

# Minimum Flows and Levels Prevention/Recovery Strategy Development Public Meeting, May 17, 2011

## AGENDA

- Welcome and opening remarks
- Minimum flows and levels (MFLs) basics
- MFL prevention/recovery strategy goals
- MFLs prevention/recovery strategy Development approach
- Next steps
- Public input
- Closing remarks
- Adjourn

# **Minimum Flows and Levels Prevention/Recovery Strategy Development**

## **Northern Planning Area**

**Tom Bartol, P.E.**

**Division of Water Supply Management  
St. Johns River Water Management District**

# Discussion Topics

- What are MFLs?
- Why are MFLs developed?
- How are MFLs established?
- Where have MFLs been adopted?
- How are MFLs evaluated?
- How are MFLs implemented?
- What is an MFL prevention/recovery strategy?
- What are the next steps?

# Overall Process

## Outcome

- Develop a collaborative strategy or set of strategies to ensure flows and levels will meet adopted MFLs
- Prepare a prevention/recovery strategy document and present to the Governing Board for consideration

# Overall Process

Why?

- Need to ensure environmental values of water related resources are protected, while providing sufficient water supplies for existing and future uses

# Overall Process

## How?

- Education to understand MFLs, water bodies, resource issues and resource constraints
- Input, collaboration and consensus among and between stakeholders and the District
- Development and evaluation of prevention/recovery measures that can be implemented and will resolve resource issues

# What Are MFLs?



Limit beyond which further withdrawals would be significantly harmful to the water resources or the ecology of the area



Subsection 373.042(1), *Florida Statutes*

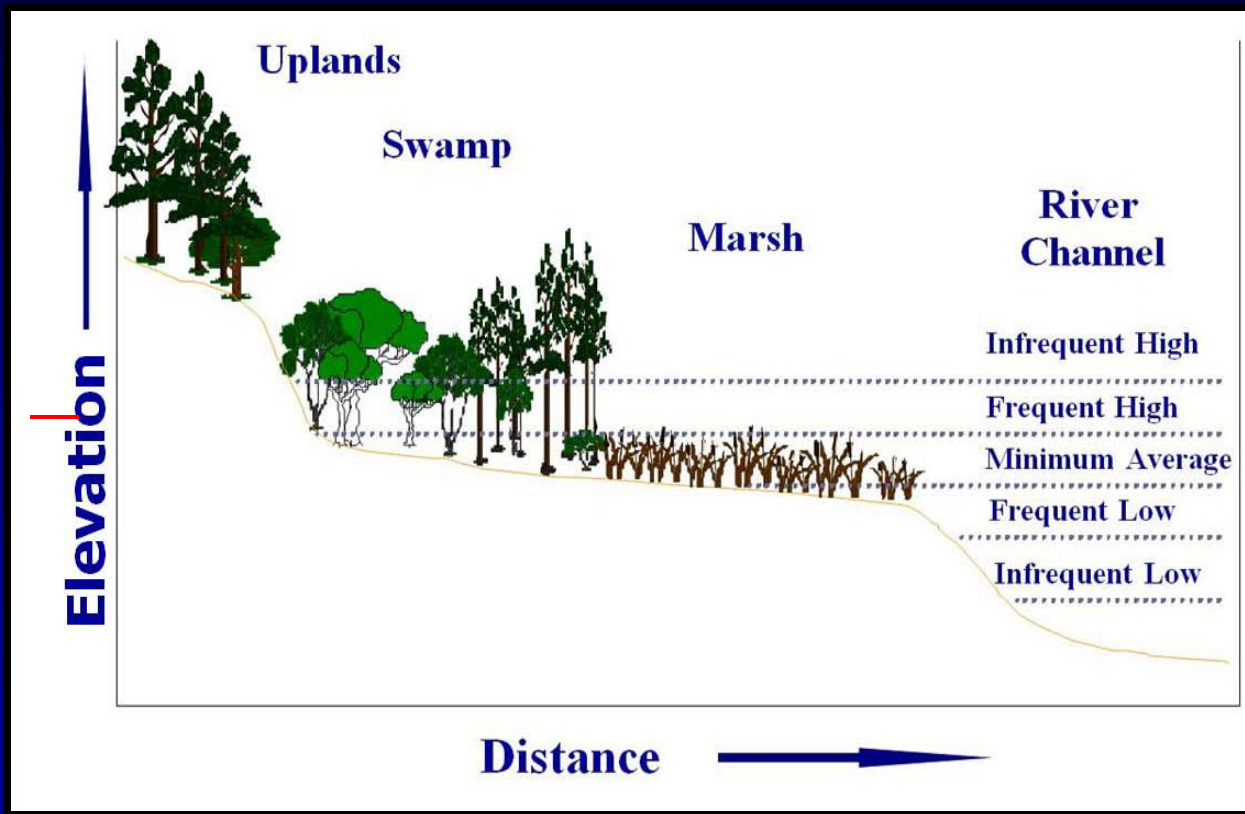
# Why Are MFLs Developed?

- Statutes and rules require MFL development and implementation through water supply planning and consumptive use permitting
  - Florida Water Resources Act of 1972 (373.042, *Florida Statutes*)
  - Water Resources Implementation Rule (62-40.473, *Florida Administrative Code*)
  - State Comprehensive Plan (187.201(7)6, *Florida Statutes*)

# How Are MFLs Established?

- Identification of “water resource values”
- Field work
- Statistical analyses to calculate flows/levels that protect resource values
- Independent peer review
- Public workshops
- Rule adoption

# How Are MFLs Established?



Aquatic and wetland systems need regular cycles of flooding and drying to maintain their structure and function.

Multiple MFLs are needed to protect these systems.

# How Are MFLs Established?

- A water body usually has more than one MFL
- Each MFL is more than just one number
  - How much water? (level or flow)
  - For how long? (duration)
  - How often? (return interval)

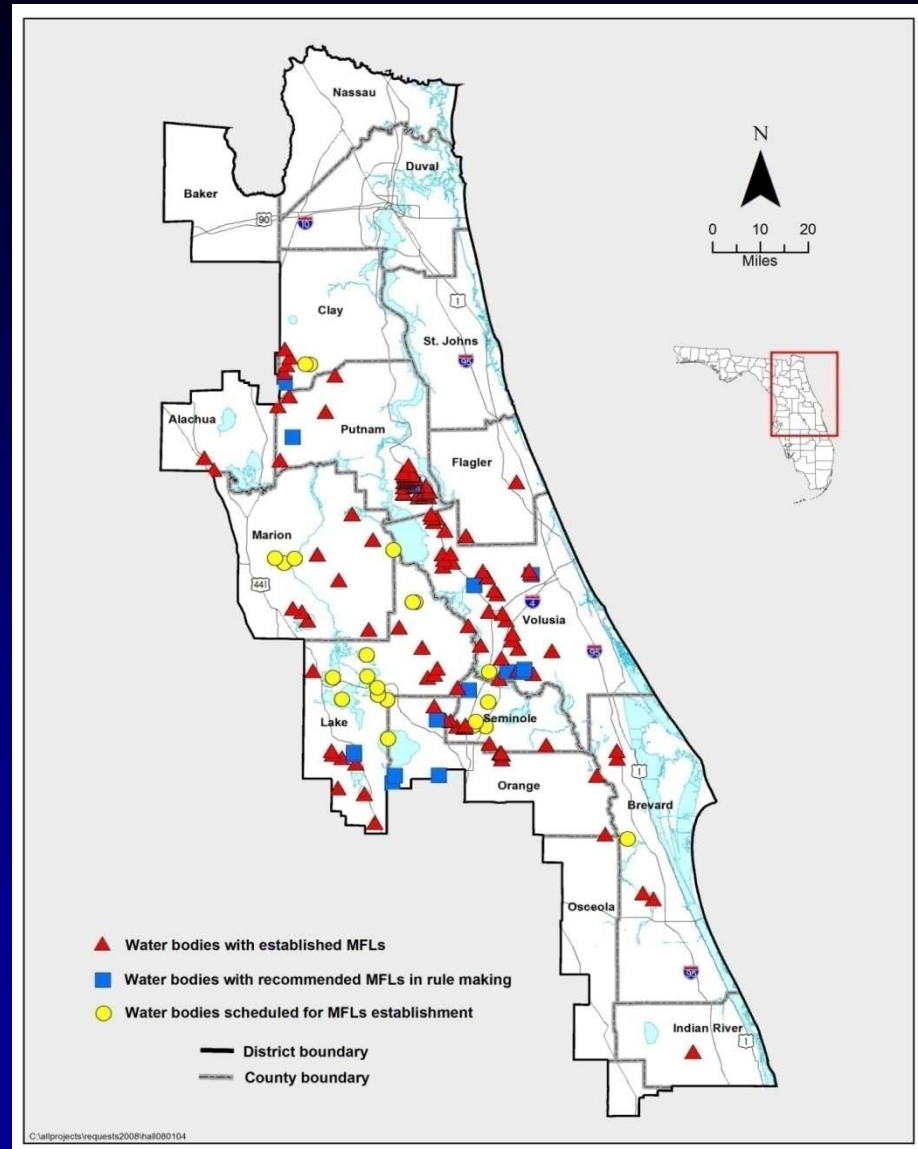
MFL Type	Resource Value	Level (ft)	Duration (days)	Return Interval (years)
Frequent High	Presence and health of wetland vegetation	2.8	30	2
Minimum Average	Saturation of organic soils	1.2	180	1.5
Frequent Low	Fish passage	0.5	120	5

# How Are MFLs Established?

- MFL determination goals – maintain durations and return intervals of selected, ecologically-based stages/flows
- Statistical analysis of model output provides a framework to summarize hydrologic characteristics of a water body
- Rely on a type of statistical analysis referred to as frequency analysis
- Frequency analysis estimates probability of hydrologic event happening in any given year

# Adopted MFLs

MFLs Systems	Number Adopted
Lakes	101
Wetlands	7
Springs	9
Rivers	6
Totals	123



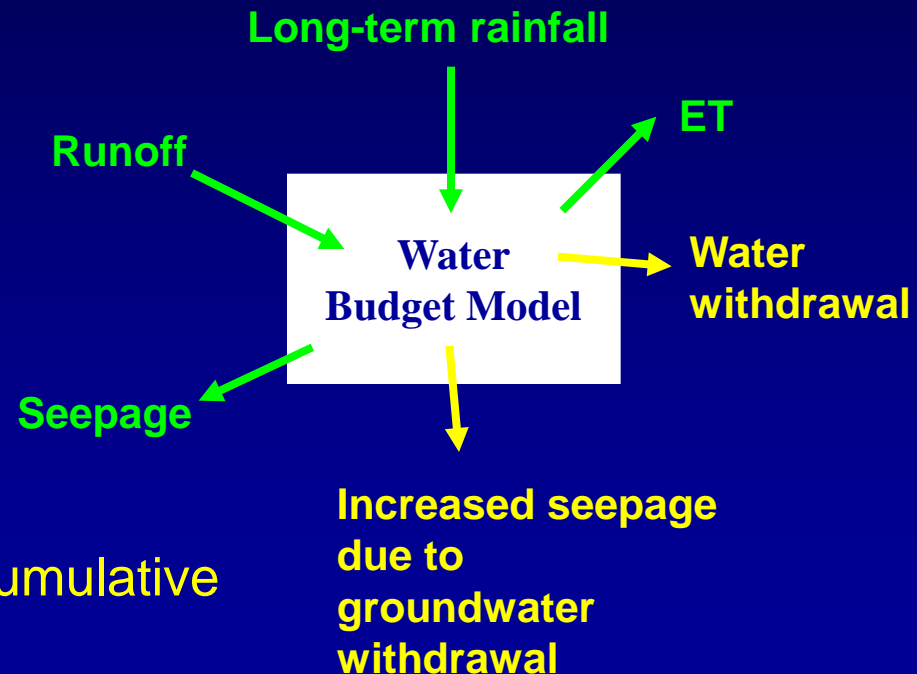
# Models of MFL Lakes

- Hydrologic models of MFL lakes are used to evaluate how much groundwater levels could decline but still allow lake levels to meet the MFLs
  - Surface water budget model
  - Groundwater flow model

# MFL Hydrologic Models

- Utilize water budget models for cumulative consumptive uses

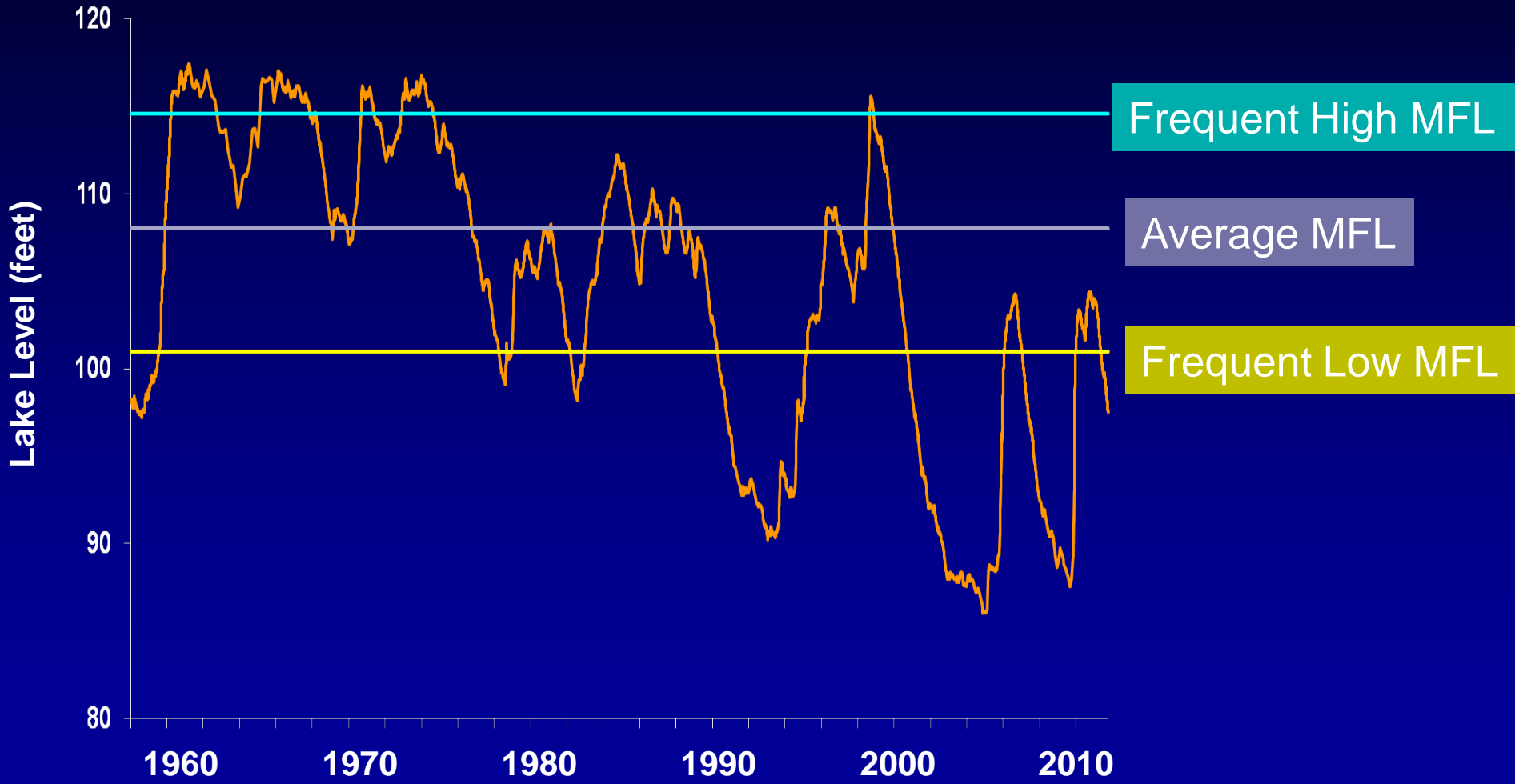
- Calibrate model using existing hydrologic records
- Use model to generate long-term water level record
- Include new water uses in model to generate a new long-term water level record
- Compare results to determine if cumulative uses protect all MFLs?



# How Are MFLs Evaluated?

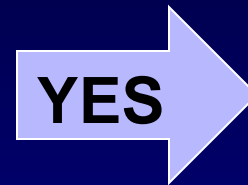
- Period of record analysis
- Regional groundwater flow models predict changes in aquifer with 2030 water demand
- Use predicted drawdown at MFLs water body with surface water budget model
- Calculate water level of lake to determine whether lake is in recovery, prevention, or neither

# Lake Stage Hydrograph Example

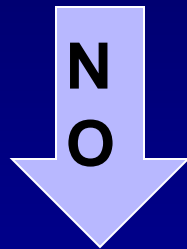


# Possible Outcomes Of MFL Evaluation

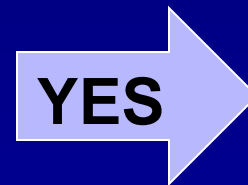
Are MFLs met under  
2030 water  
demands?



No action needed



Are MFLs met under  
current conditions?



Prevention  
strategy



Recovery  
strategy

# **MFL Prevention and Recovery Strategy Approach**

**Jennifer Gihring  
Division of Water Supply Management  
St. Johns River Water Management  
District**

# What is an MFL Prevention and Recovery Strategy?

**Next step in the District Water  
Supply Planning process**

***Determine how we can meet future  
water supply needs and MFLs***

# **What is an MFL Prevention and Recovery Strategy**

**A suite of feasible projects and measures that satisfy all reasonable water use demands and maintain sufficient groundwater levels to meet MFLs by 2030.**

# Statutory Requirements Prevention/Recovery **373.0421(2), Florida Statutes**

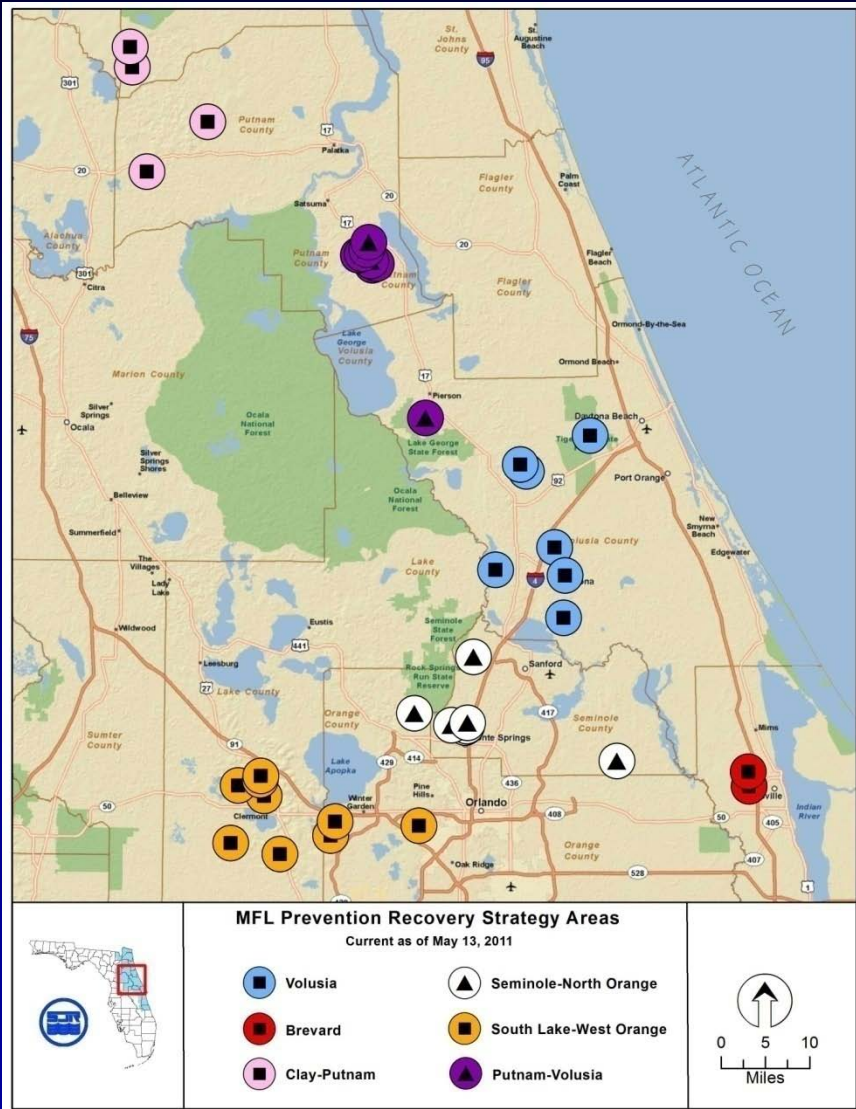
- If a flow or level is projected to fall below MFL within 20 years:
  - Expeditiously implement a prevention strategy
- If flow or level is currently below MFL:
  - Expeditiously implement a strategy to achieve recovery to established MFLs as soon as practicable

# Strategy Components

**373.0421(2), *Florida Statutes***

- Strategy shall include:
  - Phasing or a timetable for all existing and projected reasonable-beneficial water uses
  - Development of additional water supplies
  - Implementation of conservation and other efficiency measures to offset reductions in permitted withdrawals

# MFL Prevention/Recovery Strategy Development



37 MFL prevention and recovery water bodies grouped into 6 MFL Prevention and Recovery Strategy Development Areas

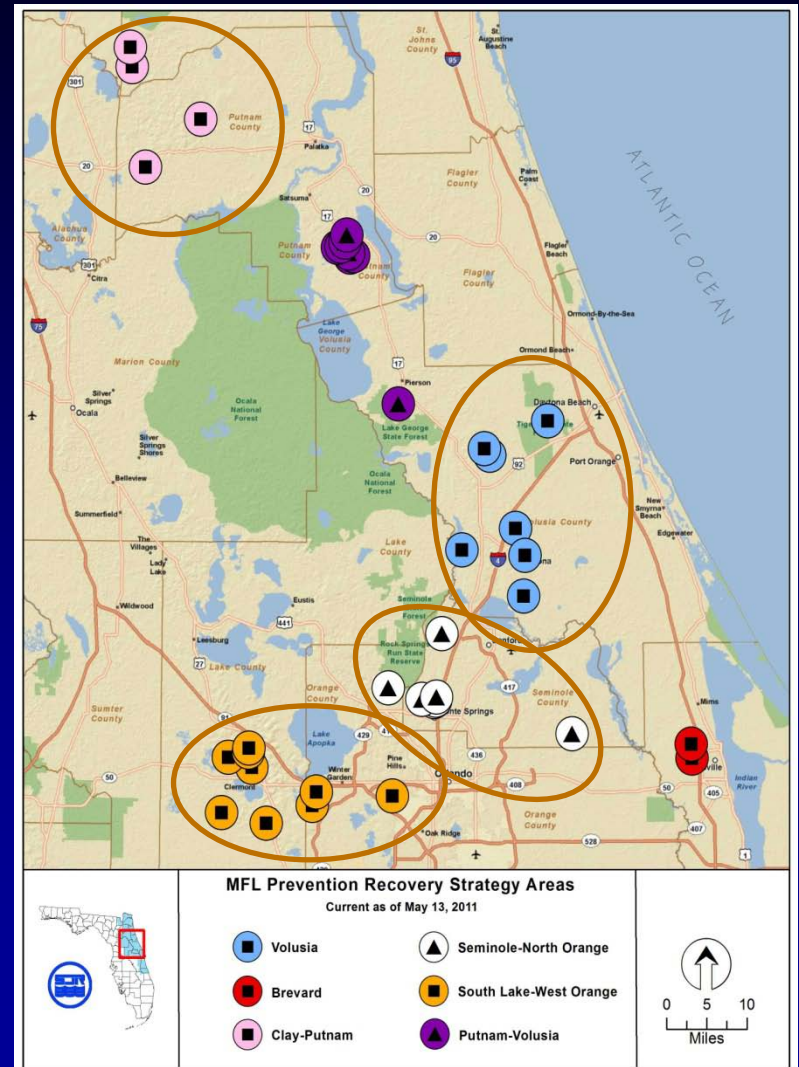
# MFL Prevention/Recovery Strategy Considerations

- Long-term comprehensive solutions are needed
- Numerous and diverse stakeholders
- Equity, flexibility, and strong stakeholder participation are keys to success

# MFL Strategy Development

## Four initial teams

- Clay – Putnam
- Seminole – North Orange
- South Lake – West Orange
- Volusia



# MFL Prevention/Recovery Strategy Approach

- Begin with:
  - District Water Supply Plan Projects
  - Current CUP Rules
  - Existing technical tools
- Technical evaluation of projects to determine beneficial effects to MFLs
- If necessary, identify additional measures to meet demands while protecting MFLs

# MFL Prevention & Recovery Strategy Team

Public water suppliers

Interested citizens

Agricultural water users

Commercial/industrial  
water users

Recreational water users

Environmental  
organizations

Other interested parties

Supported by SJRWMD staff

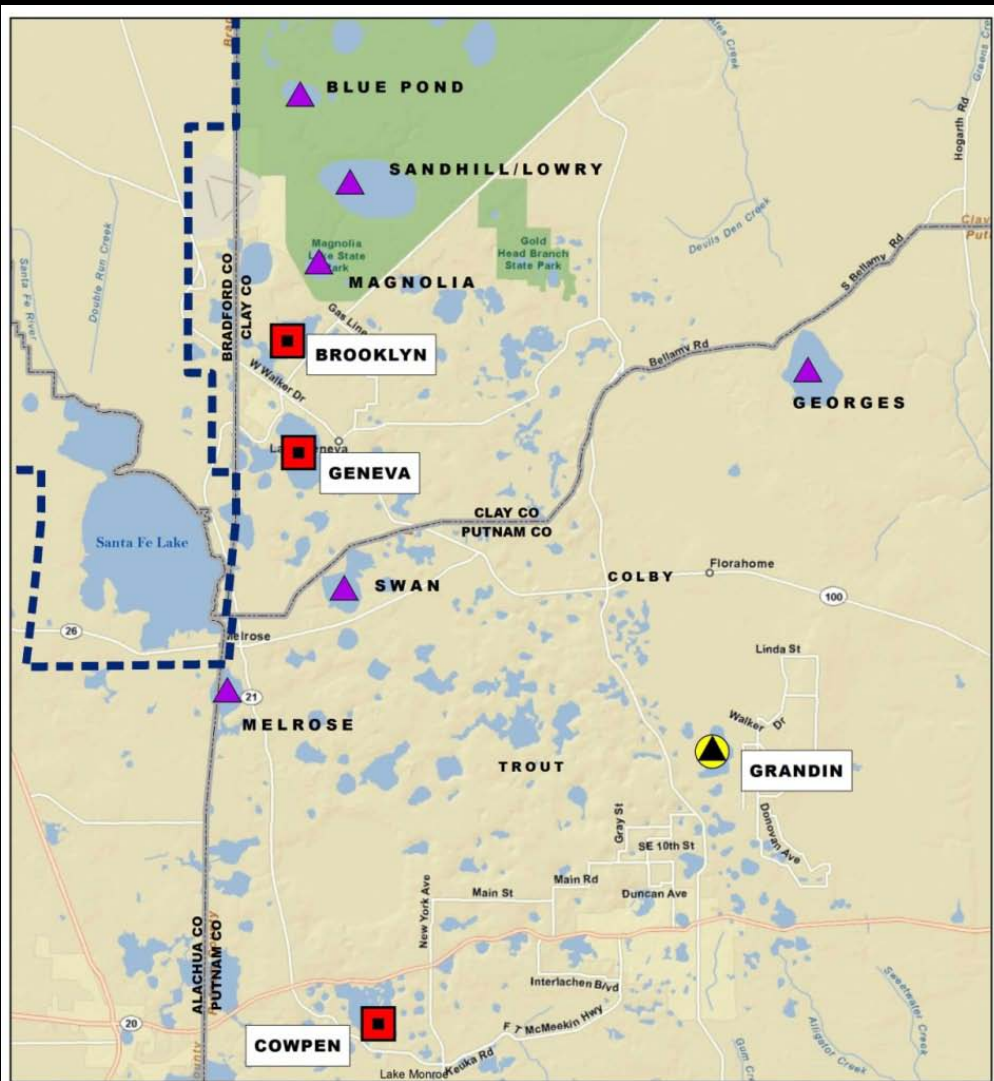
# Strategy Teams: Stakeholders

- Learn about the local and regional resource issues
- Share existing and potential projects that decrease the impact of groundwater withdrawals on MFL water bodies
- Collaboratively evaluate proposed projects
- Select those most effective and feasible to include in the strategy
- Implement projects, in cooperation with other stakeholders and the District

# Strategy Teams: District Support

- Public outreach to facilitate participation
- Initiation of strategy teams
- Information regarding affected MFL water bodies
- Evaluate proposed strategy on MFLs
- Support for strategy teams
- Assist stakeholders with implementation of strategies

# Clay-Putnam Strategy Development Area



Lake Brooklyn

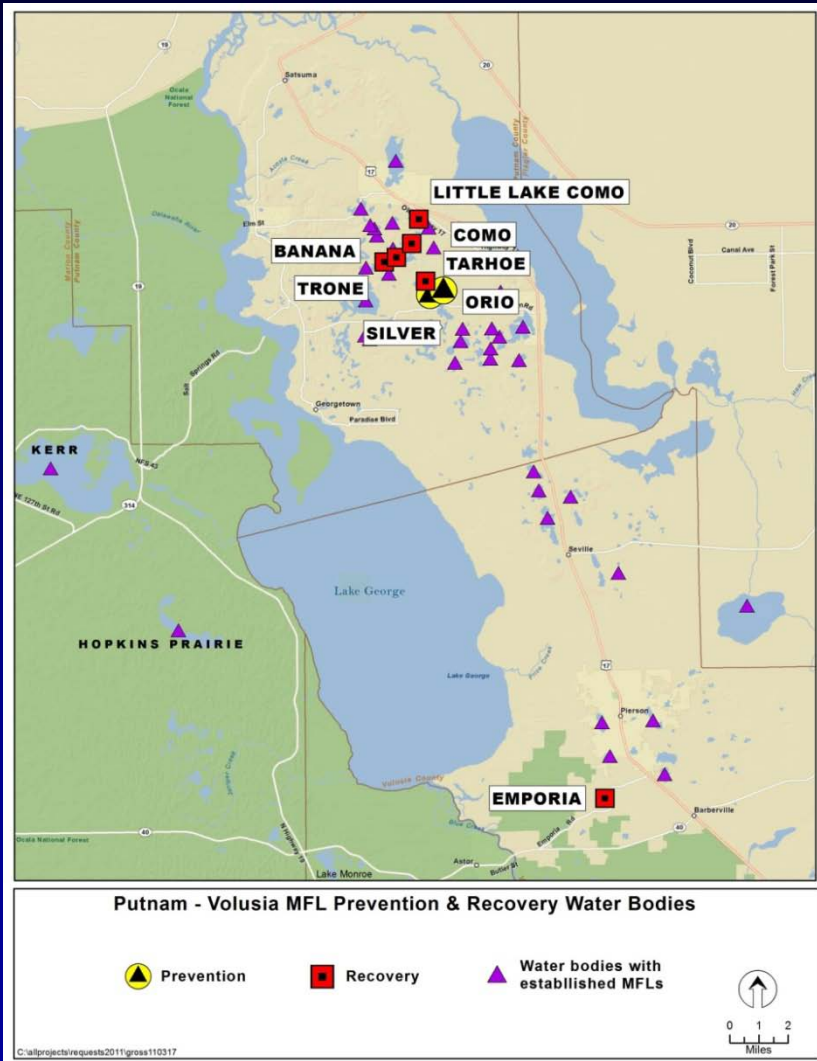
Cowpen Lake

Lake Geneva







Lake Grandin

# Putnam-Volusia Strategy Development Area

Lakes:  
Banana  
Como  
Little Como  
Emporia  
Orio  
Silver  
Tarhoe  
Trone



# MFL Prevention/Recovery Approach Timeline

Activity	2011	2012	2013	2014
Assemble Stakeholder Teams				
Education & Outreach to Enhance Understanding of Resource Issues & MFLs				
Develop, Evaluate, and Revise Measures				
Assemble Measures Into Draft Strategies				
Finalize Strategies				
Implement Strategies				

# Process Summary

- **Outcome:** Develop a Prevention/Recovery Strategy
- **Why:** Ensure environmental protection while meeting reasonable water demands
- **Principles:** Achieve MFLs through consensus of appropriate measures

# Summary

- **Establish stakeholder teams**
- **Identify strategies**
- **Outreach**
- **Evaluate strategies**
- **Strategy implementation**

# How to get involved?

- Sign up for email meeting notices at *floridaswater.com/socialmedia*
- Today's sign-in sheet
- Attend strategy area meetings
- Contact Dina Hutchens at *dhutchens@sjrwmd.com*
- Telephone: (386) 329-4239

# Future Meetings

- Clay-Putnam Area
  - Keystone Heights City Hall
  - June 23, 2011
  - 10 a.m. – noon
- Volusia Area
  - DeLand Commission Chambers
  - June 28, 2011
  - 10 a.m. – noon

# Future Meetings

- South Lake – West Orange
  - Minneola City Hall
  - July 14, 2011
  - 10 a.m. – Noon
- Seminole – North Orange
  - Sanford Commission Chambers
  - July 28, 2011
  - 10 a.m. – Noon

# Public Input

# Adjourn



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