

THE WATER DEPTH ASSESSMENT TOOL (WDAT) IN COMPARISON TO THE EVERGLADES DEPTH ESTIMATION NETWORK (EDEN): AN UPDATE

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SCG and WG Meeting January 26, 2015



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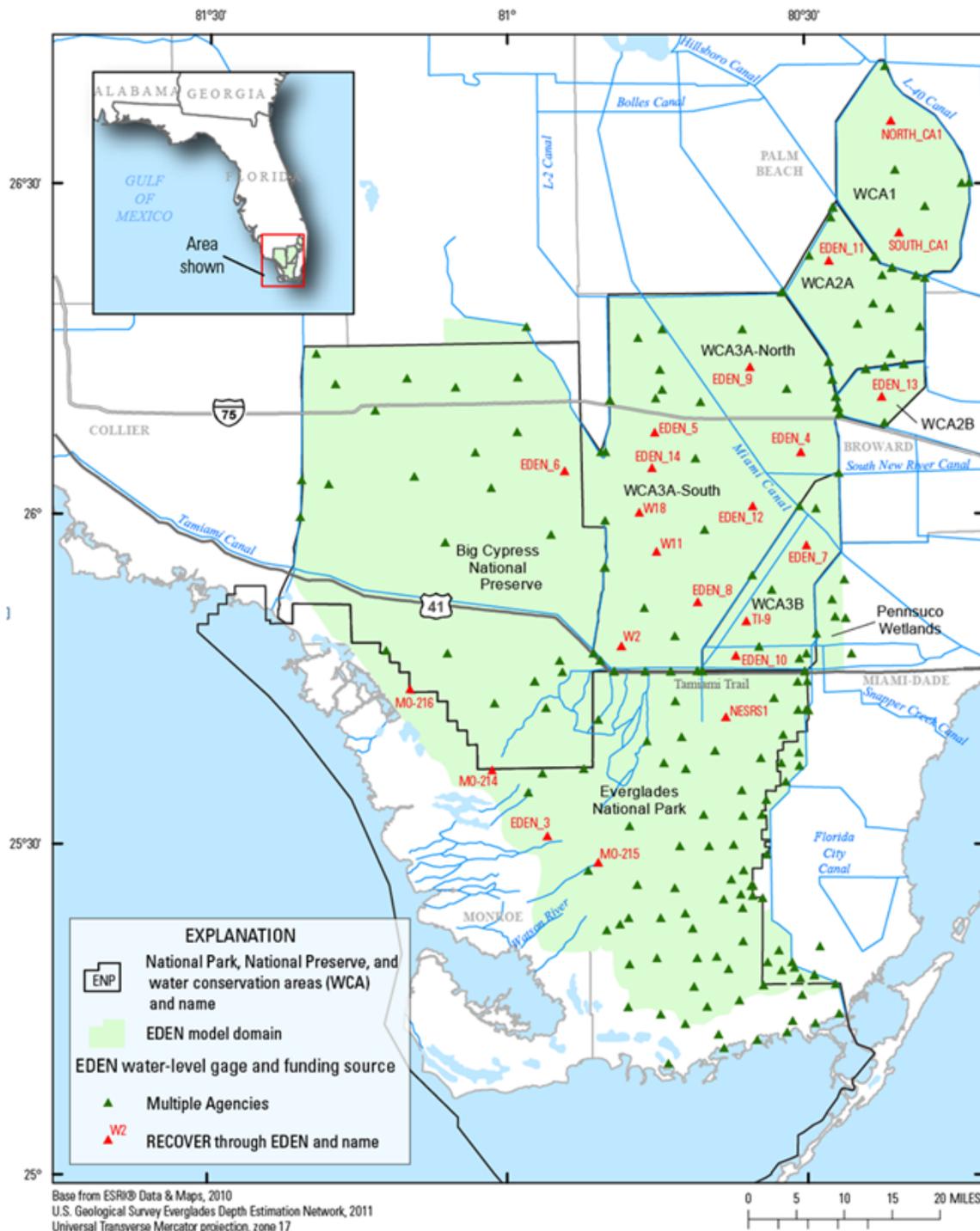


US Army Corps of Engineers

RECOVER Supported EDEN Tasks

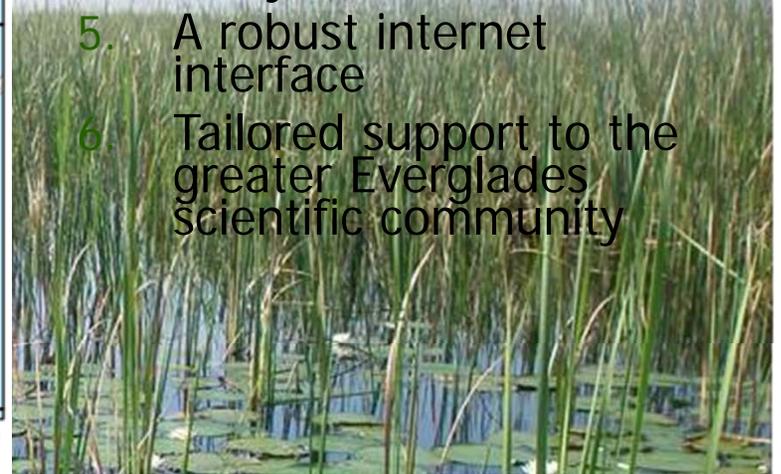
- Operate 22 real-time water level gages where no gages exist and to support the water level surface calculation
- Data management for ~250 water level gages operated by four agencies (federal and state)
- Generate daily water level surfaces for freshwater Everglades
- Maintain EDENweb (sofia.usgs.gov/eden)
- Support CERP scientists with hydrologic data and analysis
- Contribute to System Status Report (SSR) to Congress (~biennially)





What is EDEN?

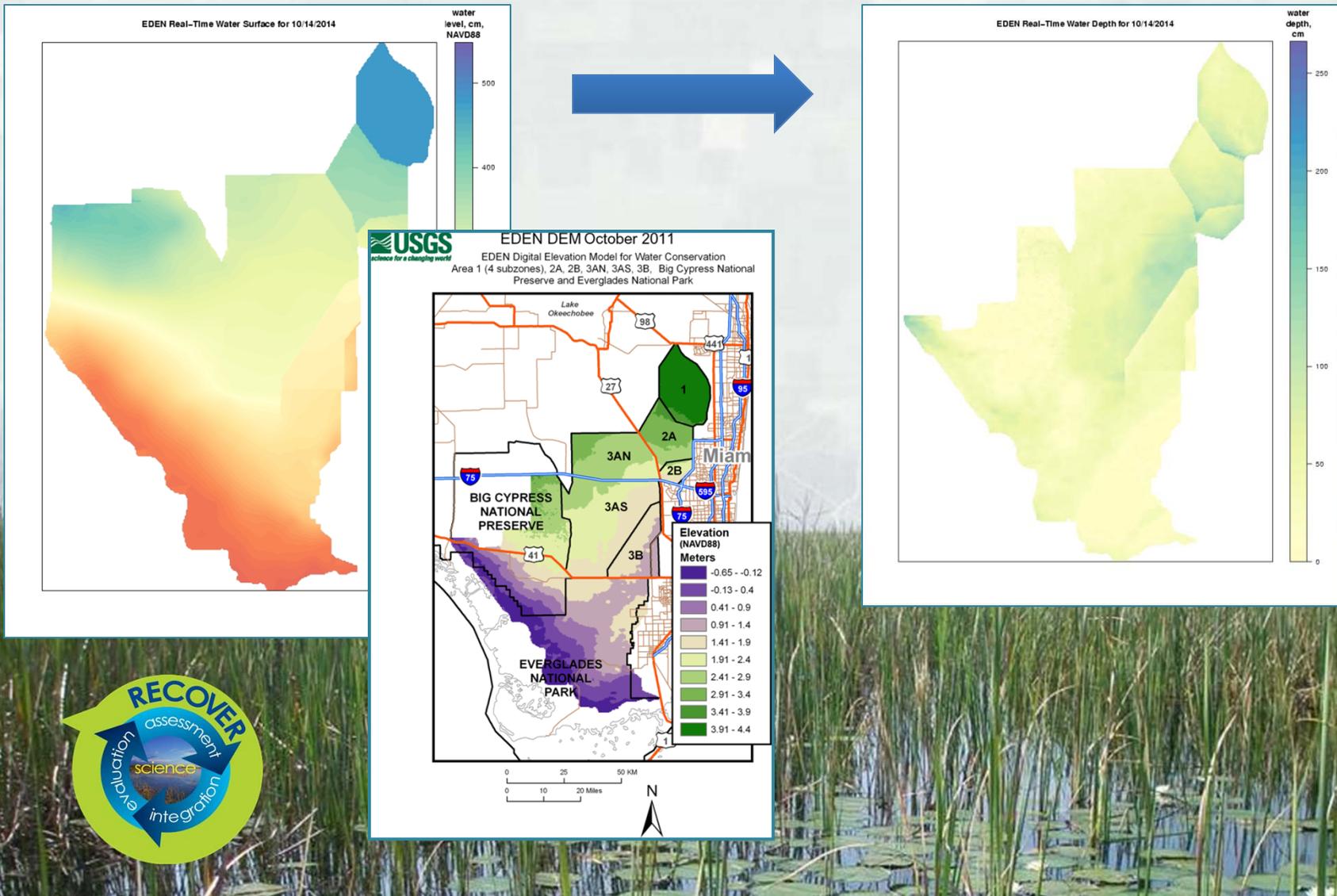
- Creates radial basis function-interpolated water surfaces using gage data
- Daily real-time water-level surfaces posted on-line.
- Known and respected for:
 1. A rigorous QA/QC program
 2. A strong publication record
 3. Excellent documentation
 4. Many useful tools
 5. A robust internet interface
 6. Tailored support to the greater Everglades scientific community



EDEN Water Surface and Water Depth

Water surface and DEM

Water Depth



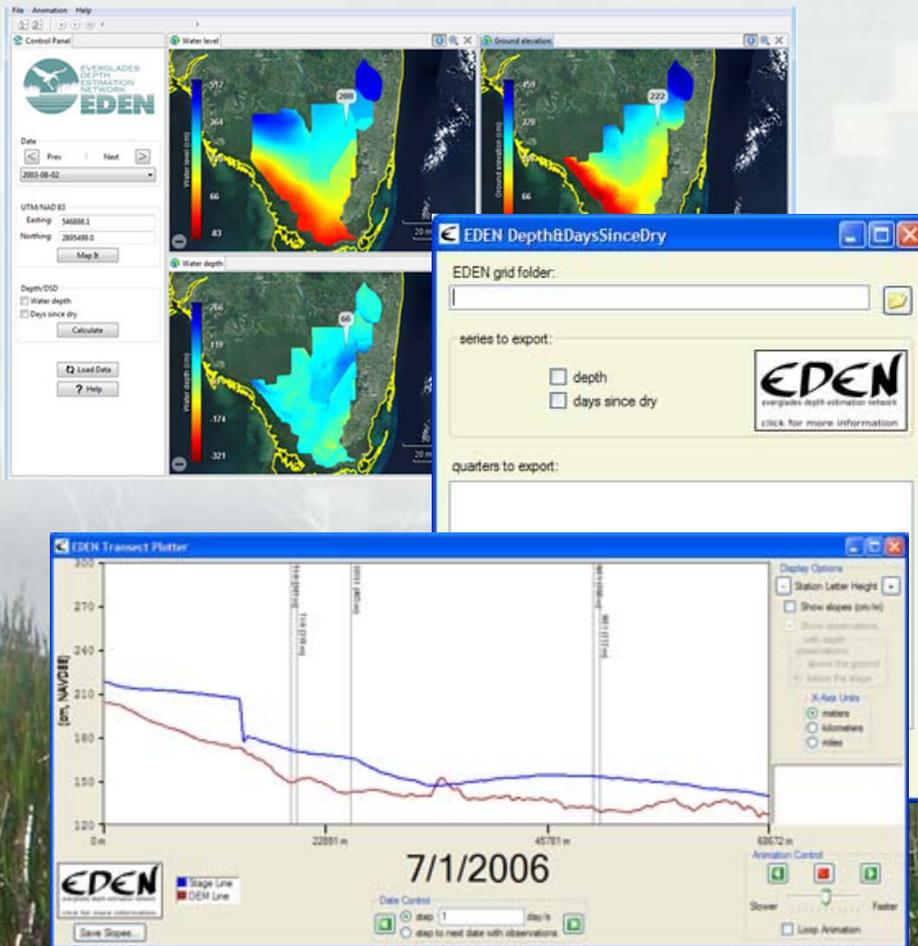
EDENapps Tools

Free desktop applications to interface with EDEN hydrologic data

Tools to View, Extract, Plot, and Manipulate EDEN Data

- Data Viewer
- xyLocator
- Transect Plotter
- Depth & Days Since Dry
- GridtoNetCDF & NetCDFtoGrid (conversion tools)

- User Guides available for each tool



EDEN Funding

	RECOVER USACE FUNDING	USGS PES	USACE Modwaters O&M
2010	\$673,586	\$217,500	
2011	\$567,991	\$217,500	
2012	\$587,912 \$411,540	\$217,500	
2013	\$608,488 \$411,540	\$217,500	\$20,184
2014	\$629,787 \$411,540	\$217,500	\$4,200
2015	\$411,540	\$217,500	\$7,000
2016-2020	\$411,540?	\$217,500?	?

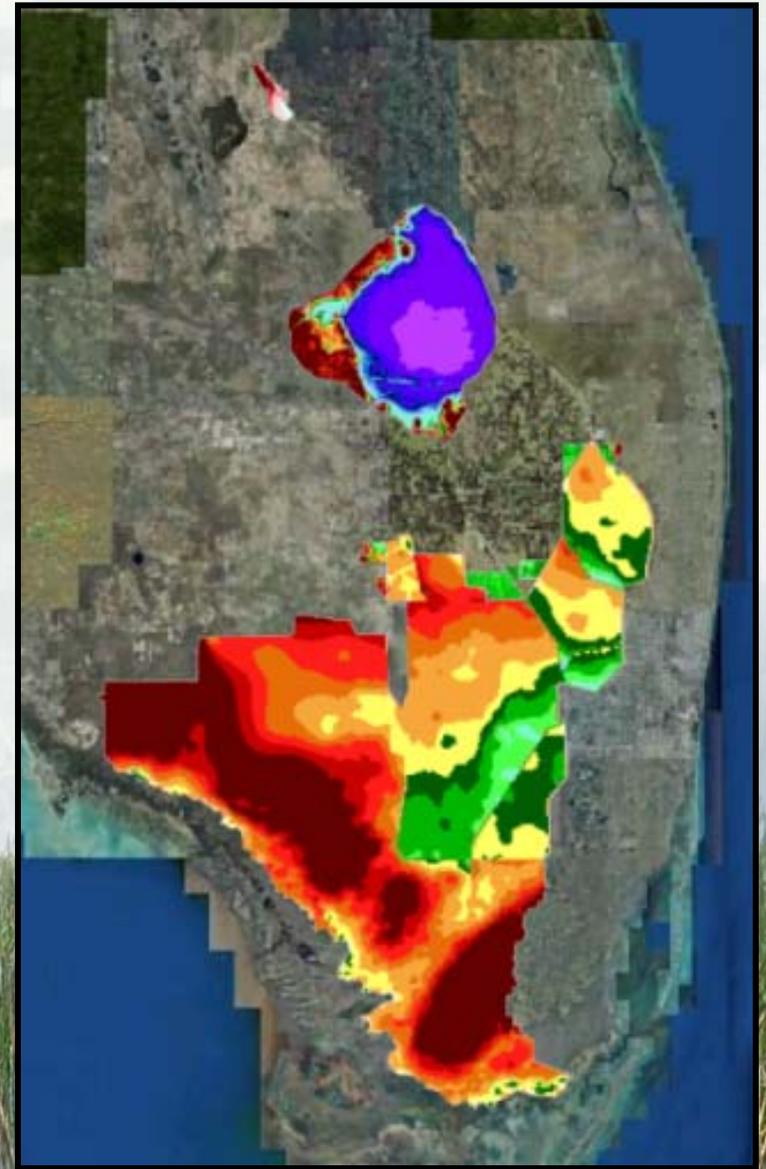
1. Support for approximately 14 gages have been temporarily funded by USGS Priority Ecosystem Studies (PES) since 2012
2. USGS PES funds can no longer cover the RECOVER funding deficit past Fiscal Year 2015

What is WDAT?

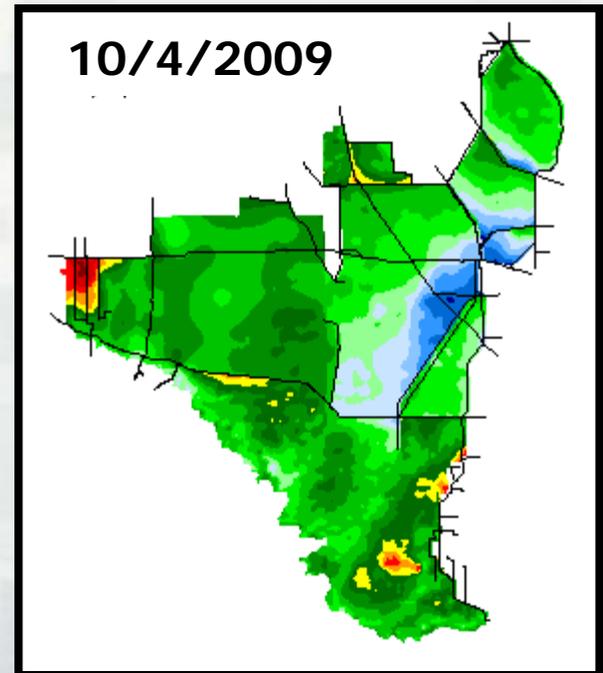
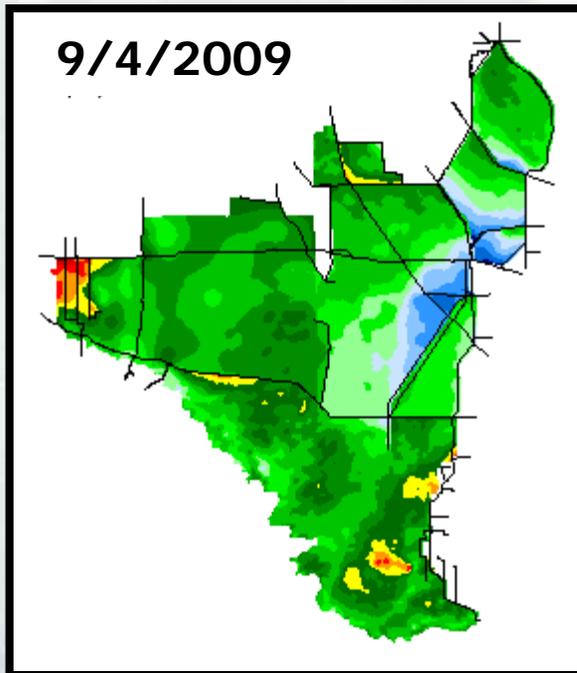
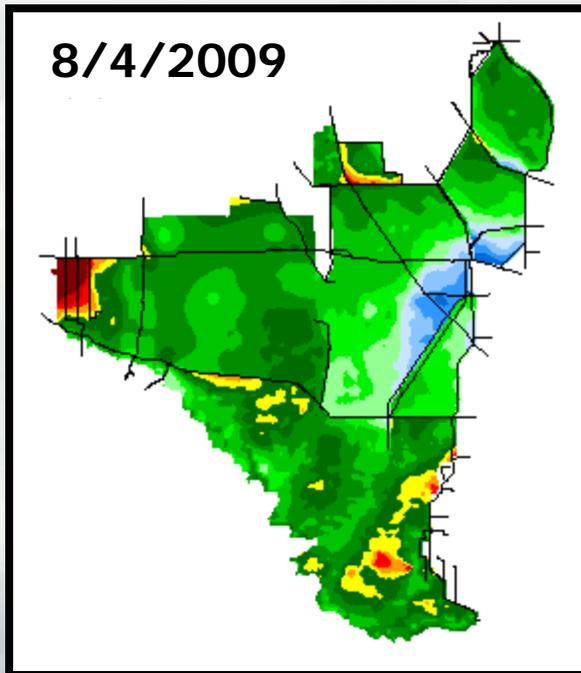
The Water Depth Assessment Tool (WDAT) is a daily automated series of applications, developed by the SFWMD, to provide near-real time spatial perspectives of water depth and water elevation changes, along with a series of regulatory and ecological indices used assess project progress.

Presently being utilized for:

- Weekly Operations Activities and Ecological Condition Reporting
- Governing Board Briefings and Communication of Water Conditions to the General Public
- Stormwater Treatment Areas (STAs)
- C-111 Project Areas
- Minimum Flows and Levels (MFLs)
- Support Scientific Research Activities
- Planning and Assessment Activities



WDAT Water Depth Monthly Snapshots

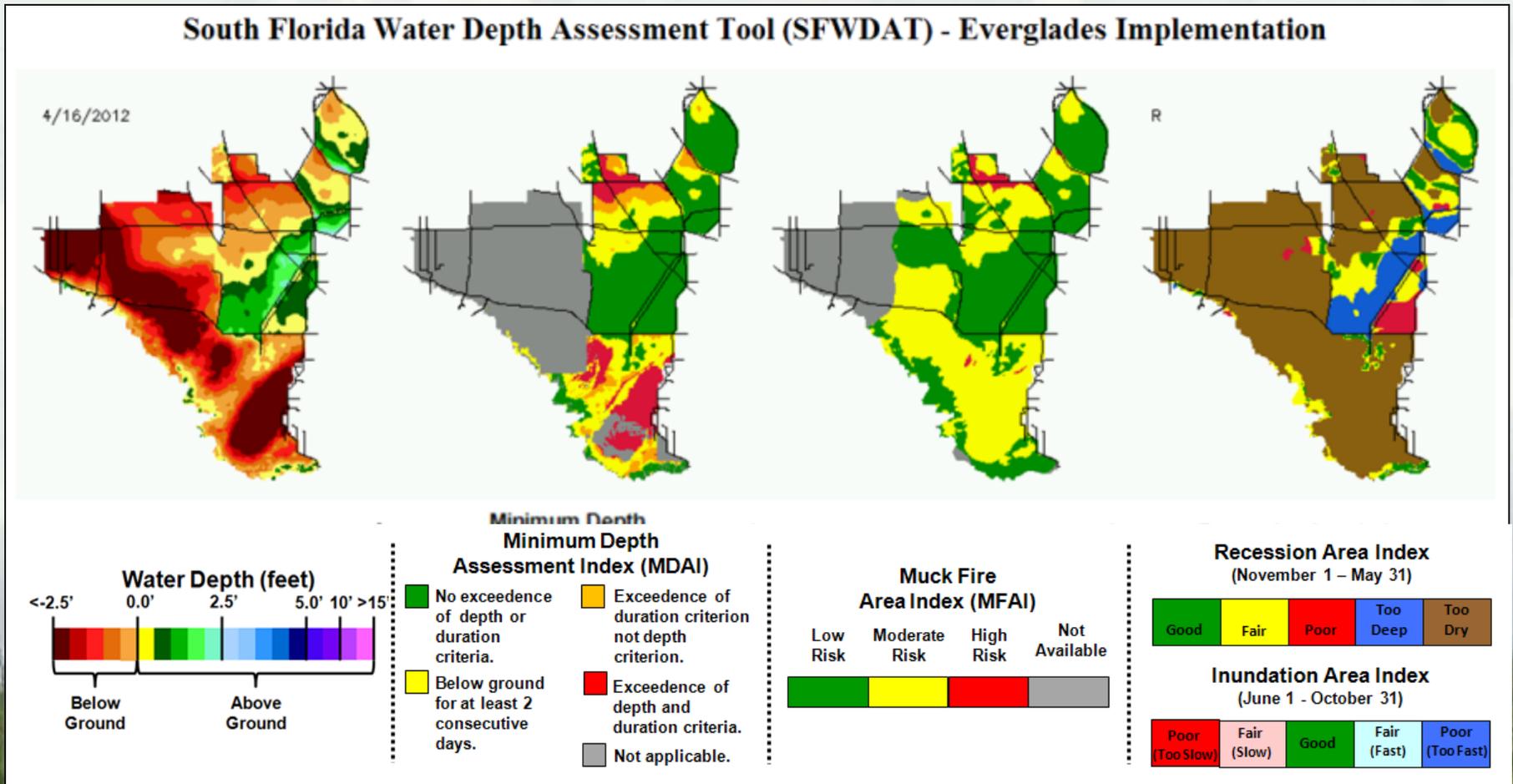


Water Depth (feet)

-2.5' 0' 2.5' 5.0'



Web Browser Animation Output

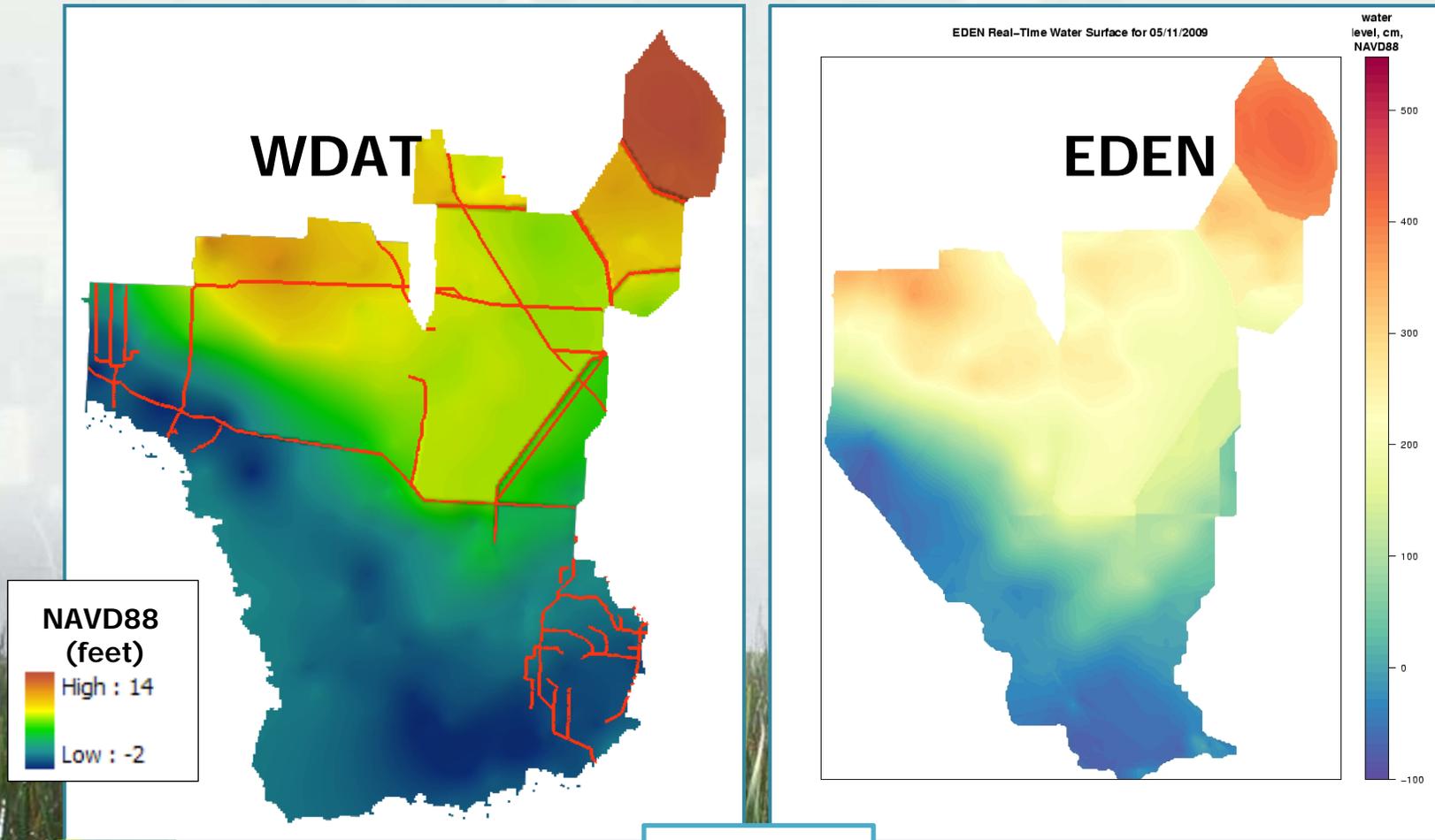


Historical through present (previous 1 year), side-by-side perspectives of water depth and the related indices.

<http://my.sfwmd.gov/KMLEXT/CUSTOMKMLS/SFWDAT/everglades/output/animations/animation365.html>



Both Provide Interpolations of Surface Water Elevation for the "RECOVER" Everglades



5/11/2009

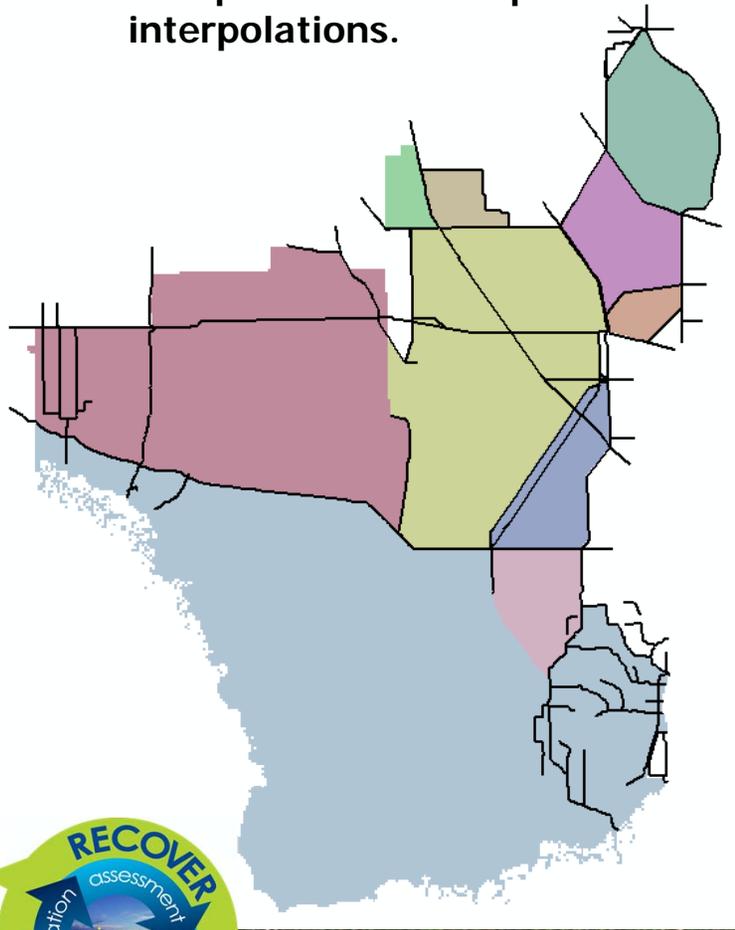


Study Area Differences

Interpolation Differences

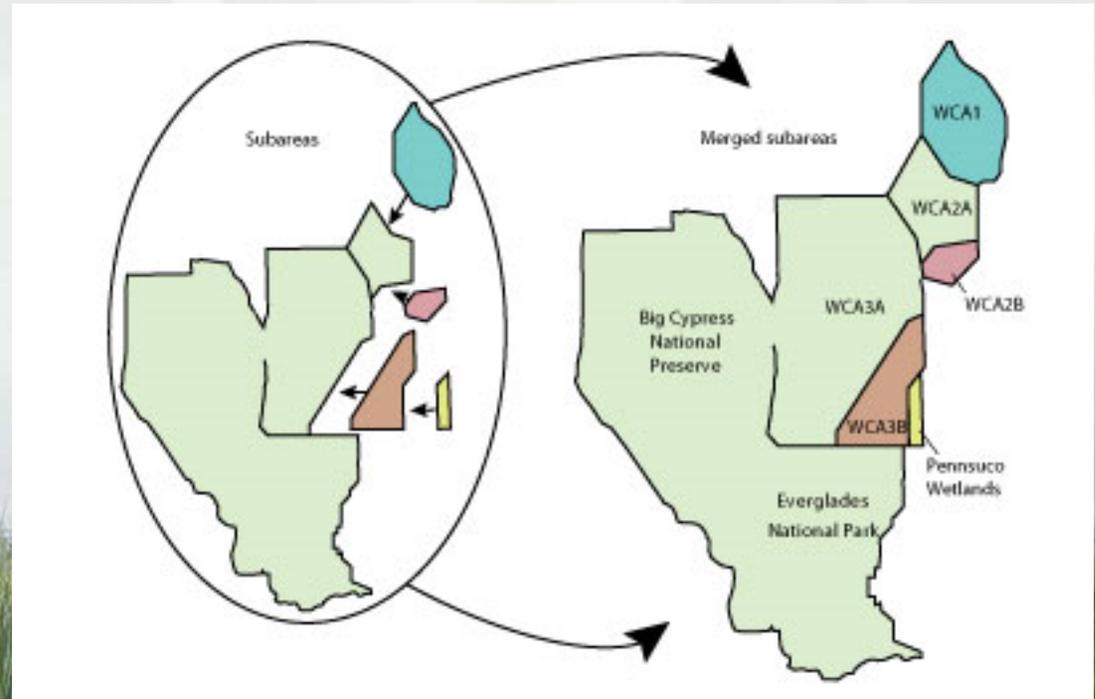
WDAT:

Zonal kriging based methodology through 10 Independent basin specific interpolations.



EDEN:

Single spline based interpolation across basins, canals, and levees.



RECOVER Path Forward



- Determine if other CERP Projects or agencies can cover the cost of gages that are essential for their use
- Develop EDEN and WDAT functional cost comparisons
- Determine if WDAT functionalities can meet the needs of the RECOVER PI's by conducting a Proof of Concept in FY15 for WDAT:
 - Have RECOVER PI's (EDEN "Super-users") evaluate WDAT functionality
 - Identify the EDEN tools needed by RECOVER PI's that would have to be recoded for WDAT input



WDAT Feasibility Study

- **December 2014 Kick-off Meeting:** Set guidelines for comparing the accuracy, precision, and utility of the WDAT and EDEN water surface elevations as it relates to MAP goals and objectives.

- **Proposal Questions:**

1. Will your research and monitoring be compromised by using WDAT data?
2. Does WDAT provide a reasonable estimate of water depths in the regions of your research?
3. How should WDAT data be provided?
4. What are the pros and cons of shifting to WDAT data?
5. Will your monitoring design, experimental approach, modeling or RECOVER contract need to be modified if it is decided to use WDAT.

- **January 2015 - Four Proposals Submitted:**

1. Joel Trexler, FIU
2. James Beerens, USGS
3. Mike Ross, FIU
4. Dale Gawlik, FAU

- **Mid-March 2015: Evaluations completed**



Next Steps

1. RECOVER scientists will examine the results of the comparison evaluation
– Mid–March 2014
2. RECOVER Executive Committee (REC) science review and cost:benefit analysis
- April 2015
3. REC will make a recommendation to the RECOVER Leadership Group regarding EDEN or WDAT
 - a. If WDAT, then implement enhancement to SFWMD program to insure functionality - Sept. 2015
 - b. If EDEN, then USGS scope modification and contract development – May/Sept. 2015
4. RECOVER recommendations to USACE and SFWMD Leadership - May 2015



Questions?



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