

Florida Department of Environmental Protection



Division of Environmental Assessment and Restoration

Basin Management Action Plan Crystal River Area Springs Coast Basin Kings Bay & Crystal River

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April 2014



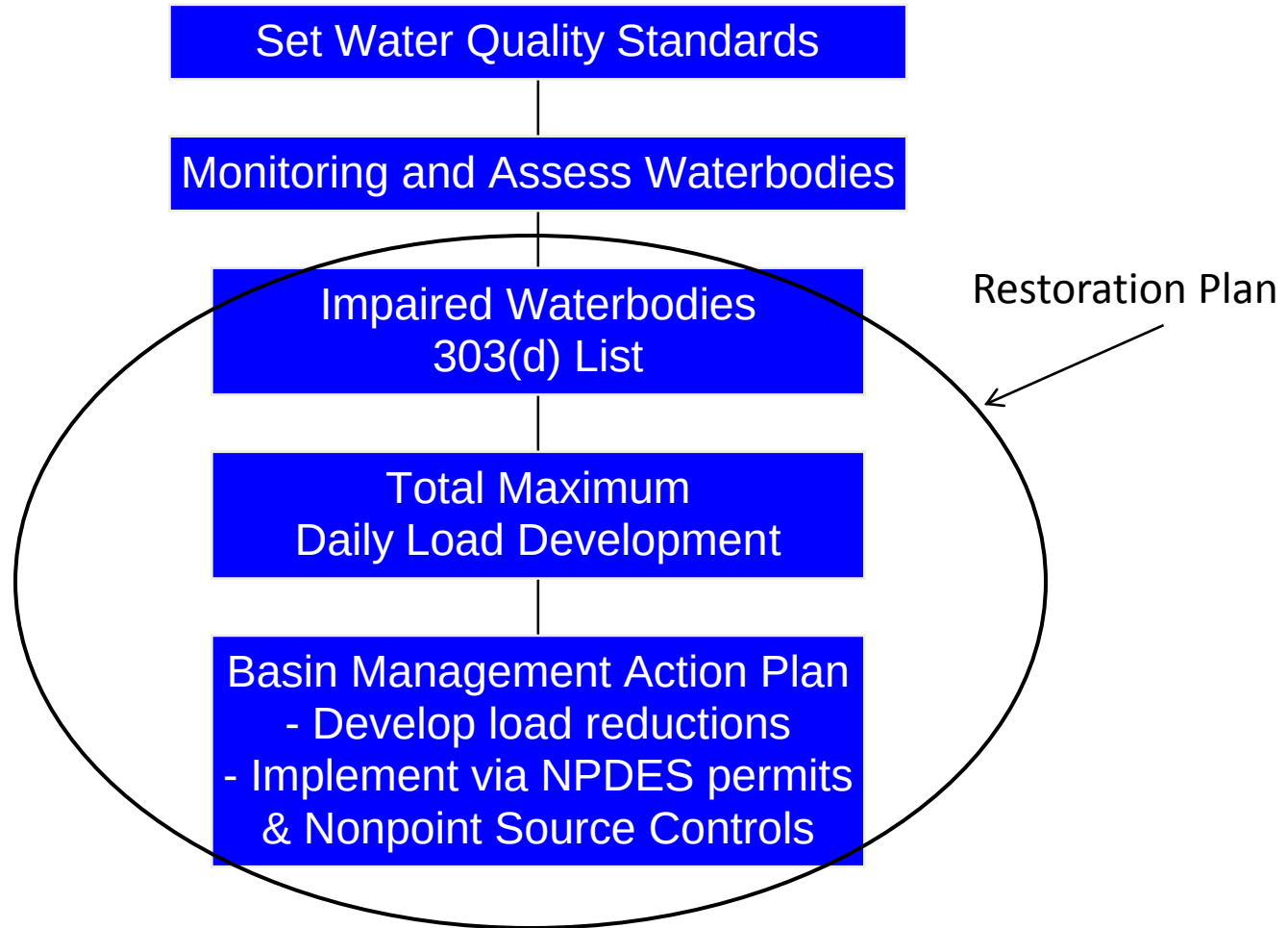


WELCOME

- Introductions
- Overview SWFWMD
- TMDL review FDEP
- Break
- BMAP process FDEP
- Questions



CWA/TMDL Process





Basin Management Action Plan

- The Department's method for restoring water quality to an impaired water body.
- BMAPs are adopted by FDEP through a Secretarial Order.
- BMAPs are enforceable.



Regulatory Framework

- The process for preparing BMAPs is found in:
 - Section 403.067, Florida Statutes (F.S.), known as the Florida Watershed Restoration Act (FWRA).
 - Spells out issues that are addressed within a BMAP.



Regional Setting for Impaired WBIDs

Entire Springs Coast is having TMDLs developed





Kings Bay BMAP

- Water Quality portion of larger more comprehensive regional restoration effort
 - SWFWMD ongoing efforts
 - Springs Coast Steering Committee
 - Local special interest groups



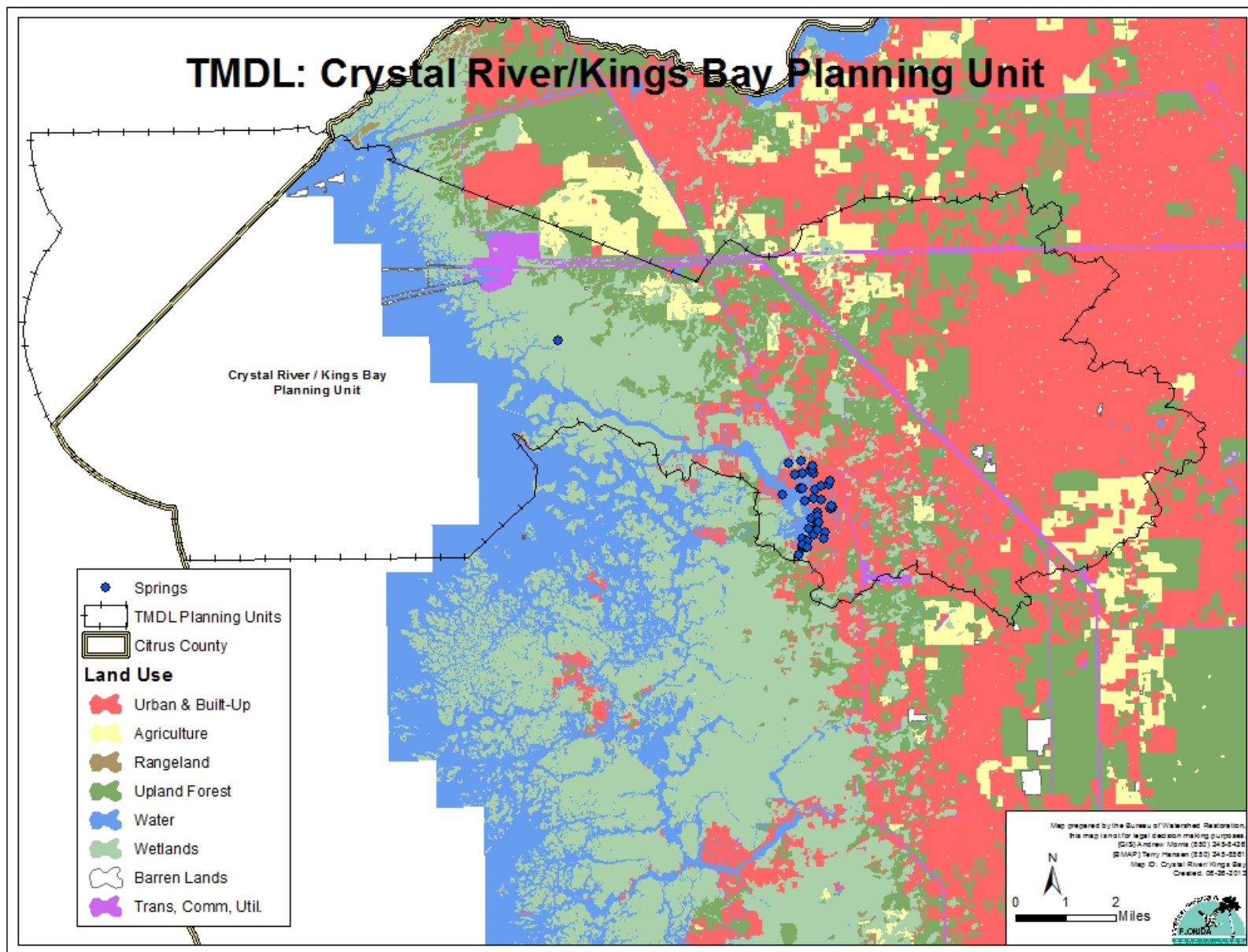
Collaborative Efforts

- Springs Coast Steering Committee Initiative
 - Management Committee & Technical Committee
 - Develop Spring system comprehensive plans
 - Why – Background, Issues/Drivers, Goals/Targets
 - What – Projects needed for system improvement
 - Who – Responsible entity/group
 - When – Project timeline
 - How much – Cost estimates
 - *Will incorporate BMAP when/as developed



BMAP Process

- The Kings Bay BMAP will be developed collaboratively with local stakeholders.
 - Through open meetings with public involvement.
 - Joint decision making with local partners.
 - Our local partners include Citrus County, Crystal River, SWFWMD, agriculture interests, environmental interests, community interests and others.

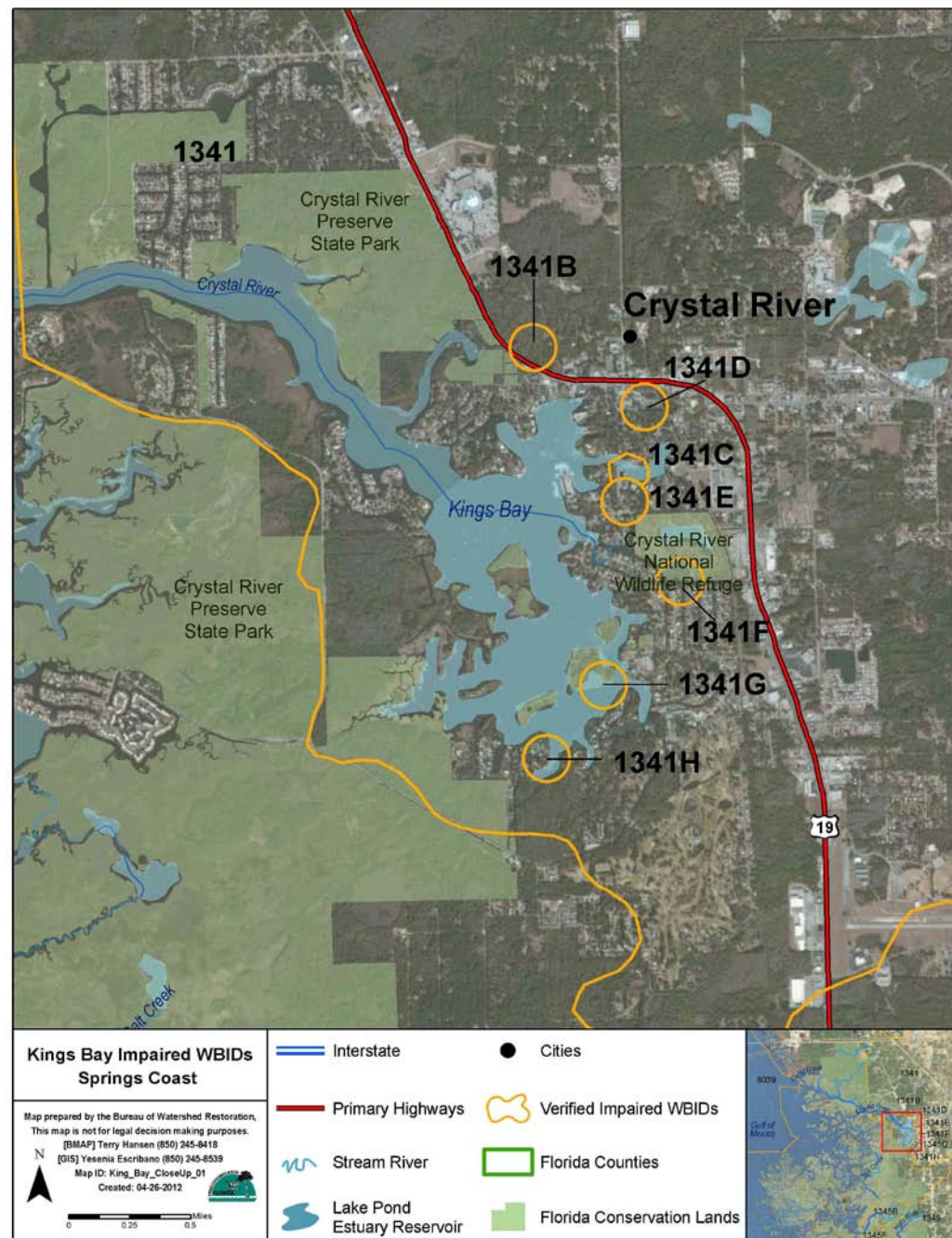




Key BMAP Components

- TMDLs being addressed.
- Defines area addressed by BMAP.
- Future growth impacts.
- Projects to meet the TMDL including:
 - Implementation timeline;
 - Commitment to project; and
 - Expected water quality improvement.

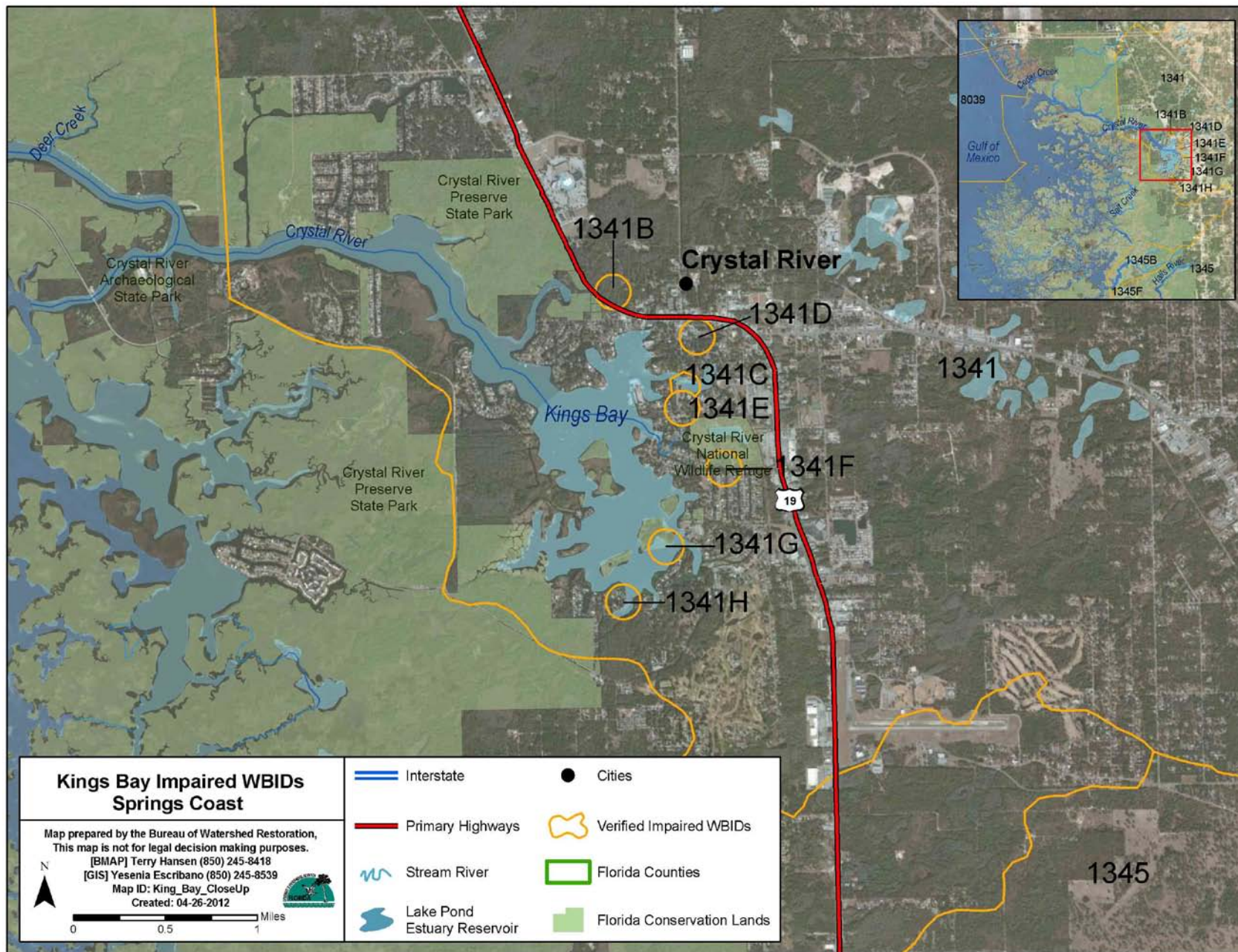
WBID	Reduction TN	Reduction P
1341	22%	14% TP
1341C	64%	0% orthoP
1341D	53%	0% orthoP
1341F	26%	7 % orthoP
1341G	21%	10% orthoP
1341H	26%	0% orthoP





Key BMAP Components (cont)

- Process to assess progress towards achieving the TMDL, and includes:
 - Monitoring plan;
 - Project reporting; and
 - Periodic follow-up meetings.





Ongoing Projects

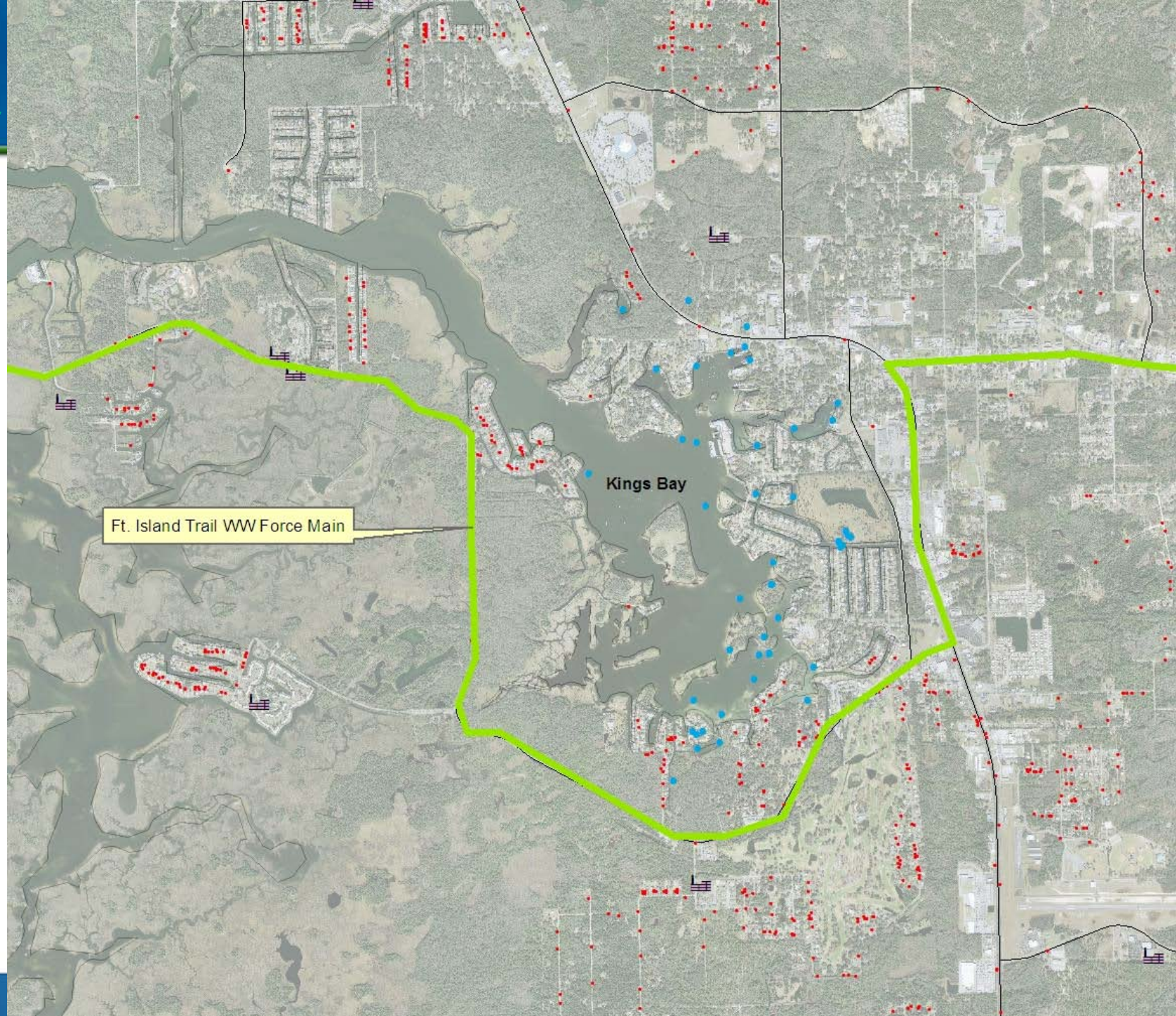
SWFWMD projects in the Crystal River area.

- ❖ Three Sisters Wetland Treatment Project
- ❖ City of Crystal River to Progress Energy Reclaimed water Project
- ❖ Hunter Springs Water Quality Stormwater Improvement Project
- ❖ PROPOSED Kings Bay Stormwater Project Phase 1



Springs Initiative Funding

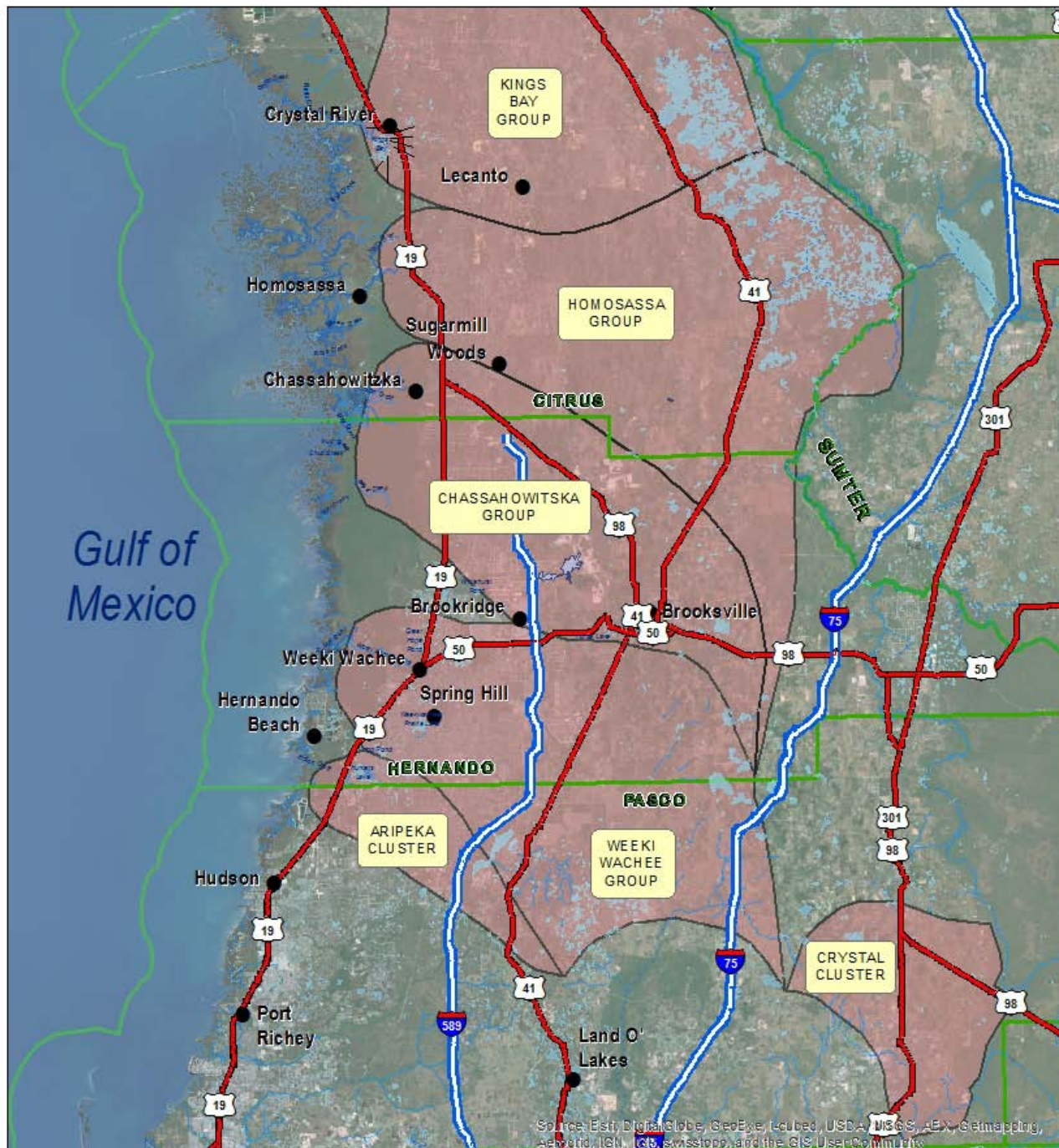
- Hunters Cove Living Shoreline Project \$500,000
- Reclaimed Water Project \$500,000
 - Package plants and septic tank connections
- Implement Ag BMPs in Springs Coast Basin
 - Cost Share Initiative FARMS program





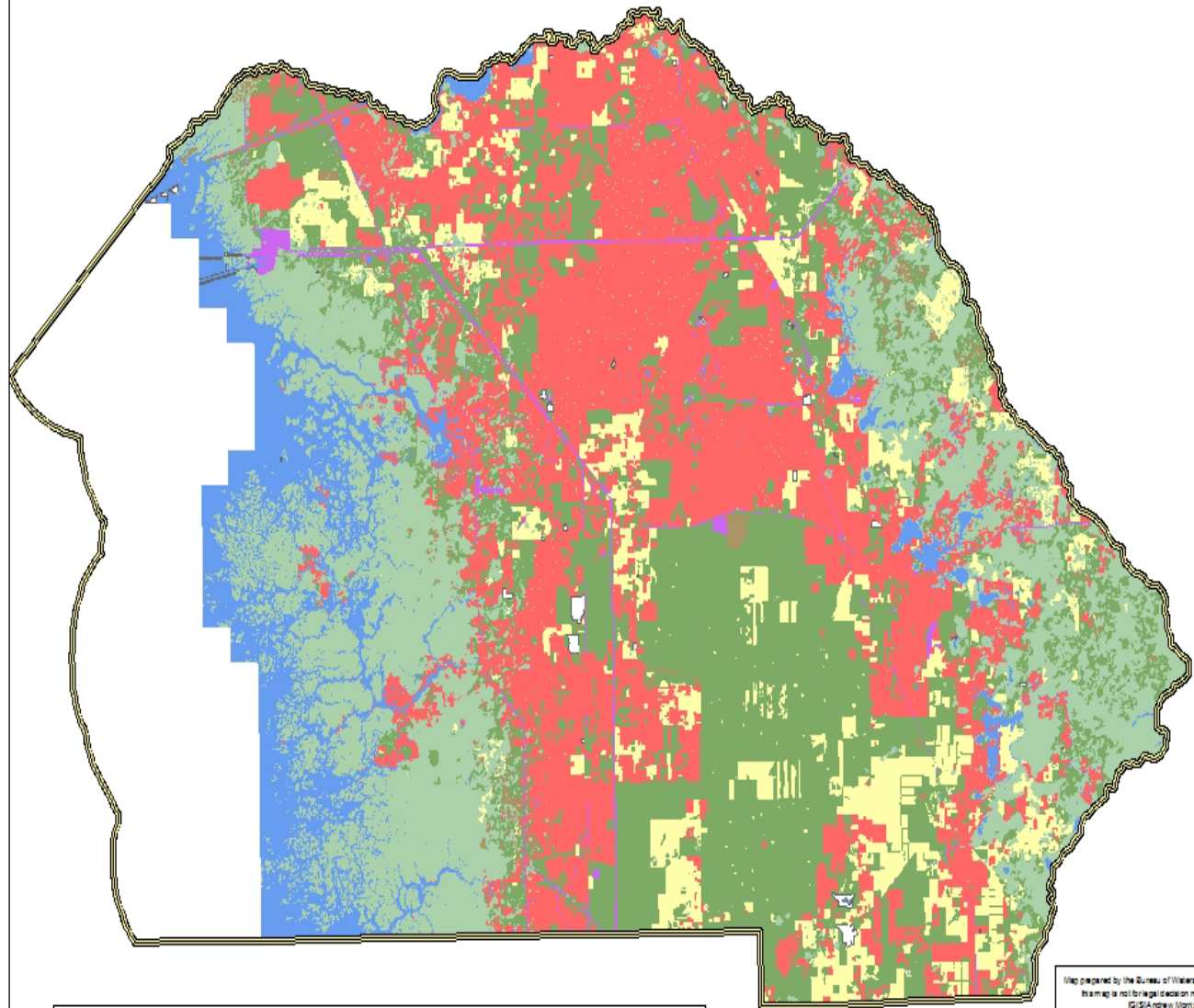
BMAP Area

- The Kings Bay BMAP area is based on springshed and contributing area for the area
- Intended to represent a logical area that takes into account current and future restoration efforts
- Boundary looks at land use, natural features & man made features





CITRUS COUNTY LAND USE



Urban & Built-Up	Rangeland	Water	Barren Lands
Agriculture	Upland Forest	Wetlands	Trans, Comm, Util.

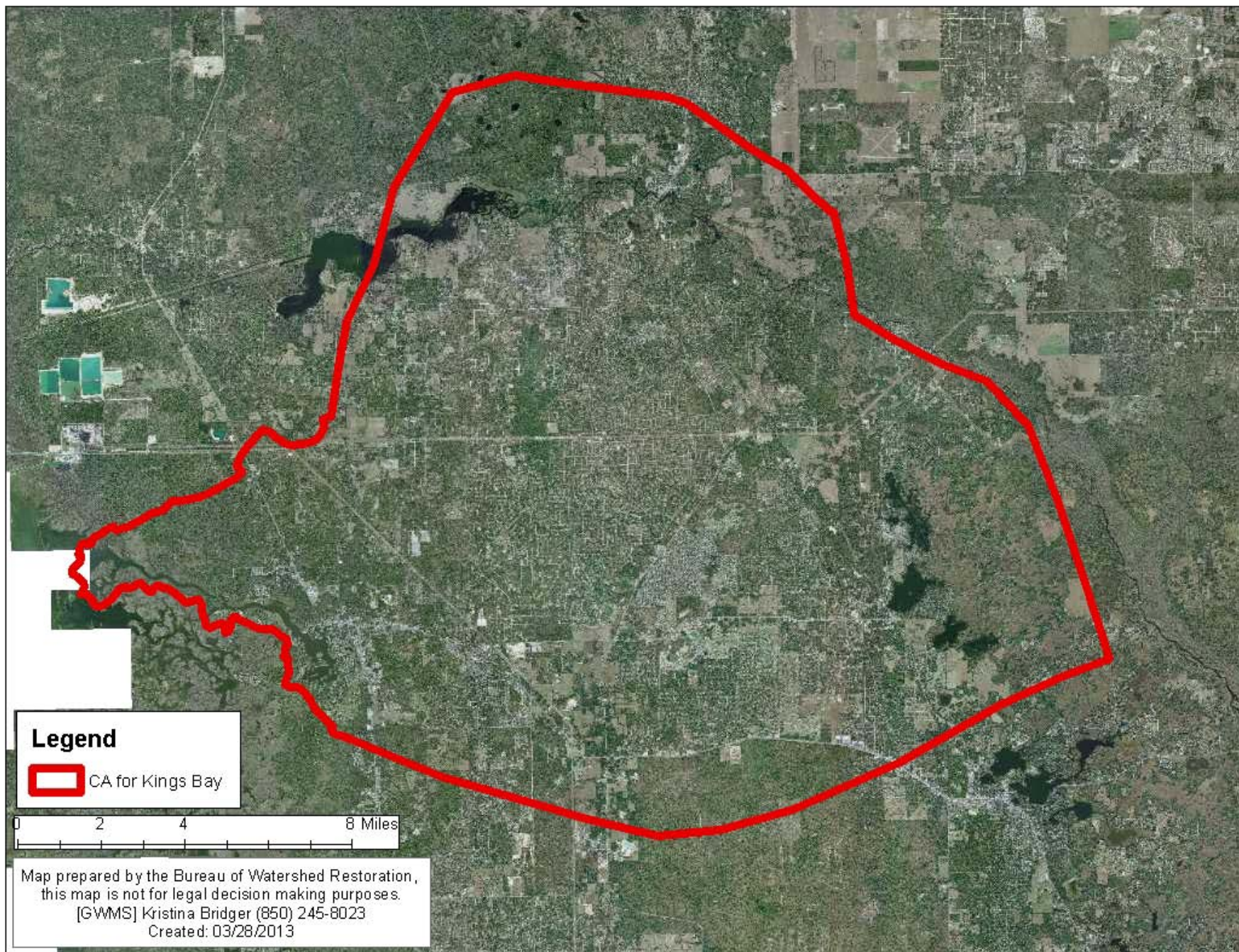
Map prepared by the Bureau of Watershed Restoration
Recreation is not for legal action on making purposes
(GIS) Andrew Morris (2012) 24-5-54-56
(GIS) Terry Hansen (2012) 24-5-54-56
Map ID: Citrus Co. Land Use
Created: 05-28-2012

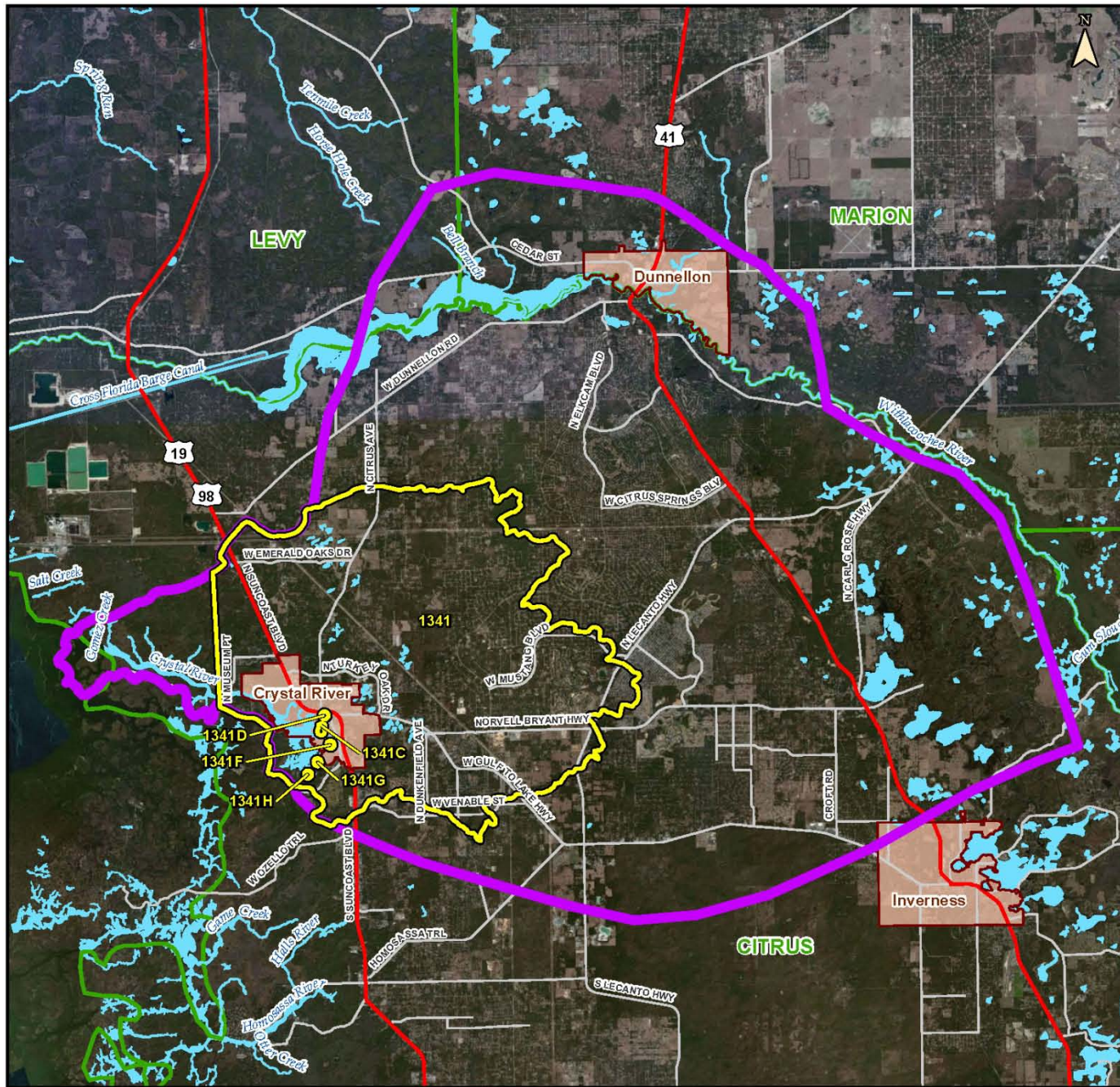
N

0 1 2 Miles

BMAP Area Land Use

- 33% residential
- 10% agricultural
- 29% forested
- 22% wetland and marsh
- 3% waterbodies

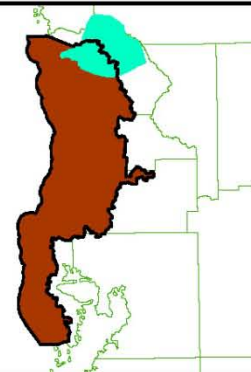




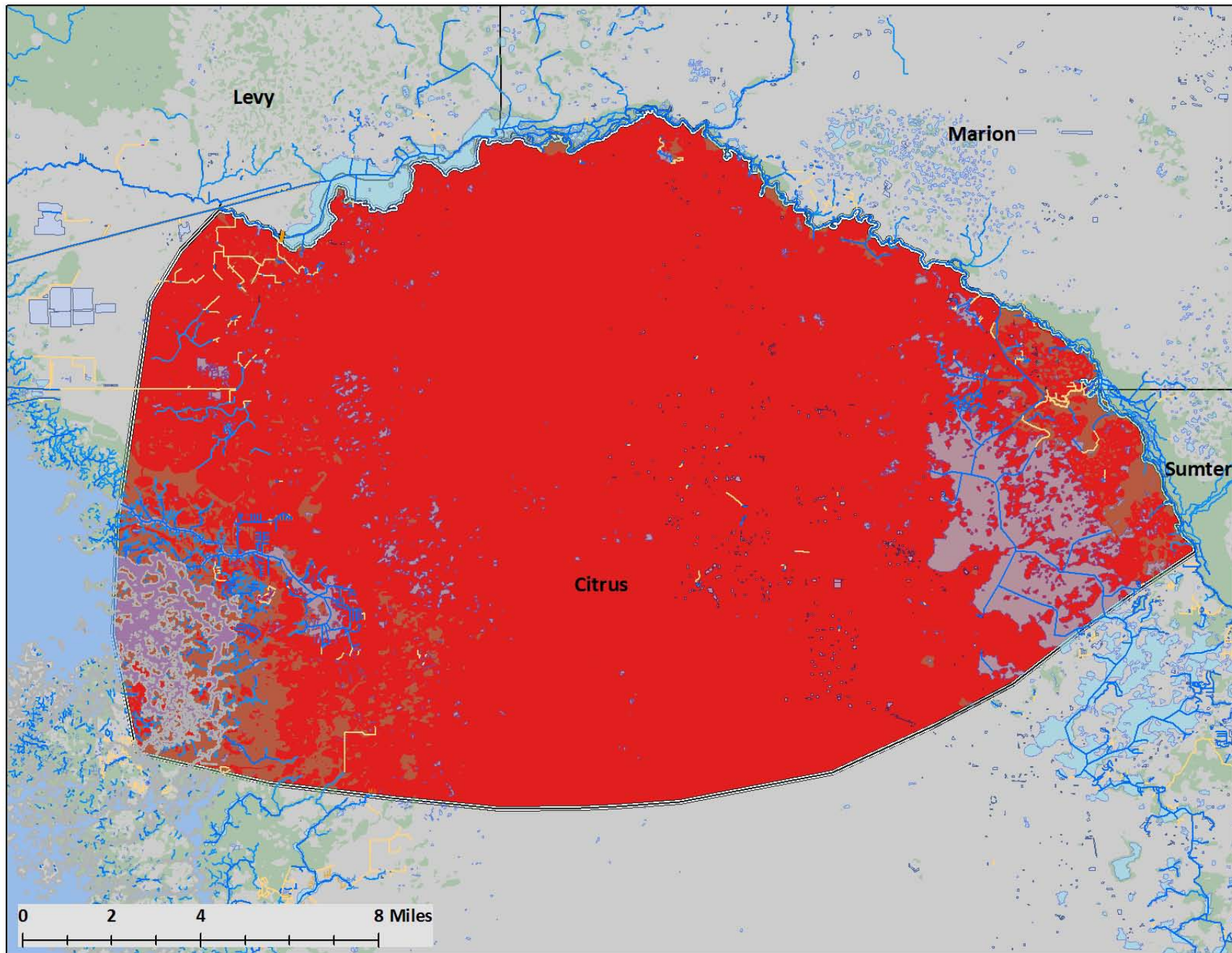
Kings Bay and Springs Contributing Area with WBIDs

Springs Coast Group 5 Basin
Geopolitical

- Rivers and Larger Streams
- US Routes
- Local Roads
- Water Bodies
- Kings Bay and Springs
- Contributing Area
- City Limits
- Counties



Map prepared April 6, 2011 by the Bureau of Watershed Restoration,
Division of Environmental Assessment and Restoration. This map is not for legal
decision making purposes. For more information or copies,
contact Kristina Bridger at (850) 245-9022, or kristina.bridger@dep.state.fl.us
(GIS): ronald.hughes@dep.state.fl.us



Sources of Nitrogen in BMAP area

➤ **Atmospheric Deposition**



➤ **Fertilizers (cropland, pasture, turfgrass)**



➤ **Land application of treated wastewater/ biosolids**



➤ **Septic Tanks**



➤ **Animal wastes**



➤ **Stormwater runoff**



Estimating Nitrogen Loads to Ground Water

A multi-step process:

1. Estimate the inputs of nitrogen to the land surface from the source inventory information **(a work in progress)**.
2. Apply attenuation factors based on the various environmental processes that could transform the various forms of nitrogen in the subsurface (such as denitrification, nitrification of ammonia, uptake by vegetation, mineralization of organic nitrogen).
3. Apply an areal weighting factor that is based on the rate of recharge to ground water to get nitrogen loads to ground water.
4. Account for proximity of N source to spring. Fine-tune estimates after getting feedback from stakeholders.





Schedule

- TMDL Adopted –
- Intergovernmental briefings
 - CCBOCC meeting April
 - City of Crystal River Workshop April
- Local Stakeholders meetings
 - April 2014 – Intro to BMAP Process
 - Late May 2014 - Nutrient Source Inventory & Legacy Loads
 - June 2014 – Nutrient Reduction Strategies BMPs & Structural
 - Late July 2014 – Project Collection Process



Questions?

- Be sure to add your name and email to sign in sheet.
- Please send me Interest Group Contacts
- Spread the word to other interested individuals
- Weeki Wachee BMAP process will begin in May
- Presentations posted at:
[http://publicfiles.dep.state.fl.us/DEAR/BMAP/Springs Coast/BMAPs/CR_KB_BMAP/](http://publicfiles.dep.state.fl.us/DEAR/BMAP/Springs%20Coast/BMAPs/CR_KB_BMAP/) (MONTH of meeting)



Basin Management Action Plan

BMAP

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SWFWMD

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TMDLs & Springs

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<http://www.dep.state.fl.us/water/>
www.WaterMatters.org/springs