

USACE Role as Aquatic Plant Managers on Lake O

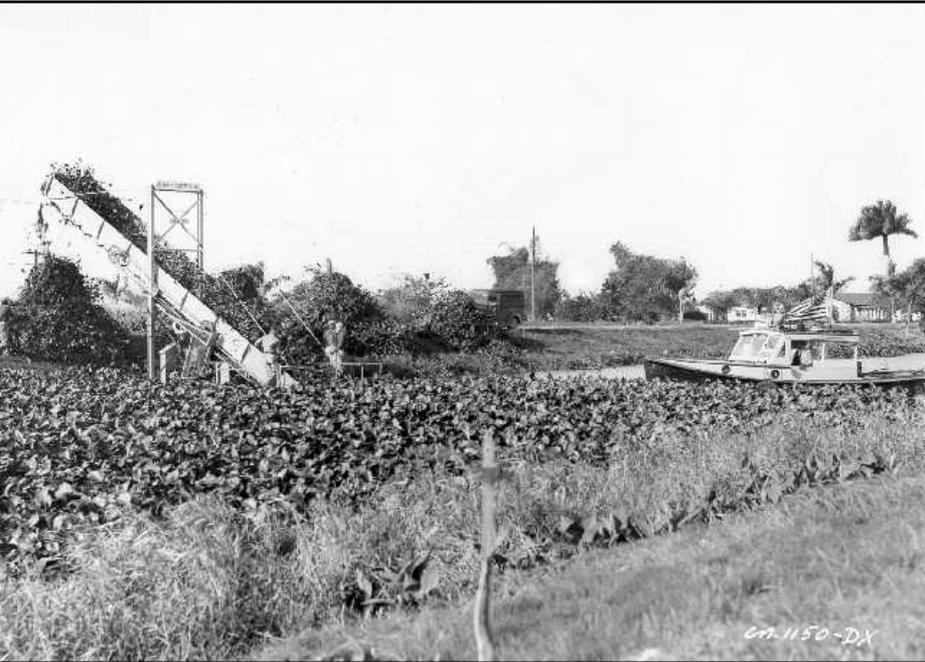
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- **Why is the Corps involved in aquatic plant management?**
- **Who are the Corps managers and where are they located?**
- **What species are the Corps responsible for managing?**
- **How does the Corps manage these plants in cooperation with other local/state/federal agencies?**
- **Current/future challenges?**



Rivers and Harbors Act, 1899



USACE was tasked to
"Solve Problem"



Removal of **Aquatic Growth (RAG)**

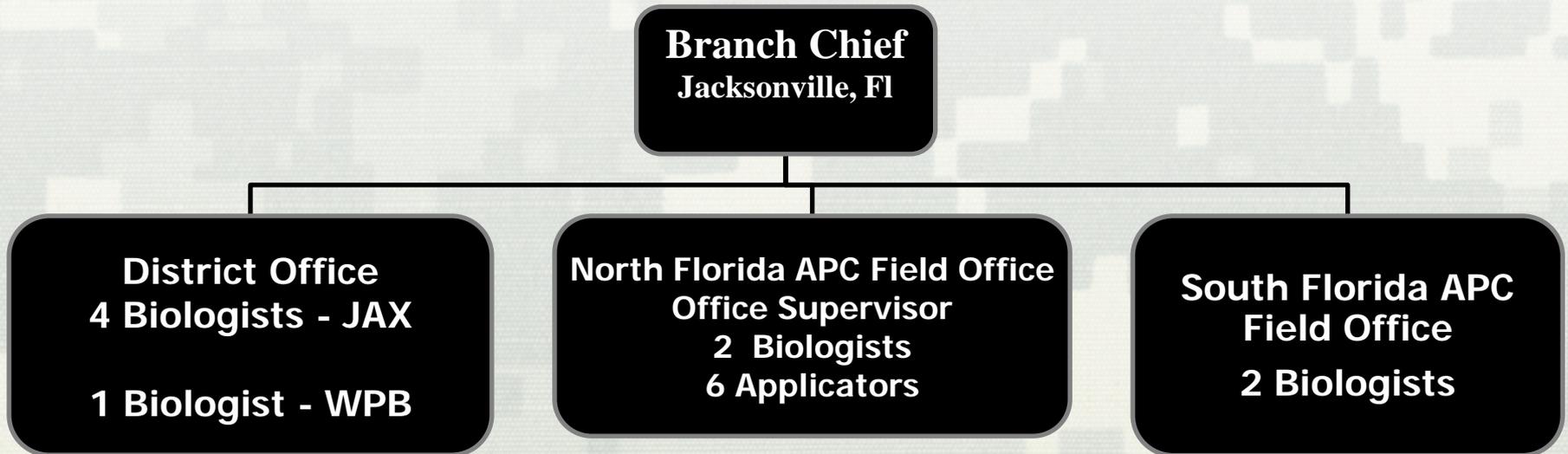
- Intended for Federal Projects: R&H Act
- Provided 100% federal funding to manage aquatic weeds in navigation projects
- Also included other vegetative barriers such as floating tussocks & woody debris
- Limited to projects in FL, AL, MS, LA, TX
- Amended in 1902 to allow for the removal of water hyacinth by chemical, mechanical, or other means



Removing water hyacinth from Lake Okeechobee - 1937
Courtesy U.S. Army Corps of Engineers
Jacksonville Archives



Invasive Species Management Branch

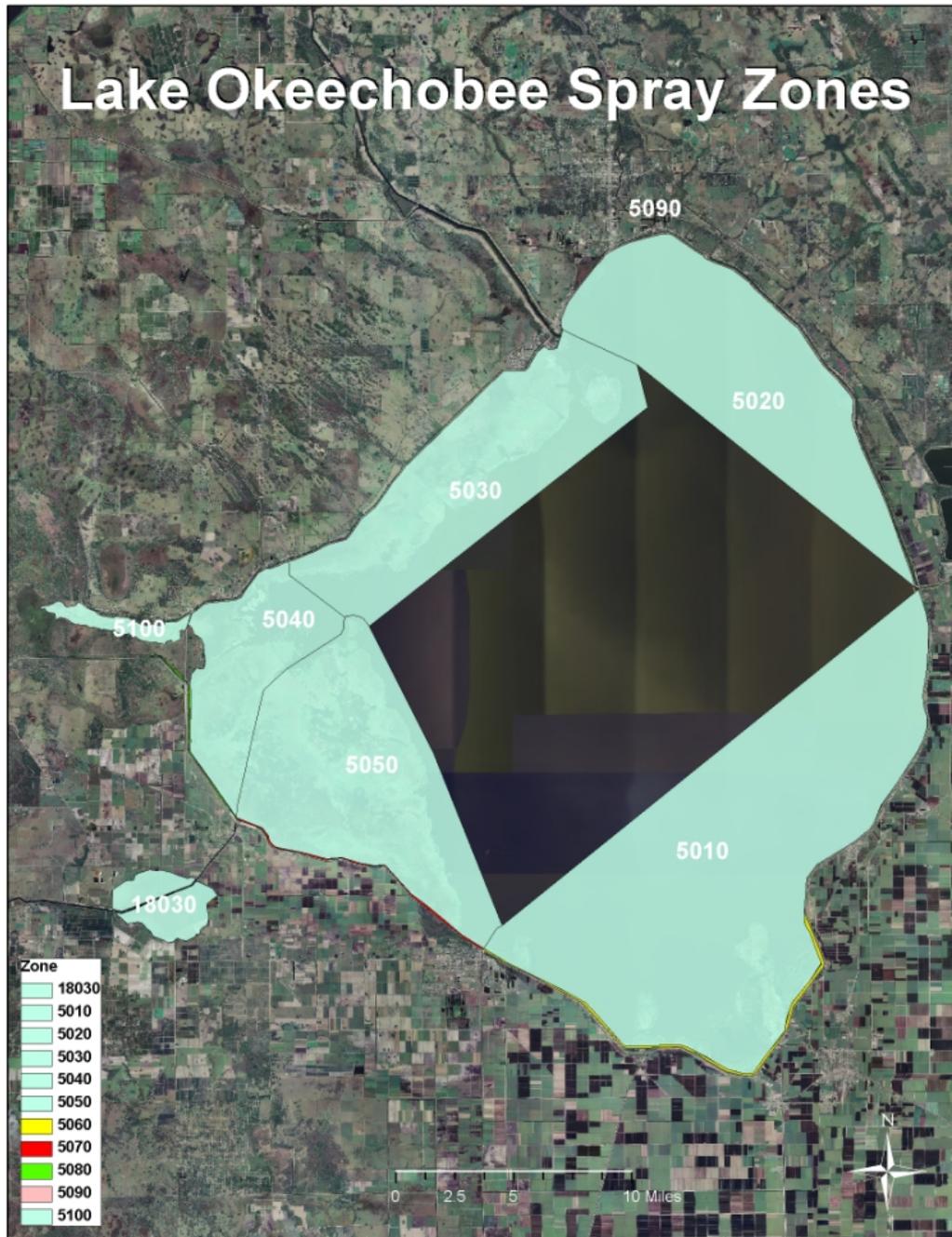


Who Does the Work?

-  Contractor on Okeechobee Waterway and Lake Okeechobee, \$900K for each FY (cost normally doubles)
-  Contractor oversight and contract management conducted by USACE Staff based in Clewiston
-  West Palm Beach and Jax provide support for administration and field work as needed

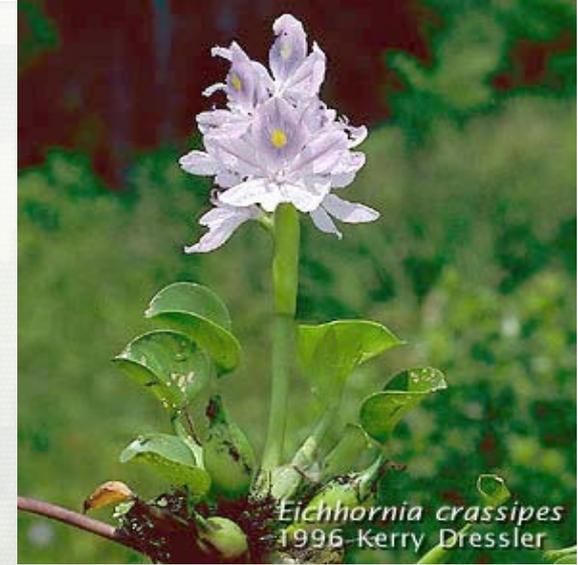


Lake Okeechobee Spray Zones



WATER HYACINTH HISTORY

(Eichhornia crassipes)



- ❑ Introduced to Florida in 1884
- ❑ Spread upstream as cattle food
- ❑ Covered over 120,000 acres by 1894
- ❑ Problem realized with exponential growth
(Populations double in 14 days or less)
- ❑ At that time no effective control method
- ❑ Rivers and Harbors Act of 1899 mandated control at all cost.

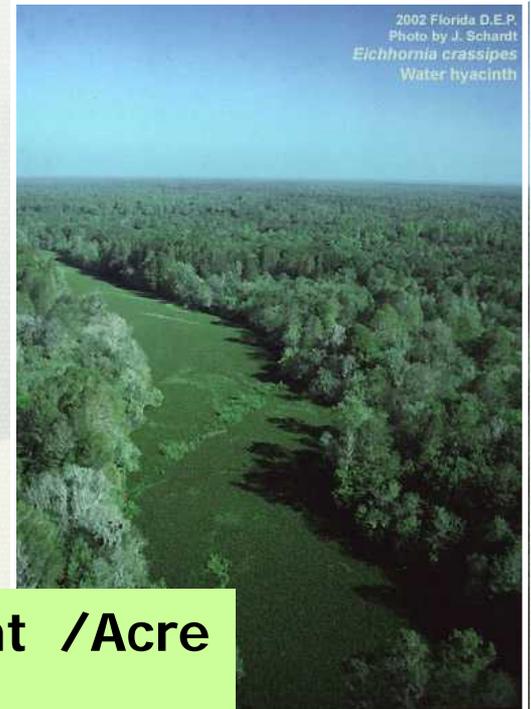
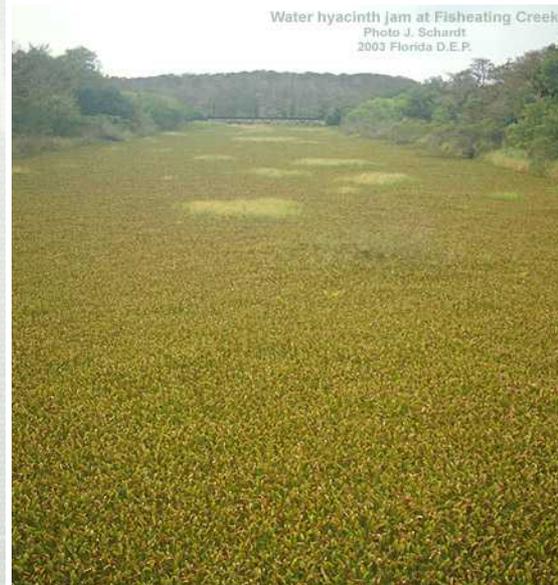


Challenges, Hazards and Impacts

- Threat to structures and safety
- Navigation
- Recreation
- Flood Control
- Decreased Bio-diversity
- Accelerates accretion/siltation
- Oxygen diffusion



Floating Plant Problems



50 to 200 Tons - Fresh weight /Acre
Dry weight = ~ 5%



Integrated Pest Management



- Chemical Control
- Biological Control
- Mechanical Control
- Maintenance Control



Plant Management on Okeechobee

- No Treatments for Submersed Plant Control
- Diquat and 2,4-D represent >95% of the product used – Floating plant mgmt.
 - ~50/50 split
- Strategy of Maintenance Control
 - Sustained Effort to Keep Floating Plant Levels at minimum levels



Maintenance Control

- Prevent floating plants from forming large mats by applying continuous pressure
- 1 acre of hyacinth sprayed
 - 10 tons of OM
- 1 acre not sprayed can grow to 100+ acres
 - 1000 tons of OM
- More Labor less Herbicide



12 Herbicides Labeled for Aquatic Use

(225 labeled for terrestrial use)

Copper (1900's)

Endothall (1960)

Glyphosate (1977)

2,4-D (1950, 76)

Diquat (1962)

Fluridone (1986)

Triclopyr (2002)

Carfentrazone (2004)

Imazamox (2008)

Imazapyr (2003)

Penoxsulam (2007)

Flumioxazin (2010)



Why 2,4-D and Diquat?

- Highly active on floating vegetation
- Cost-effective and predictable
- Rapid injury symptoms on target plants lets applicators know where they have been
- Both have been through re-registration
 - 2,4-D in 2006 and Diquat in 1995
- Starting to use Flumioxazin, Penoxsulam, and Imazamox
 - Operational Research



Lake Okeechobee Interagency Aquatic Plant Management Task Force

- 'The interagency group'
- Established through formal agreement in March 1989
- "WHEREAS, the Corps seeks to enlist the counsel of the State of Florida and its agencies in this effort and to move forward with its mission in the spirit of interagency cooperation"
- Meets bi-monthly to discuss/plan/evaluate vegetation management activities on Lake O
- FWC, SFWMD, USACE, USACE – ERDC, UF IFAS, US FWS,
- Next Meeting 23 October 2013 @ 10:00a.m.



Sample Interagency Aerial Survey Report

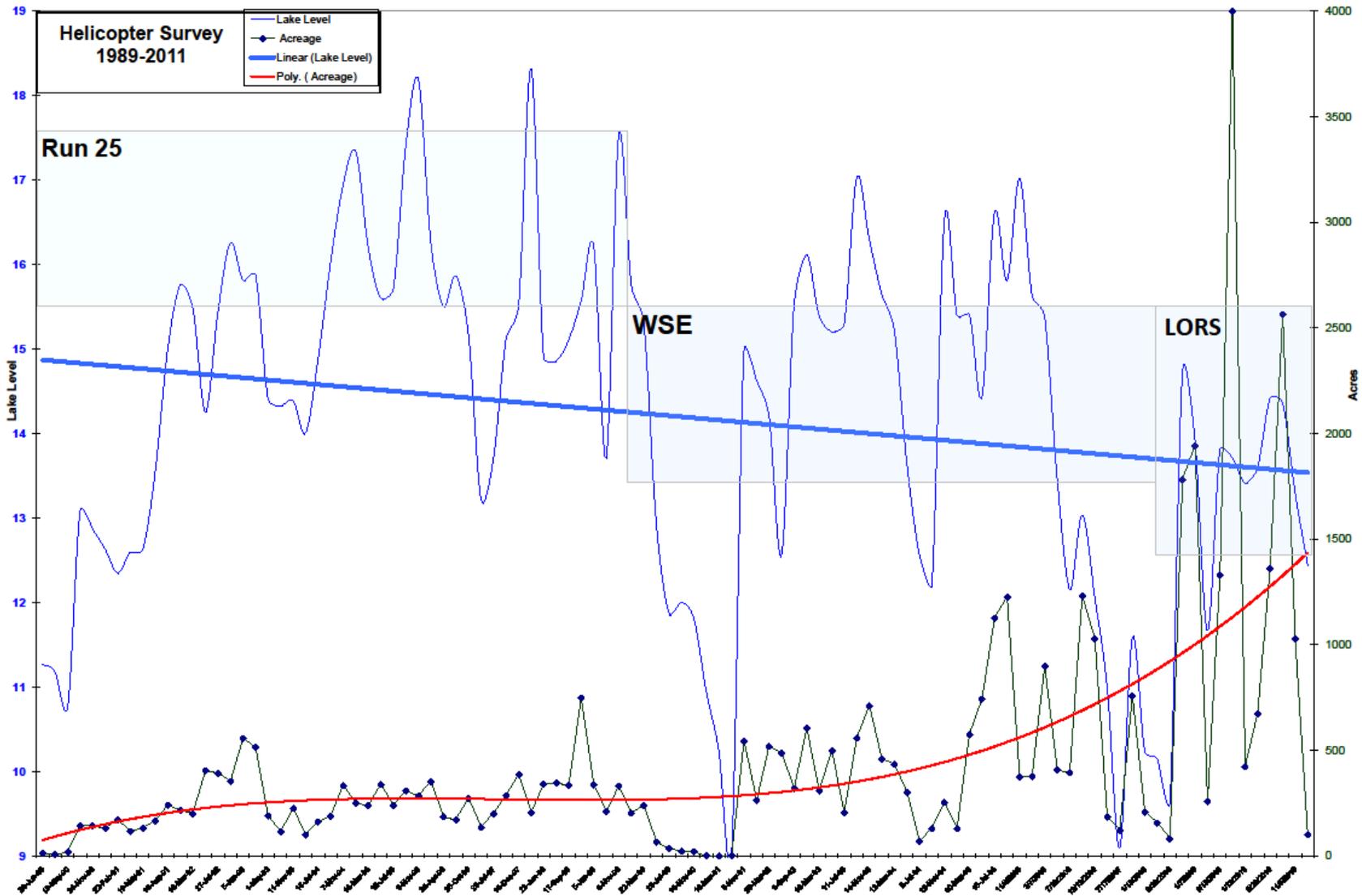
Area	Avg	%	SFWMD	AAM	USACE
Torry/Kreamer	55	13%	30	100	35
Ritta	66.67	16%	40	100	60
East Wall/Coot Bay	78.33	18%	70	75	90
West Wall	70	16%	45	100	65
Fisheating	38.33	9%	50	25	40
Harney	28.33	7%	35	25	25
Indian P	40	9%	60	25	35
Kissimmee	25	6%	30	30	15
Taylor Creek	28.33	7%	20	45	20
Totals	430	100%	380	525	385



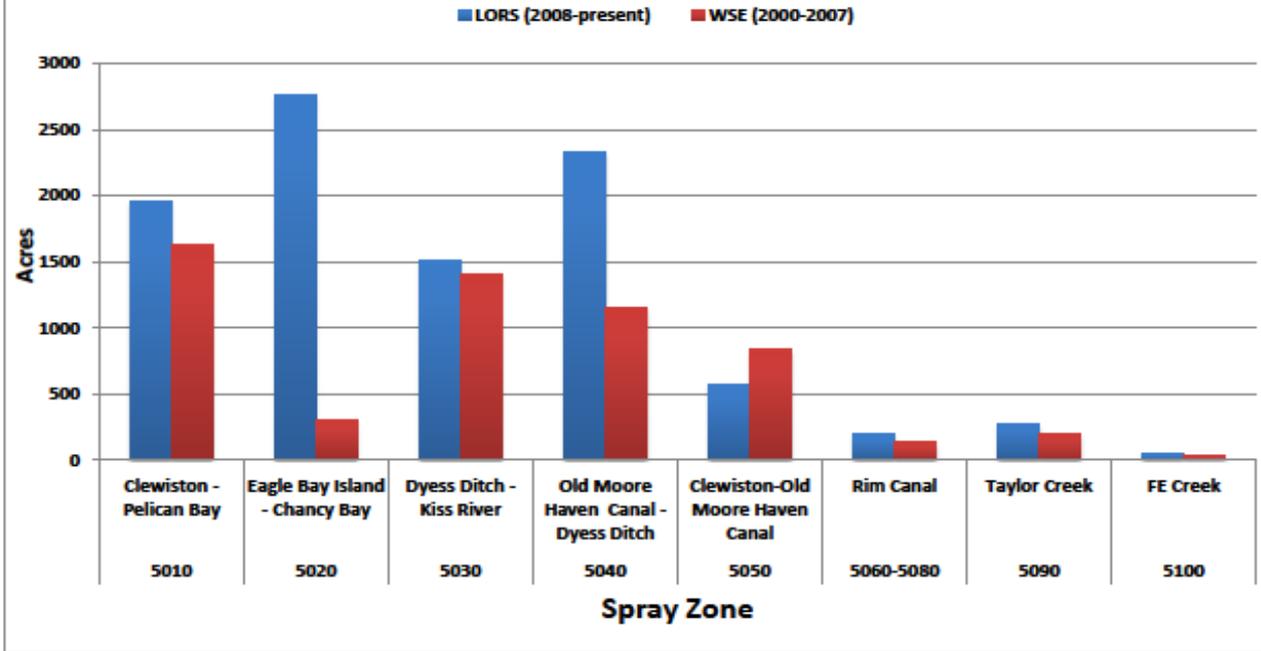
New Challenges in Last Five Years

- Continuing Resolution – Funding
- LORS – ‘more marsh and more edge’
- Snail Kite Nesting
- Evaluating/Learning New Herbicides





Average Lake Okeechobee Floating Plants Treated Per Zone 2000-2013

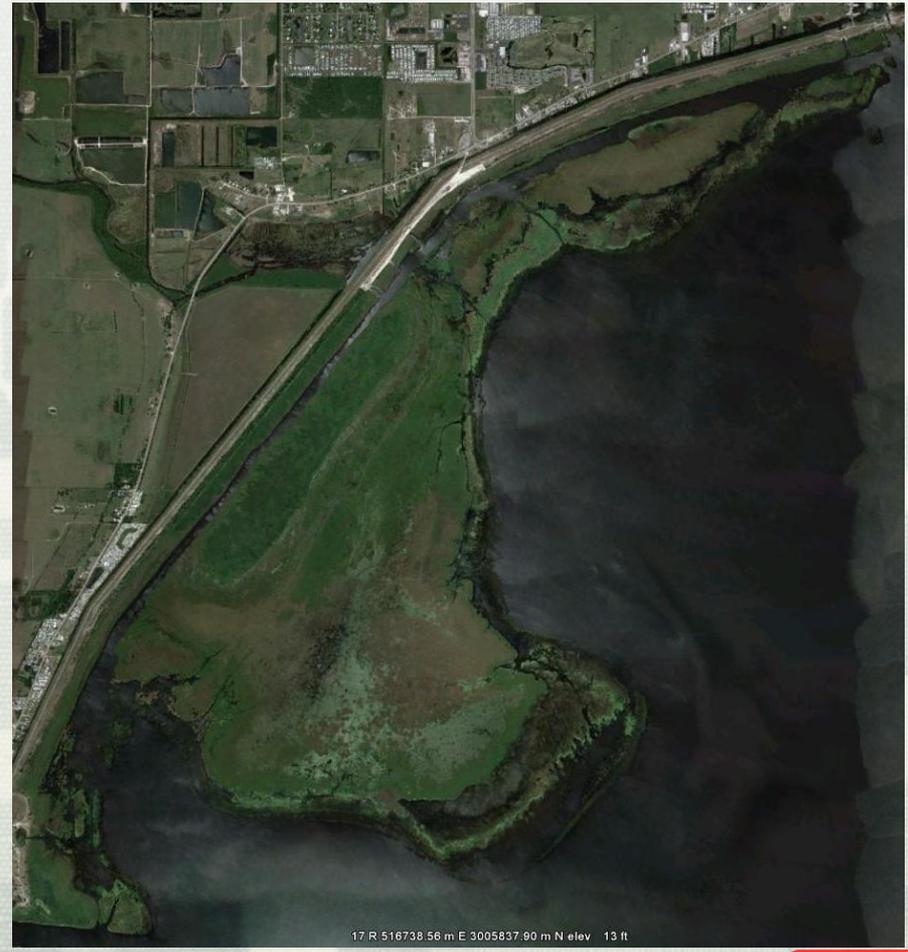


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Eagle Bay Island Native Vegetation Expansion

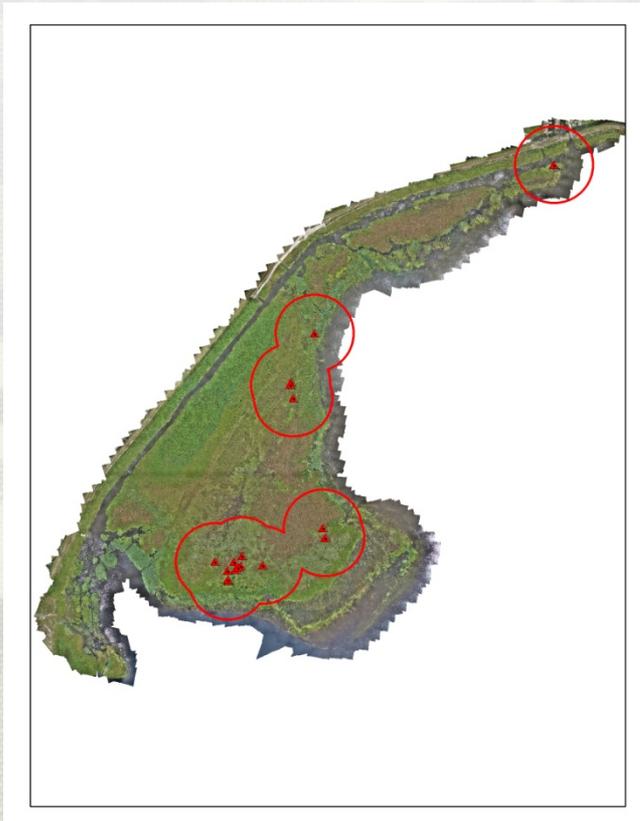
December 2005; (15.5')

April 2013; (13.5')

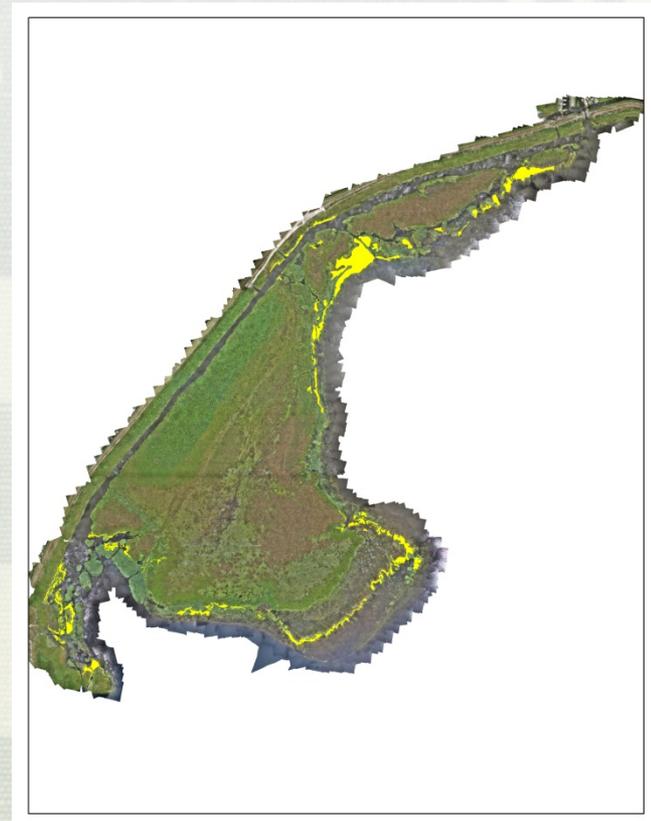


Snail Kite Nests/Floating Weed Challenges

SK Nests (17)
March 2012

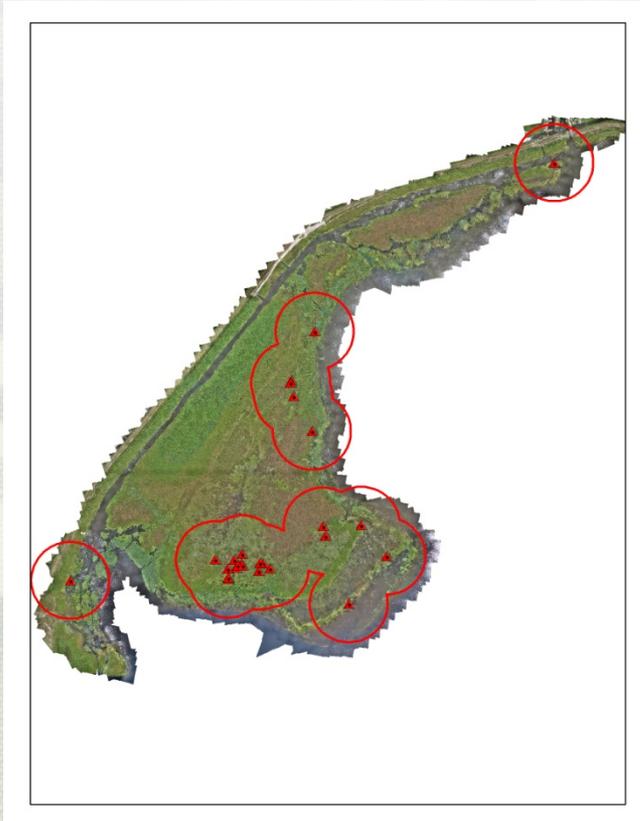


Target Weeds (123ac)
March 2012

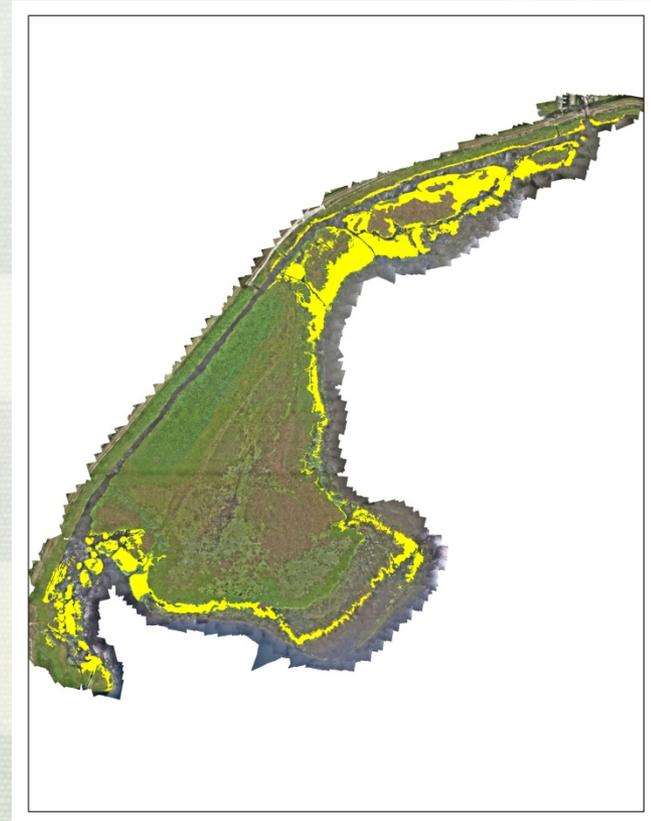


Snail Kite Nests/Floating Weed Challenges

SK nests (27)
July 2012



Target Weeds (575ac)
July 2012

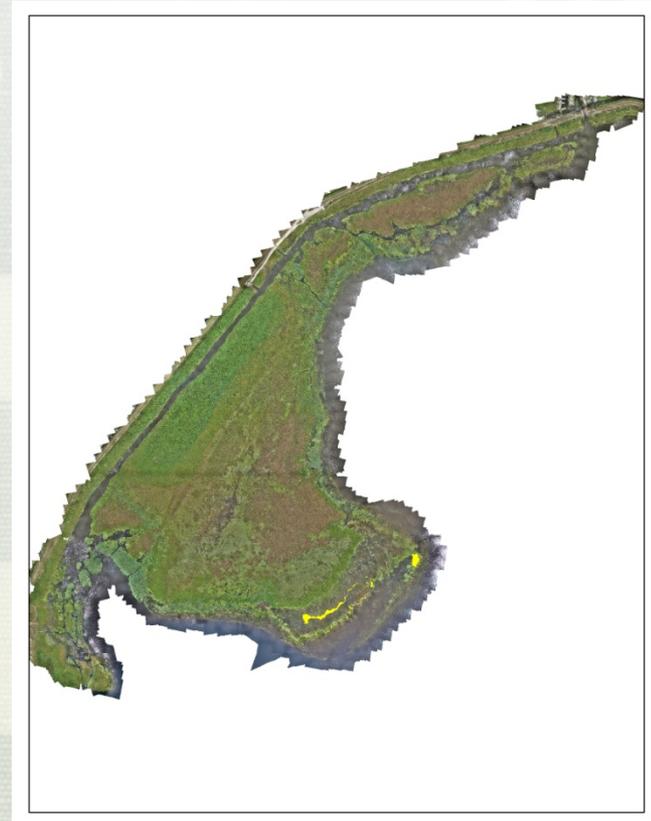


Snail Kite Nests/Floating Weed Challenges

SK Nests (1)
September 2012



Target Weeds (12 acres)
September 2012



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Questions

