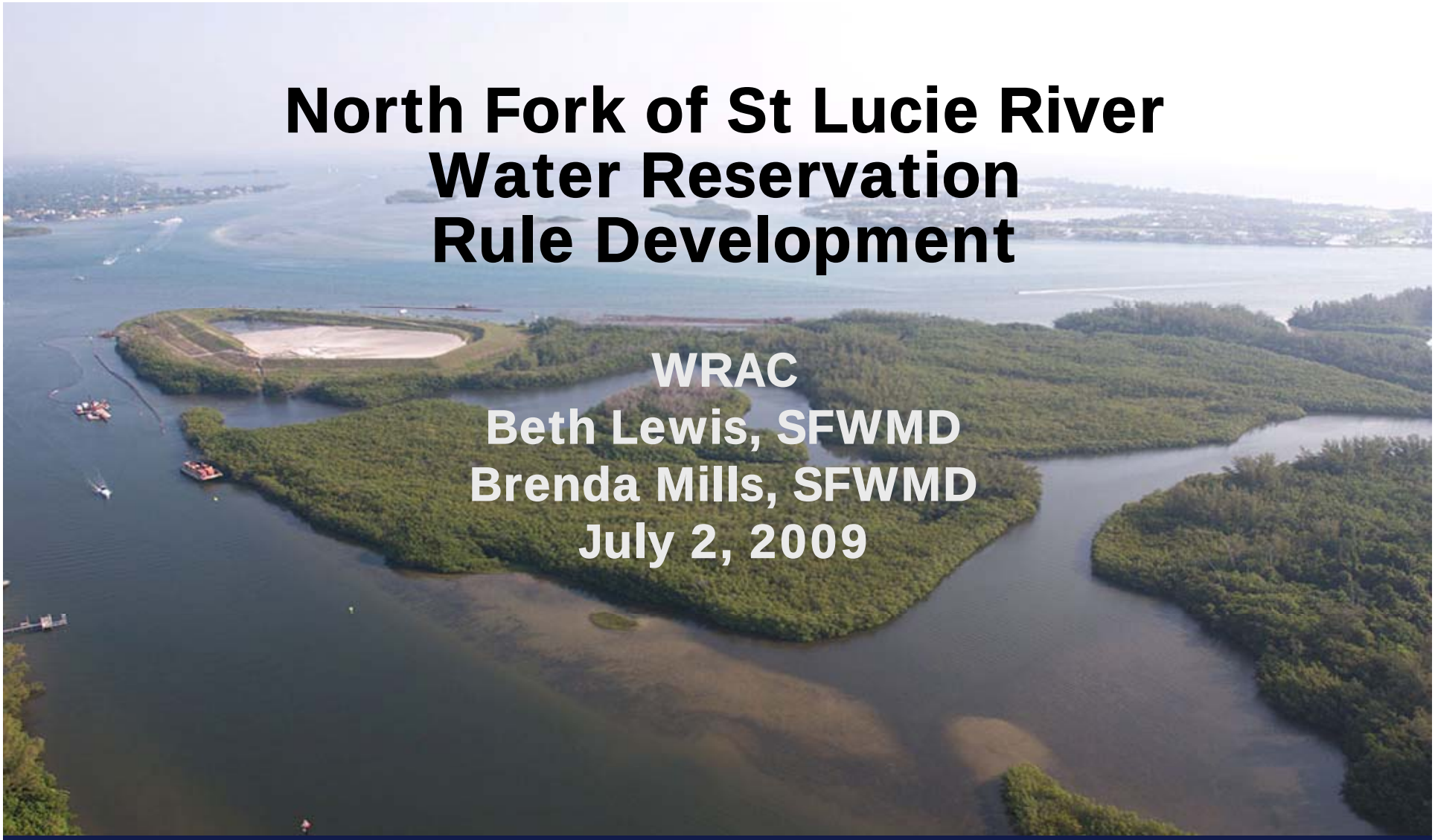

North Fork of St Lucie River Water Reservation Rule Development

WRAC

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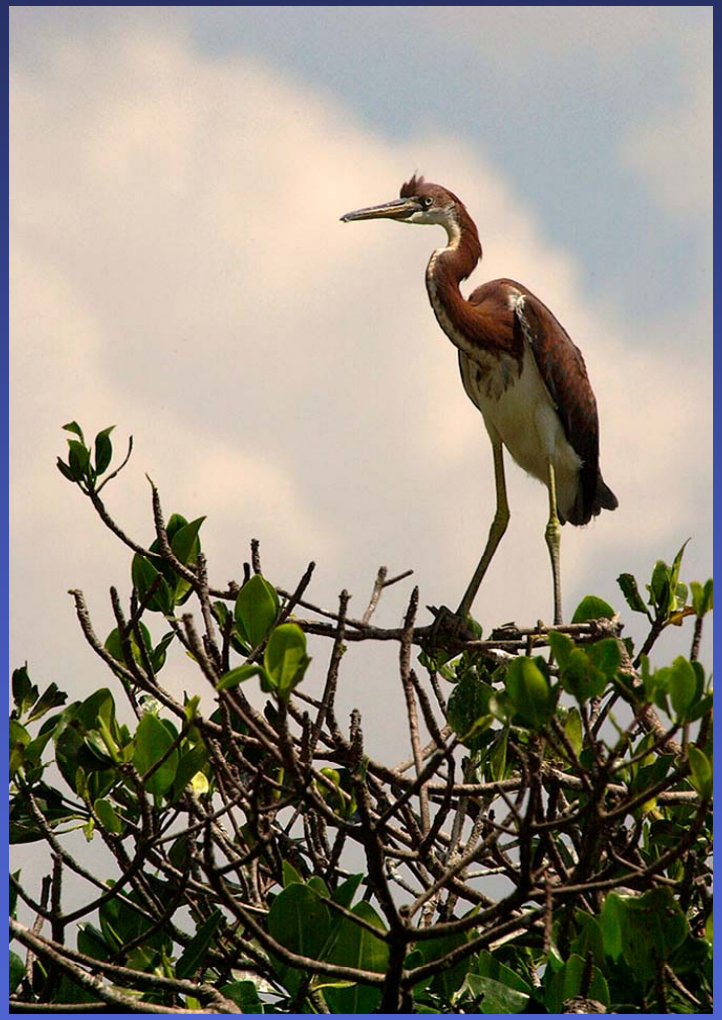
July 2, 2009

sfwmd.gov

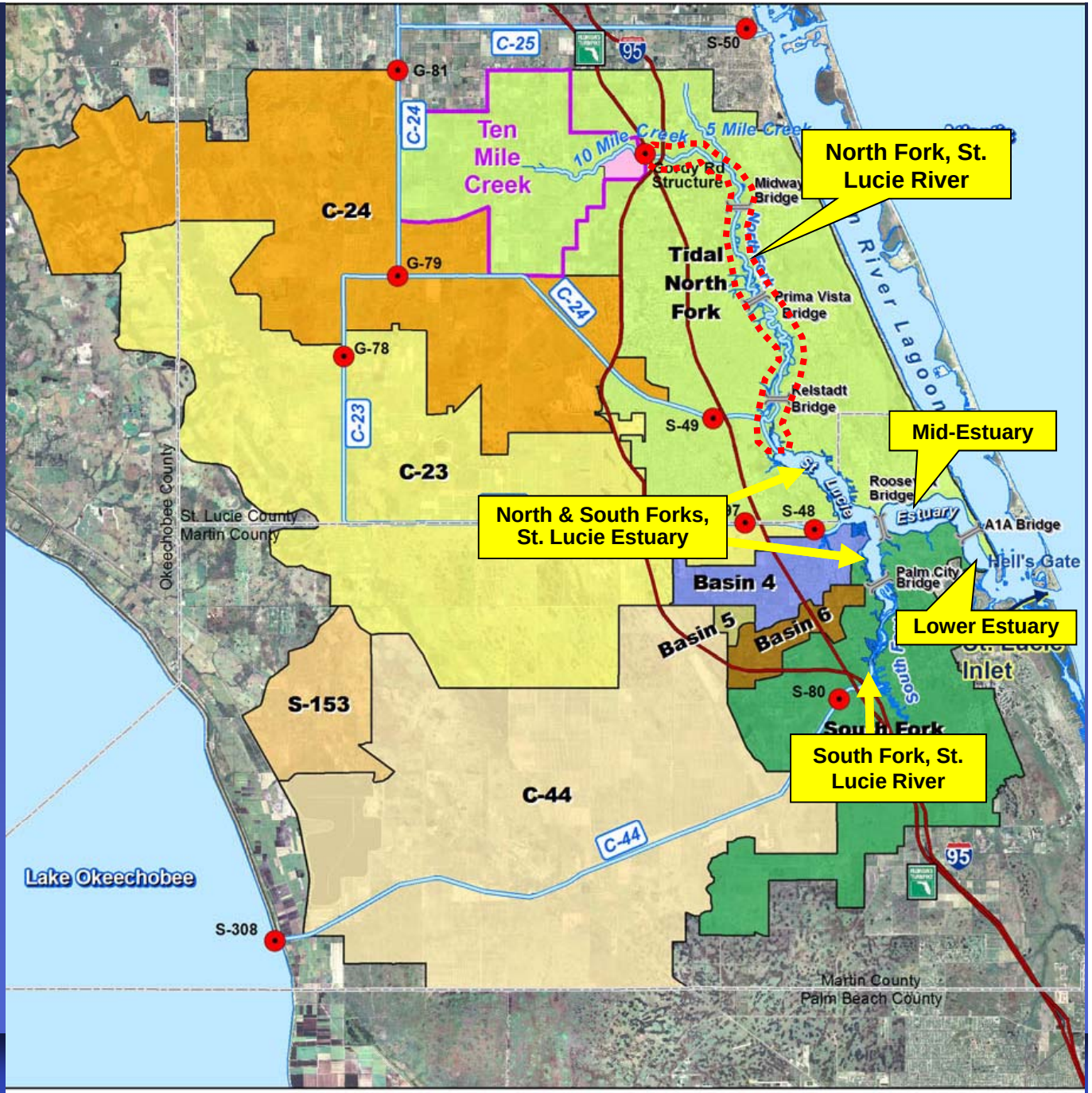
Presentation Overview

- Why and What are Water Reservations?
- Reservation for North Fork of St Lucie River
- Scientific Peer Review



St. Lucie Estuary Watershed Map

Major Basins and Ecologic Compartments



St. Lucie Estuary Watershed

Why Protect the Water?

- **Water made available by the Project (CERP) for the natural system is required to be protected by Section 601(h) of the 2000 Water Resources Development Act (WRDA)**
  - State required to protect water for natural system using its reservation or allocation authority
- **WRDA 2000 requires the reservation or allocation be complete prior to signing a Project Partnership Agreement to receive federal funding for Project construction and operation**

What is a water reservation?

- A water reservation is a legal mechanism to set aside water for the protection of fish and wildlife or the public health and safety
  - Authority: F.S. 373.223(4)

What is a water reservation?

- **"The Governing Board or the department, by regulation, may reserve from use by permit applicants, water in such locations and quantities, and for such seasons of the year, as in its judgment may be required for the protection of fish and wildlife or the public health and safety.**
- **Such reservations shall be subject to periodic review and revision in the light of changed conditions.**
- **However, all presently existing legal uses of water shall be protected so long as such use is not contrary to the public interest."** ***s. 373.223(4), Fla. Stat.***

Department of Environmental Protection Rule F.A.C. 62-40.474

- Focus: Guidance for programmatic consistency
- Under what circumstance can a reservation be used?
  - Aid in restoration of natural systems which provide fish and wildlife habitat
  - Protect fish and wildlife within an Outstanding Florida Water or an Aquatic Preserve
- Periodic review and revision of reservation if needed
- Location, quantity, timing and distribution to be clearly identified to the extent practical
- Prospective adoption allowed
- Peer review of all scientific or technical data

What does a reservation rule do?

- Prevents new uses from accessing reserved water

What a reservation rule doesn't do

- Establish an operating regime by rule
- Drought proof the natural system
- Ensure the fish and wildlife goals of the project are achieved

What's Next for Water Reservation Rule

- Rule Development workshops: April through September 2009

Presentation Overview

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Technical Approach: Key Assumptions

- *Technical Document to Support a Water Reservation Rule for the North Fork of the St. Lucie River*, May 2009
- **Based on implementation of CERP - Indian River Lagoon –South Project described in the project implementation report (2004) as authorized by Congress**
- **Focus on civil works features**
  - **C-23/24 Reservoirs and STA**
  - **C-44 Reservoir and STAs**
  - **C-25 Reservoir**
  - **Diversions to North Fork and C-44**

Key Assumptions, con't

- Appendix J of project implementation report (PIR) identified water delivered to the North Fork, in the dry season, to be reserved
- PIR did not identify water to be reserved for Mid-Estuary or South Fork
- Unlike PIR, water not identified for stormwater treatment areas (STAs)
- Reservation is based on protecting fish and wildlife located within the North Fork of St Lucie River during the dry season

Key Assumptions, cont

- The IRL-South Project does not address releases from Lake Okeechobee. The proposed reservoirs and STAs capture, store, attenuate and redistribute surface water runoff from the watershed
- New scientific information and models have been developed since completion of the PIR. These data better characterize hydrology and salinity conditions within the North Fork
- Existing land uses, demands and operations similar to 2050 Future without Project conditions in terms of surface water hydrology

Resource-based Approach

5 Basic Steps

1. Identify key ecological compartments sensitive to a water reservation
2. Identify fish & wildlife resources or habitat to be protected (Valued Ecosystem Component or VEC)
3. Identify performance measures and flow targets to protect the VEC
4. Quantify the water made available by the IRL-South Project
5. Identify the quantity of water to be reserved to protect fish and wildlife

Step 1: Identify Key Ecological Compartments Sensitive to a Water Reservation

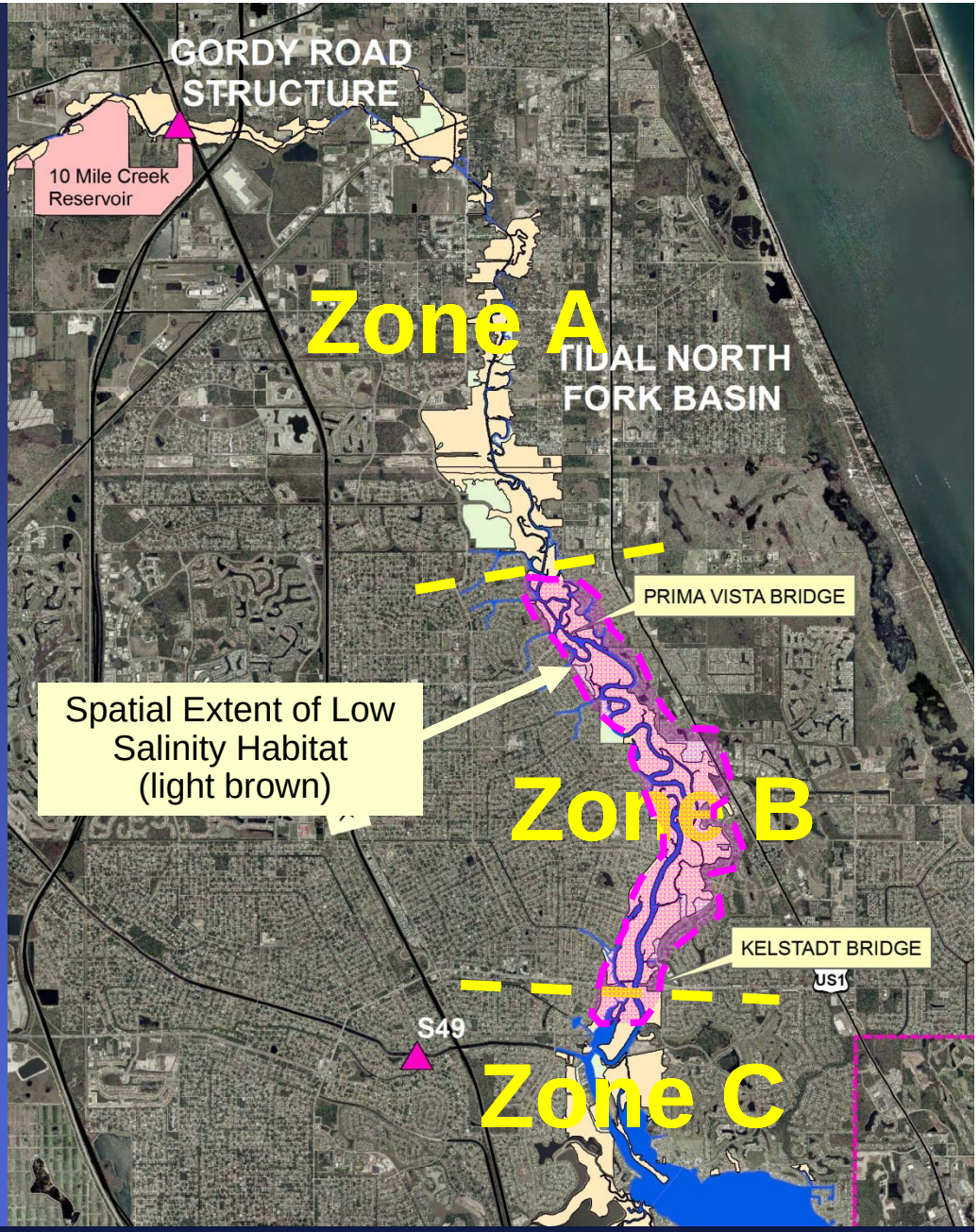
Ecological Compartments Considered:

- Mid-Estuary – The PIR addressed the issue of damaging high volume flows and impacts to oysters and other estuarine biota within the mid-estuary
- South Fork, St. Lucie River – Not significantly affected by IRL-South Project features
- ☑ North Fork, St. Lucie River – Contains 17 linear miles of low salinity habitat, potentially important as a nursery area for estuarine and marine organisms. The North Fork was considered to be (a) the most sensitive area to low flow conditions and (b) the area mostly affected by future project inflows

Step 2: Identify Fish & Wildlife Resources (Habitat) to be Protected

- District used a combination of the Valued Ecosystem (VEC) approach (USEPA 1987) and the Habitat overlap Concept (Browder and Moore 1981)
- The VEC for the North Fork is the **Low Salinity Zone**

Area for establishing Low Salinity Conditions within the North Fork of St. Lucie River



Step 3: Identify Performance Measure and flow targets to protect the VEC

- Maintaining a dynamic distribution of the 1 ppt isohaline between the Prima Vista and Kelstadt bridges during the dry season is the (salinity) performance measure for the North Fork of the St. Lucie River
- Equates to a mean monthly flow rate of 130 cfs
- This represents the proposed flow target for the North Fork of the St. Lucie River

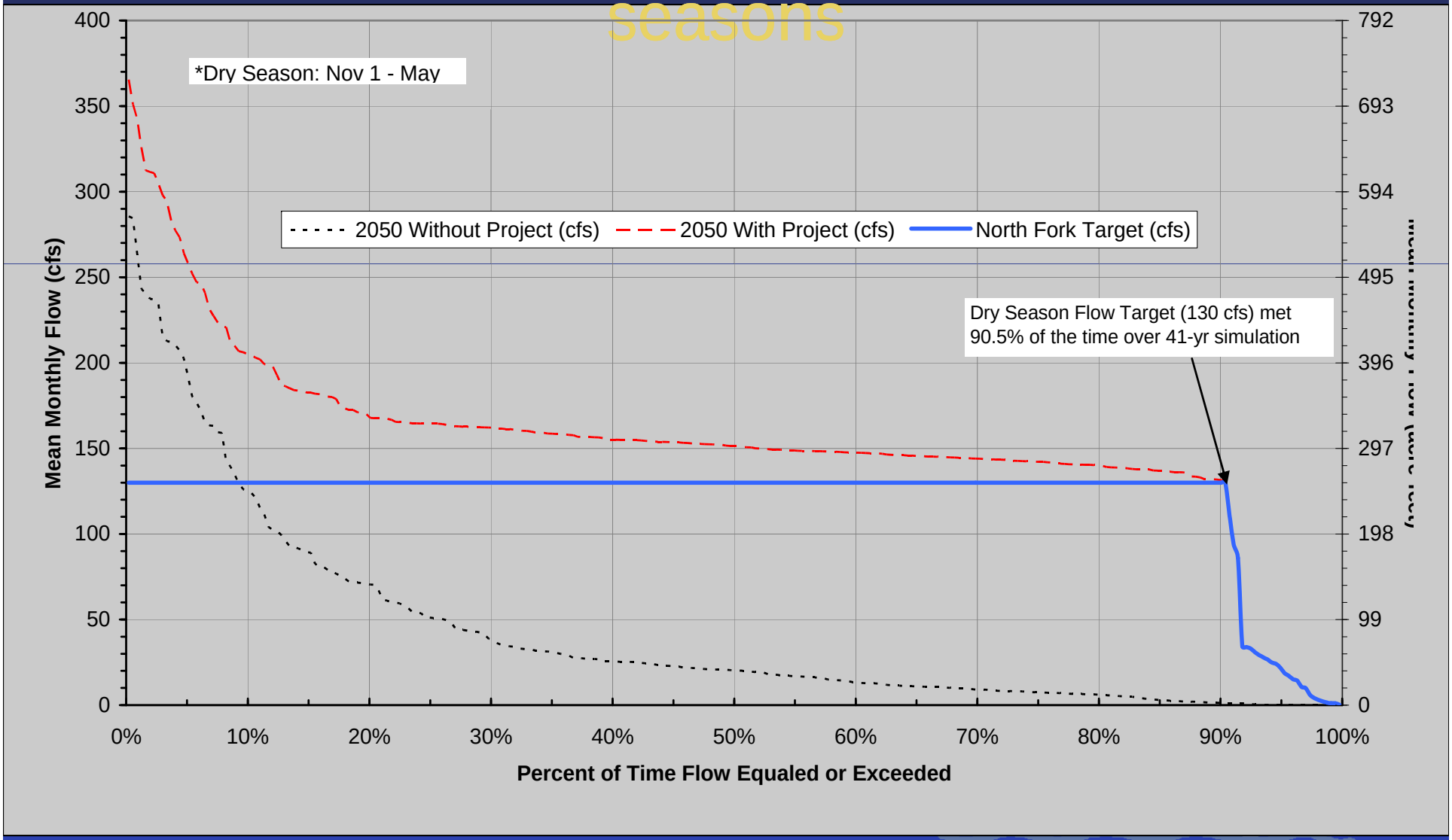
Step 4: Quantify Water Made Available By Project

- To determine the volume of water made available by the project, applied an integrated modeling framework:
  - St. Lucie Estuary Watershed (WaSh) model
  - Reservoir Optimization (OPTI6) model
  - CH3D hydrodynamic model
- Products: 41-year time series of daily flows
  - 2050 Future without Project Condition
  - 2050 Future with Project Condition

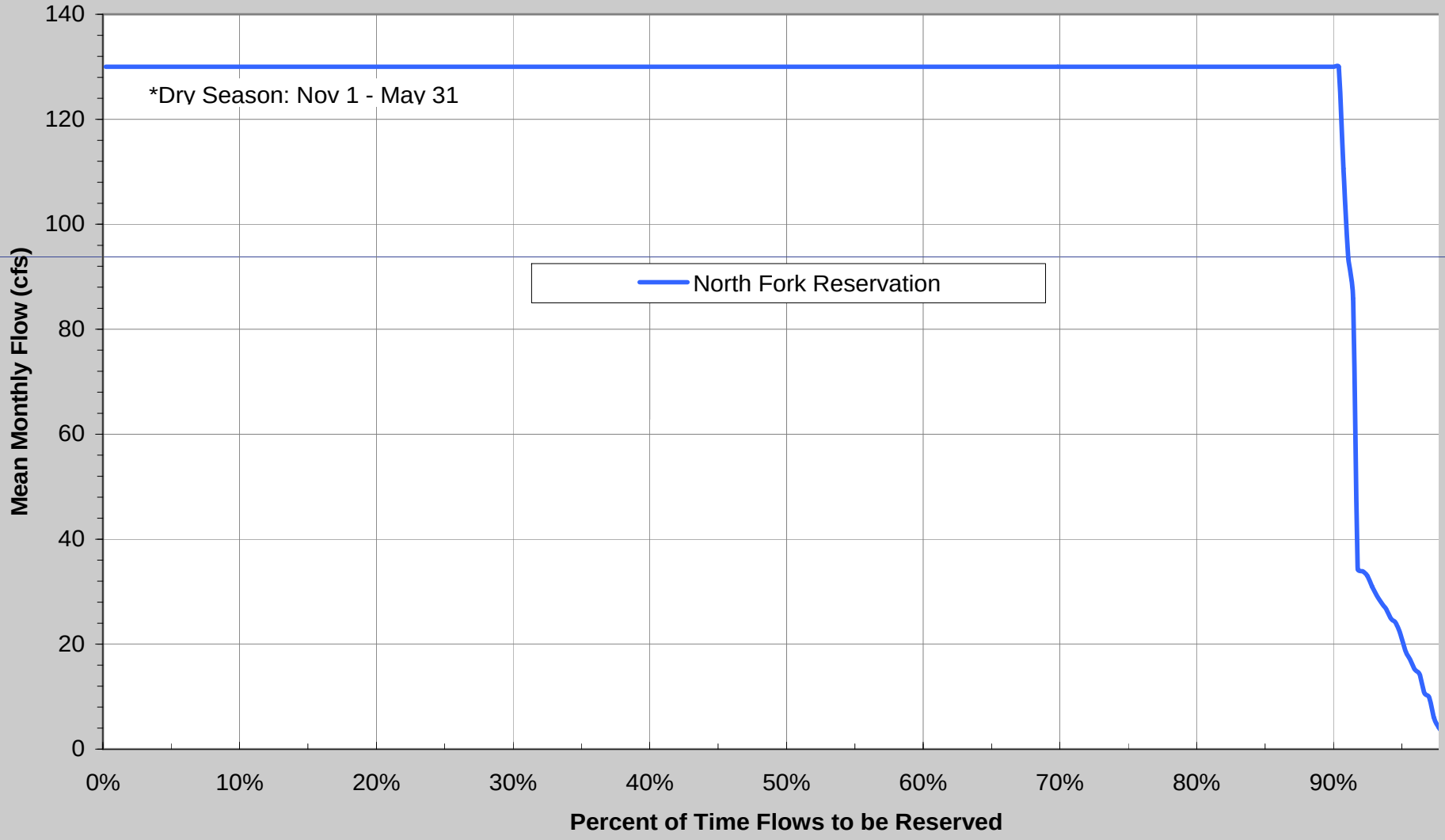
Step 5: Quantify the Volume of Water to be Reserved

- Convert 2050 Future with Project and 2050 Future without Project time series into **mean monthly flow** data and presented as a Volume Probability Curve
- On the same graph, plot the **North Fork Flow target** (dry season mean monthly flow of 130 cfs) as a Volume Probability Curve
- All water less than the target will be reserved during the dry season to protect fish and wildlife

Volume probability curve for flow deliveries over Gordy Road for dry seasons



Volume probability curve of flow deliveries over the Gordy Road Structure to be reserved for the dry



Presentation Overview

- Why and What are water reservations?
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St Lucie Estuary Peer Review Schedule

- June 2 & 3: Peer Review Workshop conducted
- June 3 - June 20: Panel deliberations and public comment period through web conference board
- June 22: Peer review final report received

Independent Scientific Peer Review

- **What is reviewed?**
  - *Technical Document to Support a Water Reservation Rule for the North Fork of the St. Lucie River*, May 2009
- **What is scope of the review?**
  - **Determine if the proposed linkage between hydrology and water for fish and wildlife is scientifically sound**
  - **Determine, if the best available information is used in the analysis**
  - **All data, methods, models, assumptions subject to review**

Key Panel Recommendations

- Draft report … “scientifically valid and uses currently accepted practices and concepts”
- Use of a Low Salinity Zone is suitable basis for guiding freshwater requirements
- The biological components are properly linked to the salinity
- 1 psu target is an ecologically defensible performance measure and is reinforced by literature on importance of low salinity zones to estuarine productivity

Key Panel Recommendations, cont

- Include hydrologic details and predicted ecological benefits
- Clarify the open boundary condition in the hydrodynamic model
- Describe uncertainty associated with not including Floridan aquifer in watershed model and compare groundwater heads

Key Panel Recommendations, cont

- Only meet flow target 90.5% of time. Describe the implications on biological resources
- Analysis provides a sound technical basis for reserving water to protect targeted fish and wildlife

Major Milestones for Water Reservation Rule

- Initiated rule development: April 2008
- Completed draft technical report: May 2009
- Scientific peer review of scientific and technical data: June 2 & 3, 2009
- Rule Development workshops: April through September 2009
- Initiate rulemaking by seeking Governing Board approval to publish draft rule in Florida Administrative Weekly: October 2009

Questions?