place to capture changes due to the Headwaters Schedule



This project and presentation are the culmination of a lot of hard work by many people throughout the years

I'd especially like to thank:

Zach Welch, Therese East, Steve Bousquin, Lawrence Spencer, Rich Botta, Chuck Hanlon, Andy Rodusky, Amber Graham, Dave Anderson, Wesley Williams, Chris Carlson, Harper Carroll...

