



Florida Department of Environmental Protection

Reference Lakes Status Update

May 17, 2017

**Aquatic Ecology and Quality Assurance Section
Water Quality Standards Program**





Outline

- Background
- Objectives
- 2016 data
- Data gaps
- Next steps
- Questions and comments



Otter Lake, Wakulla Co.
Photo credit: Ashley O'Neal



Introduction

- Lake Vegetation Index (LVI) is a tool for evaluating biological integrity of Florida lakes, by assessing the aquatic macrophyte community
- Developed in 2005 and further validated and revised in 2007 and 2012
- Current method divides Florida into two climate zones – North and South
- Evaluate the need for more refined expectations for the LVI, potentially based on a finer regional scale or water quality category



Objective

- Obtain data from minimally disturbed lakes ($LDI < 2$) & minimal human disturbance
- Establish water quality and plant community expectations for Florida lake regions
- If different expectations are found between regions, recalibrate LVI to reflect differences



Methods

- Established list of potential reference lakes
- Each site sampled at least once every two years
- Further recon sites
- Parameters collected:
 - Nutrients, chl-*a*, color, alkalinity, select metals, bromide, chloride, fluoride, sulfate, phytoplankton, field parameters (pH, DO mg & % sat, temp, sp. cond.), Secchi and total depth, Lake Observation Form (FD 9000-31), LVI Form (FD 9000-27), photo documentation
- Document whether or not lake qualifies as minimally disturbed by humans



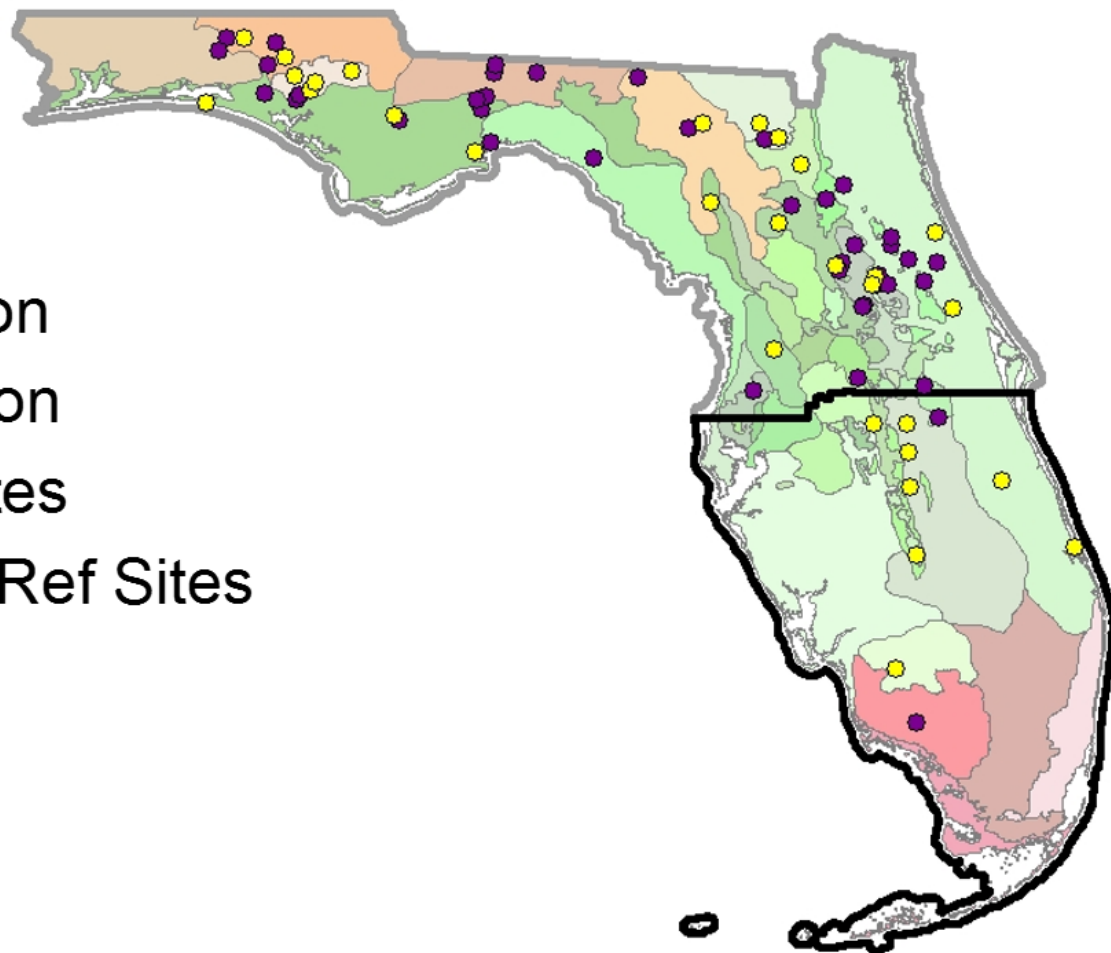
2016 data

- 70 total reference sites
- 29 reference sites sampled in 2016
 - Missing LVI data for 5 sites (Status V – data available)
- 25 total lake regions represented, and 14 regions sampled (at least 1 site) in 2016



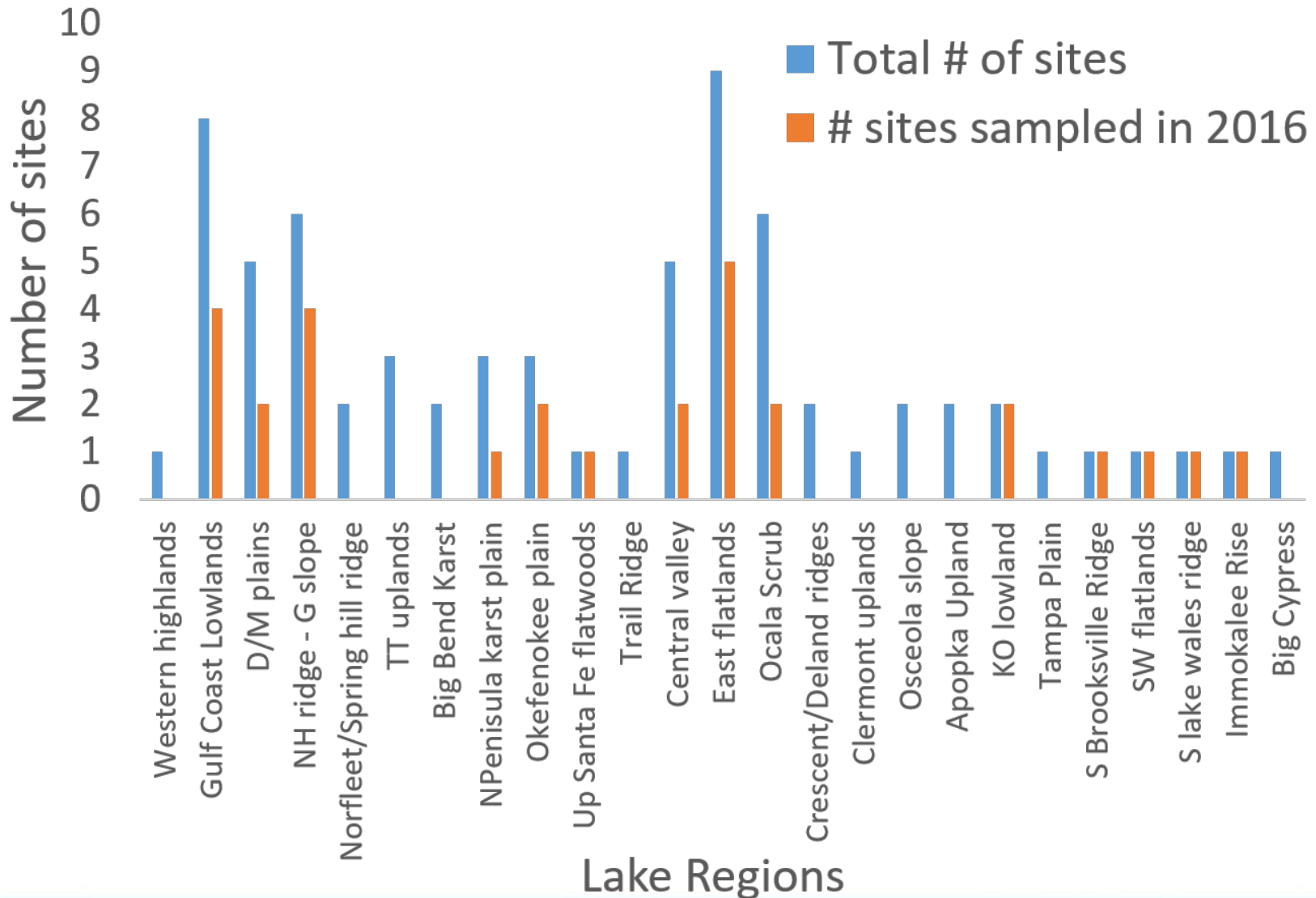
Reference LVI Sites

-  North LVI Region
-  South LVI Region
-  2016 All Ref Sites
-  2016 Sampled Ref Sites



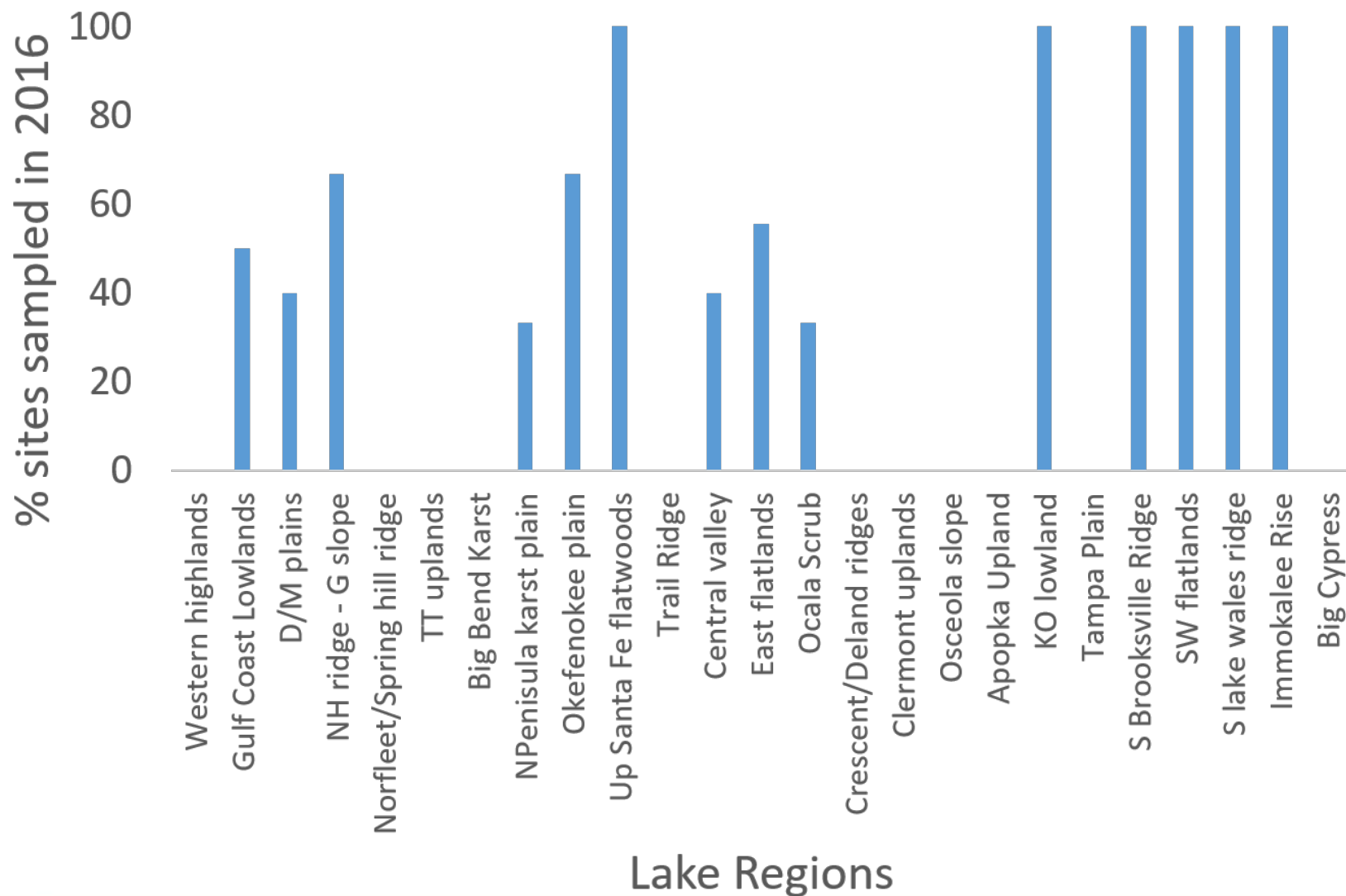


Reference Lake Regions





2016 Lake Regions



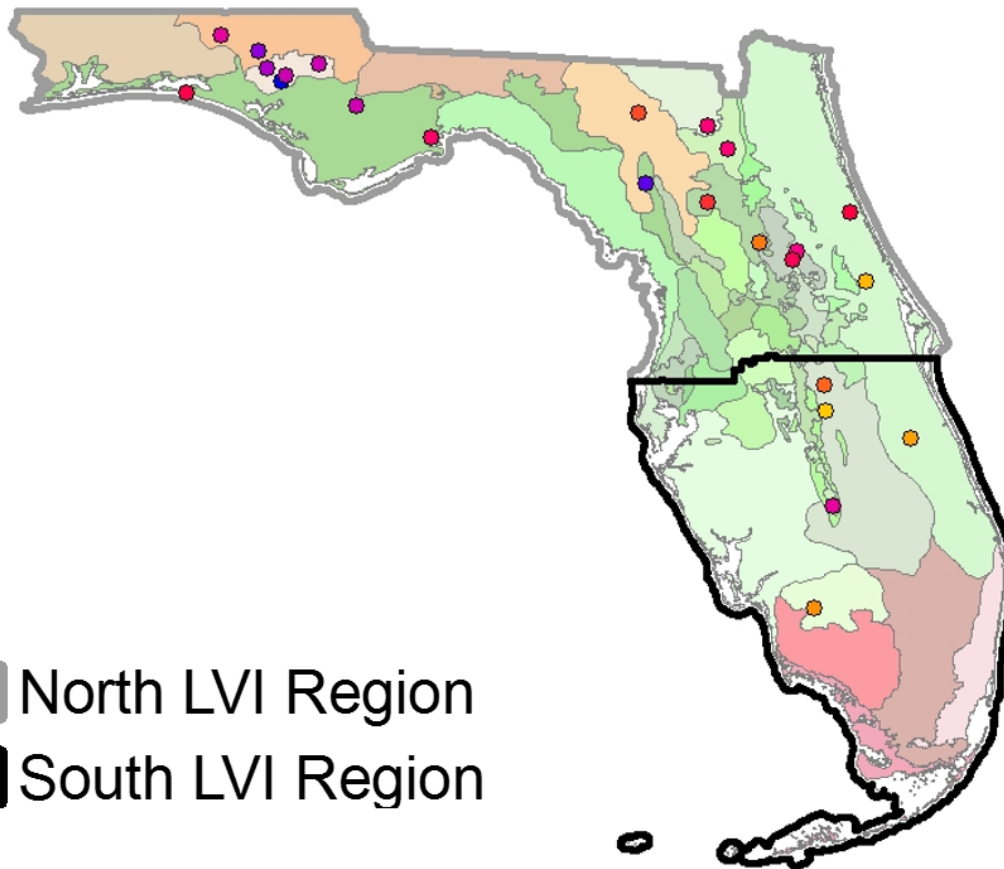


2016 LVI Scores

LVI_2012 Score

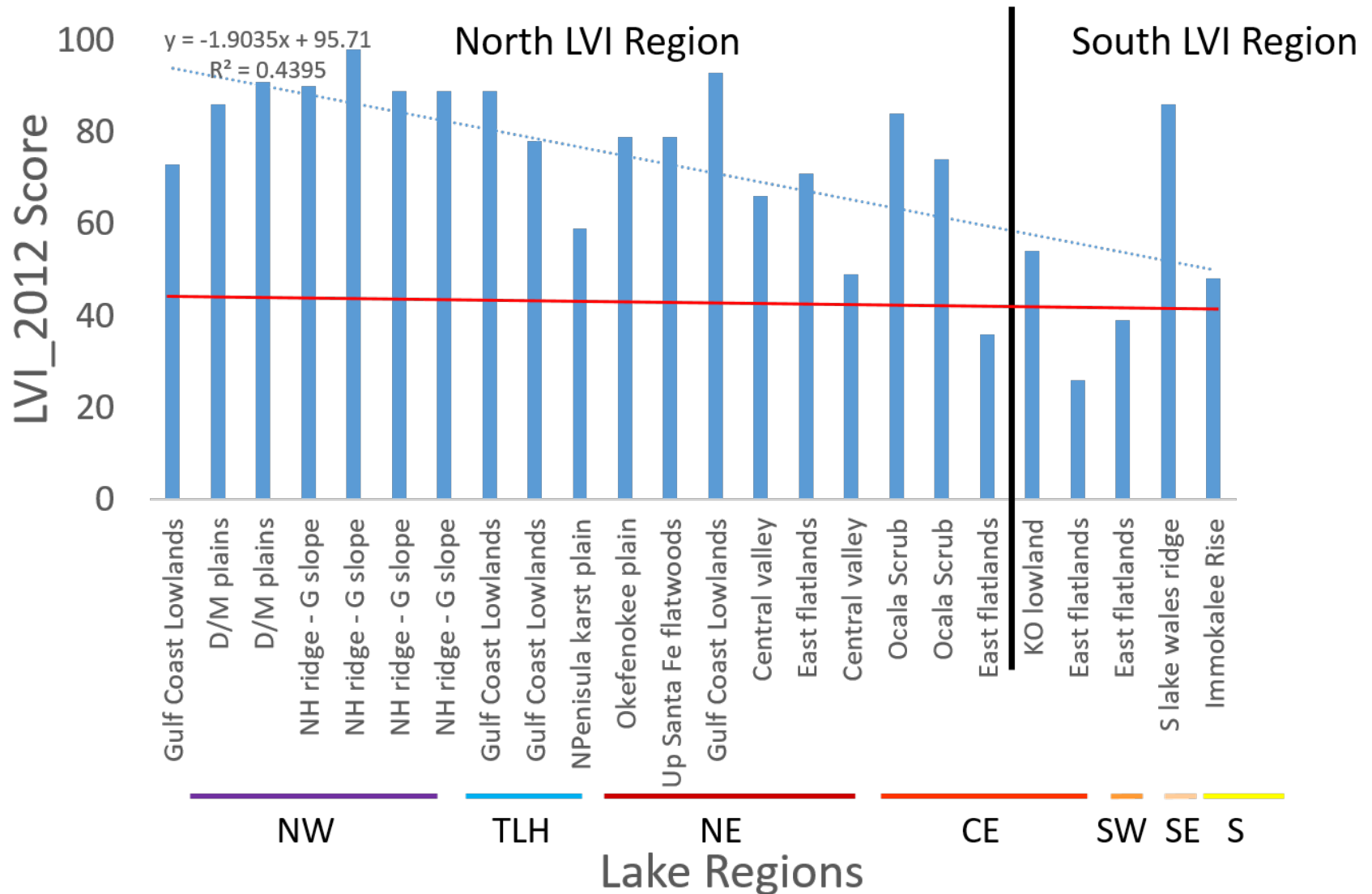
• 26	• 74
• 36	• 78
• 39	• 79
• 48	• 84
• 49	• 86
• 54	• 89
• 59	• 90
• 66	• 91
• 71	• 93
• 73	• 98

 North LVI Region
 South LVI Region





2016 LVI Scores



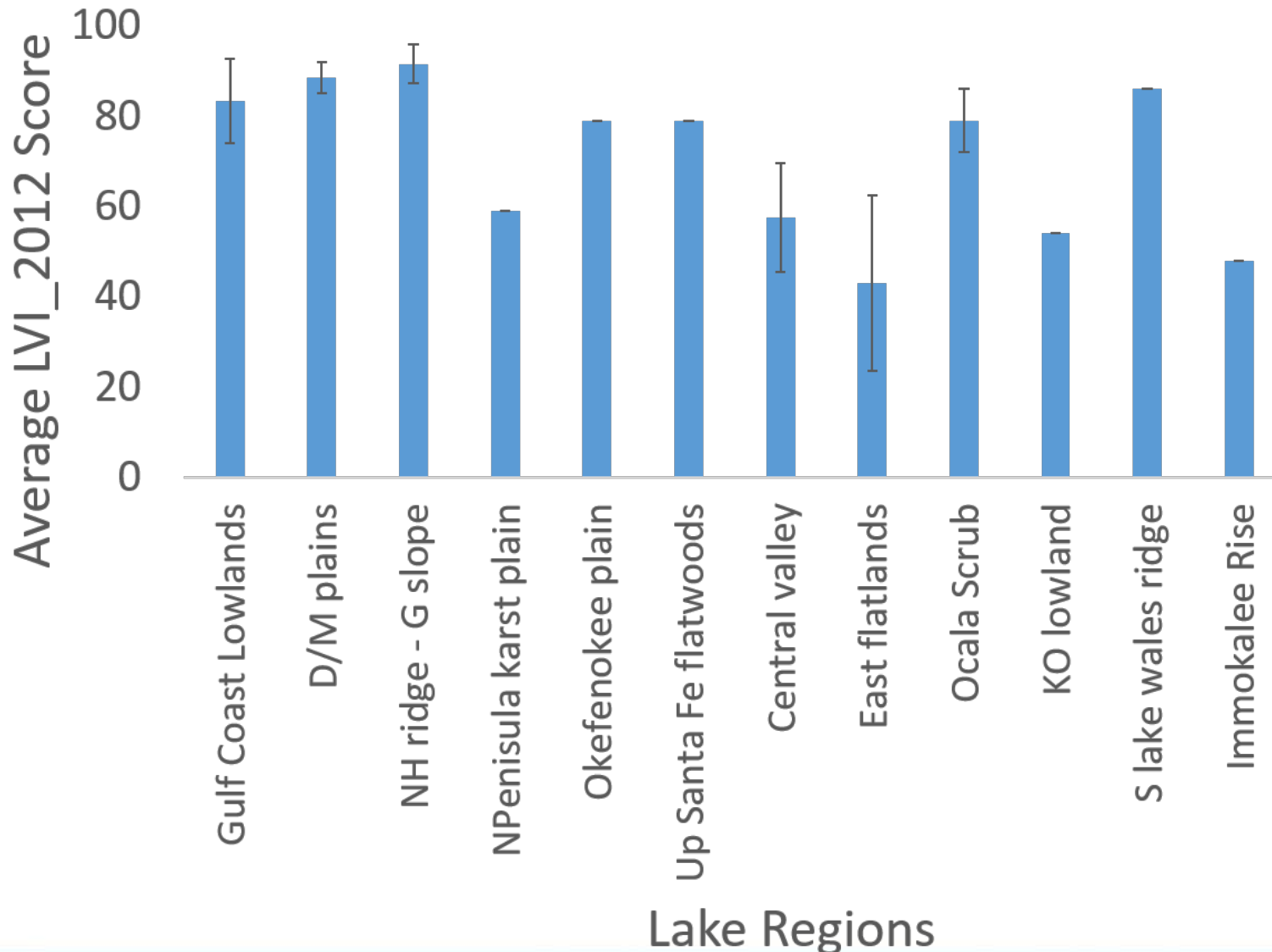


Low Scoring Lakes

- Lake Rosalie, Polk Co., East Flatlands, LVI = 26 (SW)
- Lake Ashby, Volusia Co., East Flatlands, LVI = 36 (CE)
 - Comment: Could not fully assess section 5 due to thick buffer of *Nelumbo*. Need airboat.
- Blue Cypress Lake, Indian River Co., East Flatlands, LVI = 39 (SE)
- Lake Trafford, Collier Co., Immokalee Rise, LVI = 48 (S)
 - Comment: Transect 4: No codominance, *Annona glabra*, *Nelumbo lutea*, *Acer rubrum*, and *Typha* sp. equally abundant.
- Charles Lake, Marion Co., Central Valley, LVI = 49 (CE)
- Do these lakes qualify as minimally disturbed?



Lake Region LVI Scores





Next Steps

- Prioritize lakes in regions with no data
- Continue sampling lakes as time and resources permit
- Central location for storing and accessing data
 - \\publicfiles\pubfds\DEAR\WQAPmonitoring



Thank you!

Questions? Comments?



Porter Pond, Jackson Co.
Photo credit: Nia Wellendorf