Rule Development Workshop for Kissimmee Basin Water Reservations

December 12, 2014

Welcome

Photo: Kissimmee River

Objectives of the Workshop

- Recap previous workshop
- Discuss why developing reservation rules?
- Provide overview of the draft rule
  - Criteria development
  - Rule Language
    - Reservation
    - Integration with Consumptive Use Permitting Program
- Discussion
- Next Steps

Recap of Workshop #1

- **Held July 30, 2014**
- **Provided an overview of the Kissimmee River Restoration Project**
- **Explained the purposes of a water reservation**
- **Outlined the technical procedures - 5 steps**
- **Legal standards to establish a water reservation**

Rule Development Workshop for
Kissimmee Basin Water Reservations
December, 2014

Objectives and Overview of Reservation Rule

Terrie Bates,
Director, Water Resources Division

Photo: Kissimmee River

Why Develop Reservation Rules?

- **Kissimmee River Restoration Project**
  - State and federal interest and investment
- **Headwaters of the Everglades**
  - Water from Central Florida has pivotal role in meeting water needs in South Florida for both natural and human uses
- **Central Florida water supply is limited**
  - CFWI addressing existing and future supply sources and water resource impacts
  - Once reserved water is identified, it is possible to identify supplies available for reasonable-beneficial uses and restoration projects

District Reservation Objectives

- **Protect water for the authorized Kissimmee River Restoration Project**
- **Ensure a healthy and sustainable, native fish and wildlife community**
- **Maintain C&SF Project operations consistent with federal regulation schedules**
- **Protect water supply inflows to Lake Okeechobee and the Greater Everglades Ecosystem (natural and human uses)**
- **Support solutions for Central Florida's water supply needs, consistent with other objectives**

Why Now?

- **Kissimmee River Restoration Project**
  - **Federally authorized**
  - **$900M investment**
  - **Success based on surface water inflows from Kissimmee Chain of Lakes**
  - **Headwaters Revitalization schedule implements in 2019**
- **KBMOS not moving forward**
- **Future Water Demands**
  - **CFWI Process on-going**

Kissimmee River Restoration Project

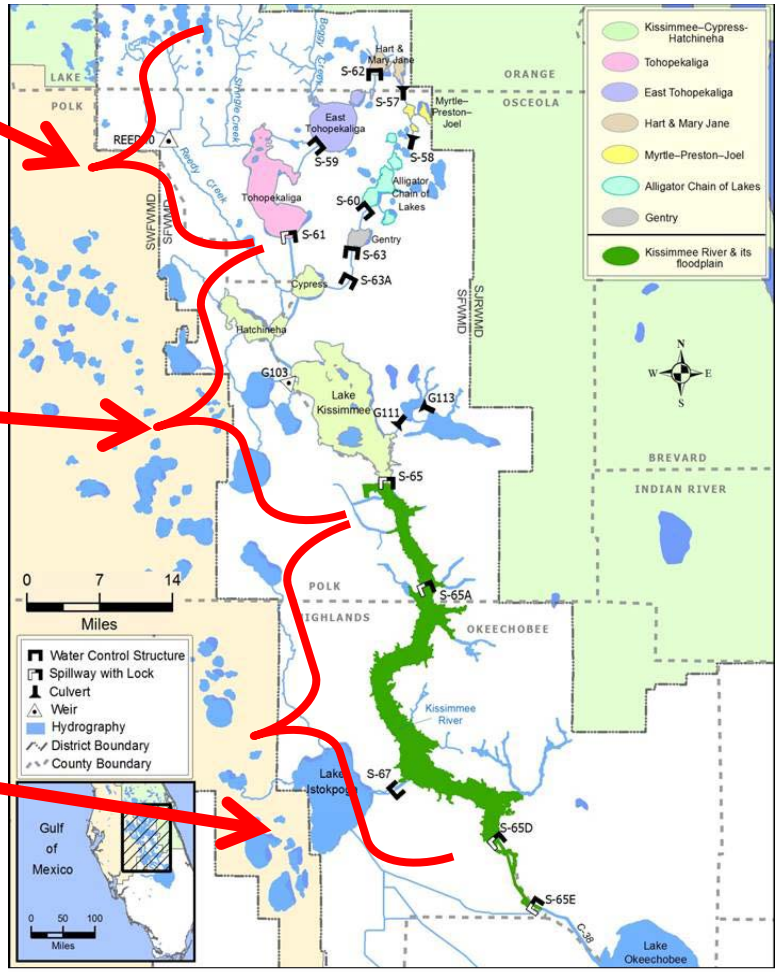
Upper Chain of Lakes

Implement restoration hydrology

- Headwaters Revitalization Schedule

Restore the physical form of the river

- fill C-38 Canal
- remove water control structures
- reconnect river oxbows



Proposed Reservation Rule Overview

Reservation (Chapter 40E-10, F.A.C.)

- **Kissimmee River and Floodplain:**
  - **All surface water reserved**
- **Headwater Revitalization Lakes (Kissimmee, Cypress, Hatchineha)**
  - **All surface water reserved**
- **Upper Chain of Lakes**
  - **Surface water for fish and wildlife reserved; some water available for allocation**
- **Contributing sources regulated**
  - **Surface waters**
  - **Groundwater - Surficial Aquifer System**

Proposed Reservation Rule Overview

Applicant's Handbook

- Criteria for consumptive use permit applicants
- Defines criteria for allocation of water that is not reserved
- Downstream check to protect River and Floodplain

Rule Development Workshop for Kissimmee Basin Water Reservations December, 2014

Fish and Wildlife Protection

Lawrence Glenn, Section Administrator
Lakes and River Ecosystems Section
Applied Sciences Bureau

Photo: Kissimmee River

Overview of Criteria Development

- **Fish and wildlife and their hydrologic linkages in Kissimmee Basin.**
- **Describe development of the Headwaters Revitalization Schedule for the Kissimmee River Restoration project.**
- **Discuss performance measures used to quantify water to protect fish and wildlife in the Headwaters Revitalization Lakes and Kissimmee River.**
- **Discuss development of performance measures used to quantify water for the protection of fish and wildlife in the Upper Chain of Lakes.**

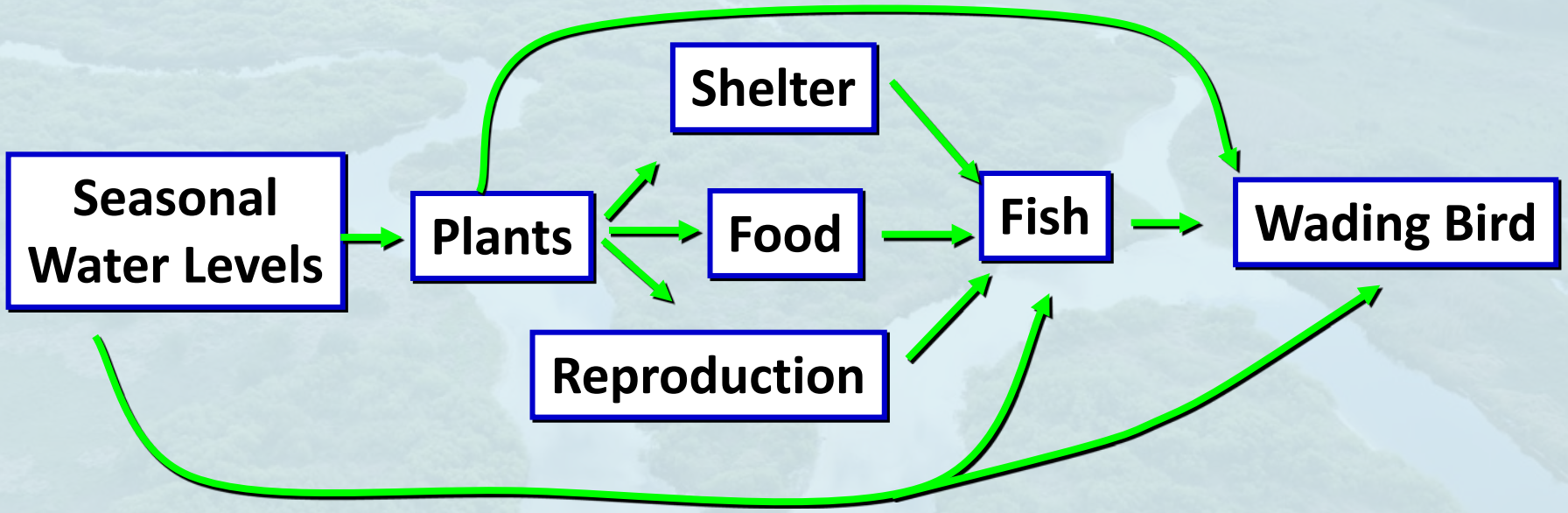
Kissimmee Basin Fish & Wildlife

- **Fish Community**
  - Approximately 50+ species
- **Water Birds**
  - 68 species of wetland dependent birds
  - 14 species of wading birds including Federally threatened wood stork
  - 16 species of ducks
- **Amphibians and Reptiles**
  - 24 species
- **Mammals**
  - 4 species wetland dependent

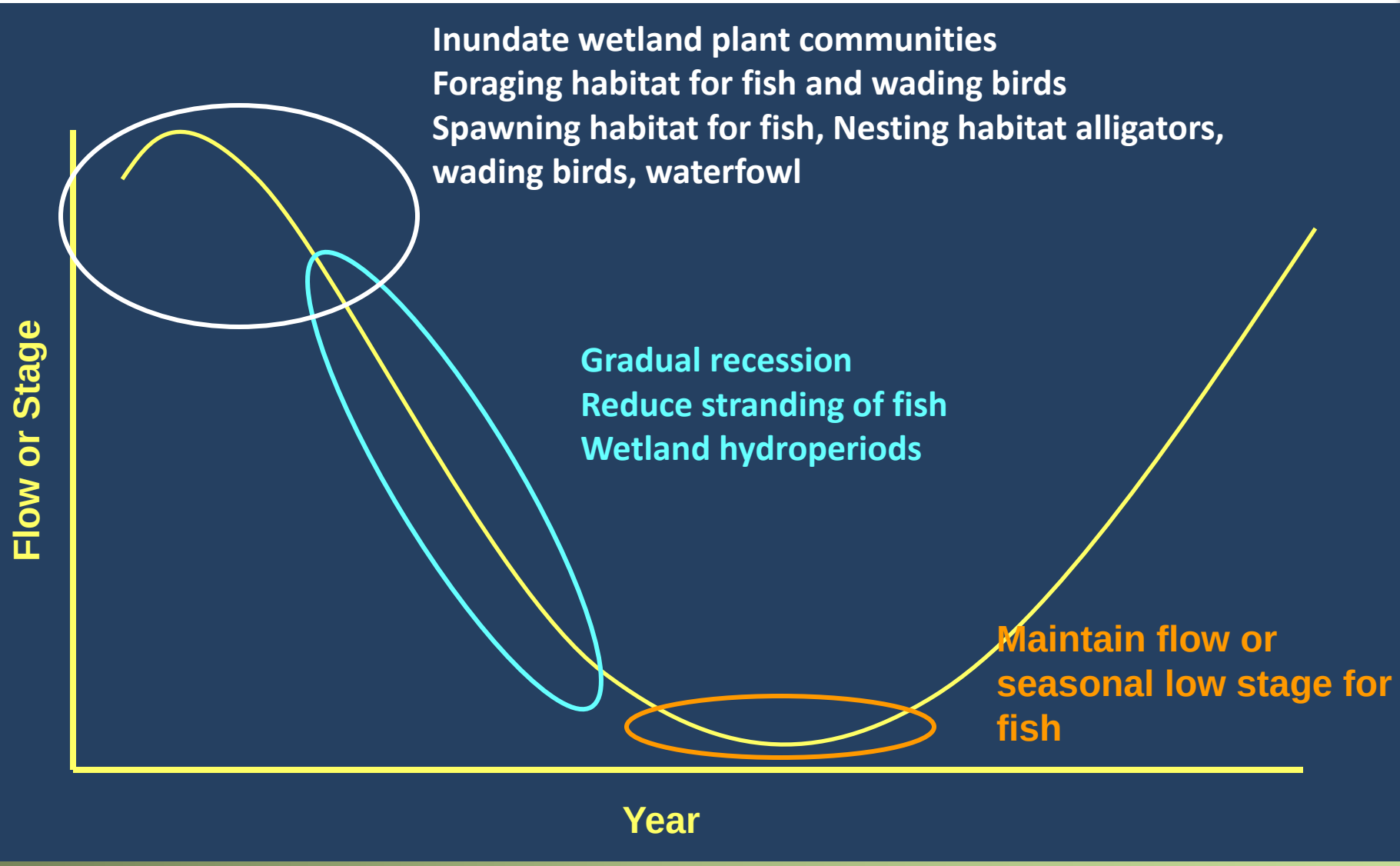
Identify Fish and Wildlife Hydrologic Requirements

- **Best available data**
  - **Literature review**
  - **Analysis of stage and flow data**
  - **Interim responses to Phase I of the restoration project**
- **For many species, hydrologic requirements are related to maintaining a mosaic of wetland plant communities on the river floodplain or in lake littoral marshes and inundating these wetlands so that fish and wildlife species have access**

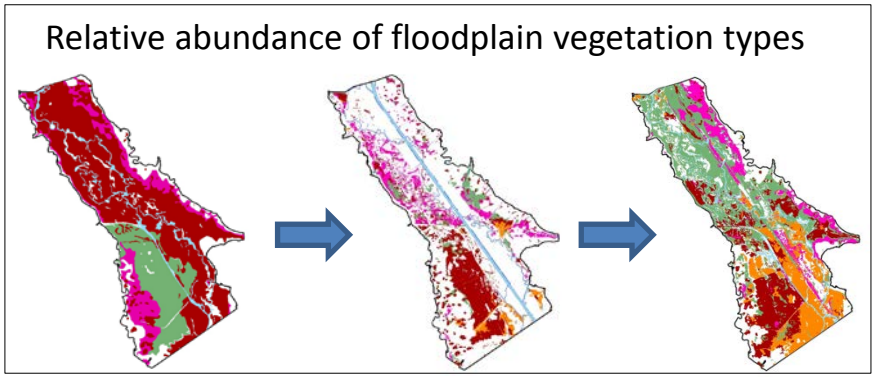
Linkages between Hydrology and Wildlife



Fish and Wildlife Hydrologic Requirements

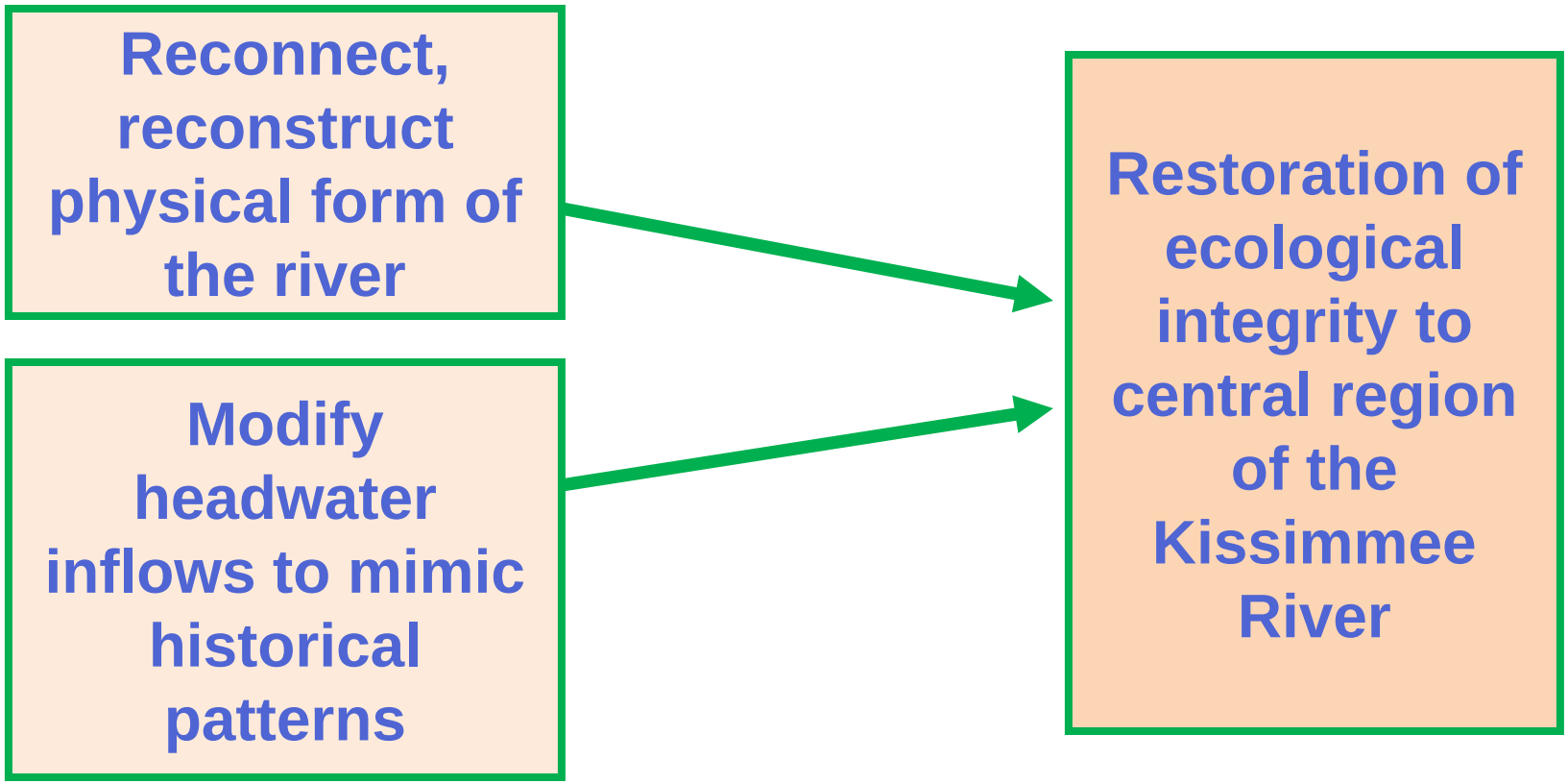


Kissimmee River Project Status



- **Kissimmee River Restoration Project**
  - **Construction 86% complete**
  - **Significant responses to date**
    - **Continuous flow**
    - **Intermittent floodplain inundation**
    - **River channel vegetation**
    - **Floodplain wetland vegetation**
    - **Invertebrates**
    - **Wading birds**
    - **Waterfowl**
  - **Complete environmental benefits expected following implementation of the federally authorized Headwaters Revitalization Schedule in 2019**

Approach for the Kissimmee River Restoration Project



Ecological Integrity Goal

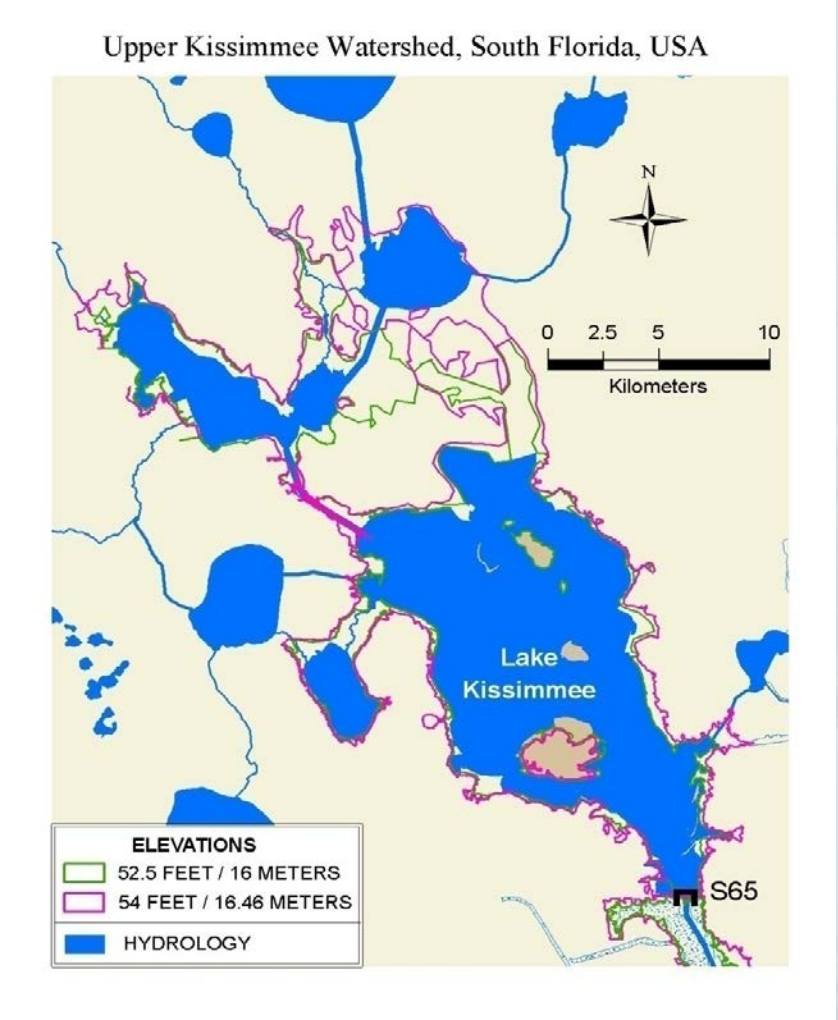
- **Restore River's ecological integrity:**
  - **"The capability of supporting and maintaining a balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to natural habitat of the region"**
- **Numerous state and federal acts:**
  - **Water Resource Development Acts and Project authorizations (1990, 1991, 1992, 1996)**
  - **Public interest in Kissimmee River Project declared by Legislature (§373.1501, F.S.)**

5 Hydrologic Criteria for River

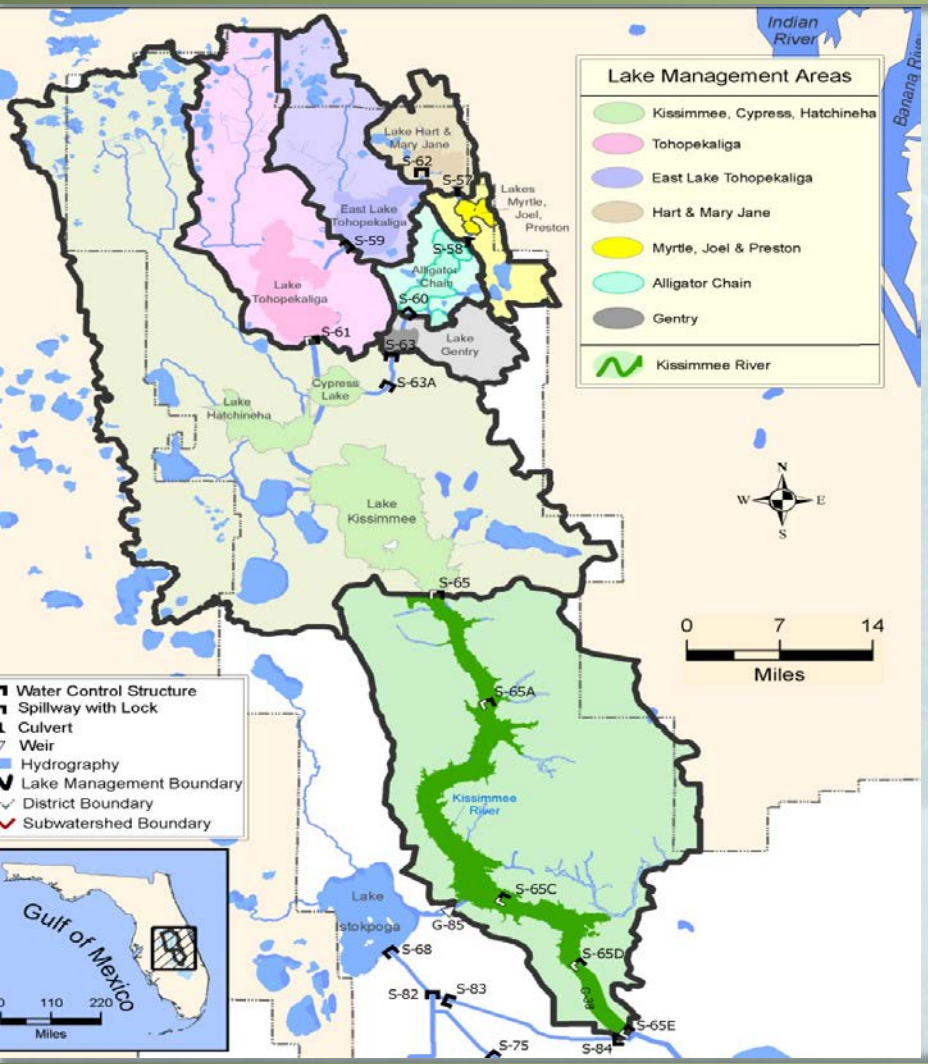
- **Continuous flow with duration and variability comparable to pre-channelization periods.**
- **Average flow velocities between 0.2-0.6 m per second, when flow within bank.**
- **Stage discharge relationship resulting in overbank flow >130 m^2/sec and >185 m^2/sec.**
- **Stage recession rates on floodplain <0.3 m/month.**
- **Floodplain inundation comparable to historic hydrographs.**

How to get the water?

- **100,000 acre feet required to meet restoration goal.**
- **Raise high pool elevation in Headwaters Lakes from 52.5’ to 54’.**
- **Modify S-65 regulation schedule to meet river restoration goals and optimize lake littoral habitat for use by fish and wildlife.**



Development of Headwaters Revitalization Schedule



- **UKISS Model**
  - Continuous simulation model
  - Daily operations of C&SF lakes
  - Backfill 22 miles of C-38 canal
  - Estimates average daily discharge
- **Model Assumptions**
  - 18 year POR 1970-1987
  - Regulation schedules
  - Daily rainfall
  - Mean monthly temperature and solar radiation
  - Linear reservoir routing and overland flow

Headwater Revitalization Performance Measures

Headwaters Lakes

- **Average duration water levels exceed 52.5’**
- **Average duration water levels below 49’**
- **Coefficient of variation of water levels over 18-year period**

Performance Measures

Kissimmee River

- **Average duration > 90% floodplain inundated in wet season.**
- **Average duration > 25% floodplain inundated in dry season.**
- **Average duration < 200 cfs flow at S-65 in wet season.**
- **Average duration < 200 cfs flow at S-65 in dry season.**

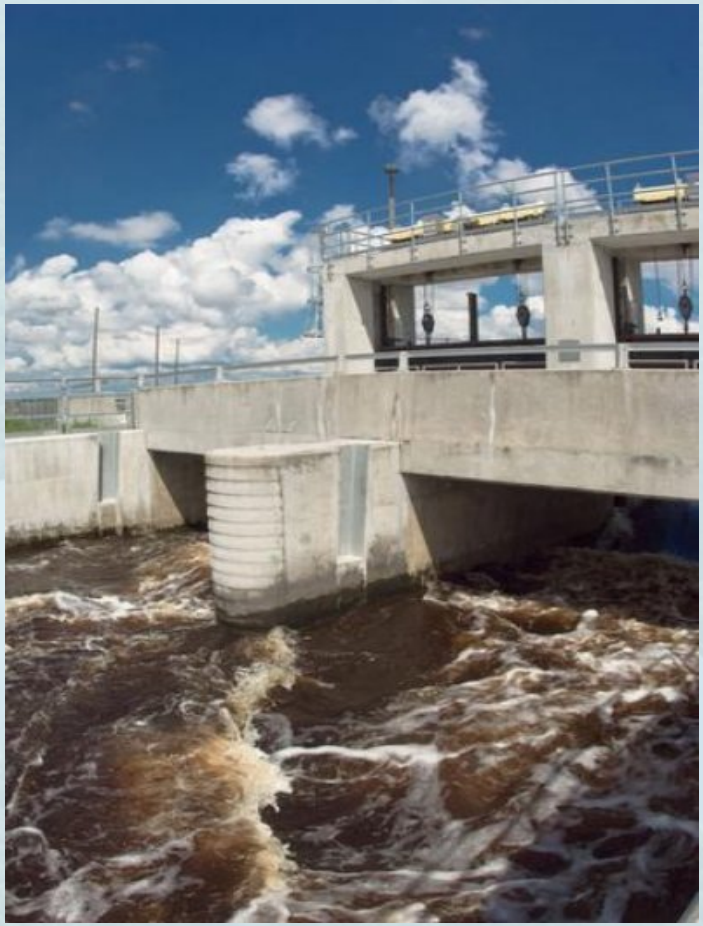
Kissimmee River Performance / Reservation

Updated River performance assessments:

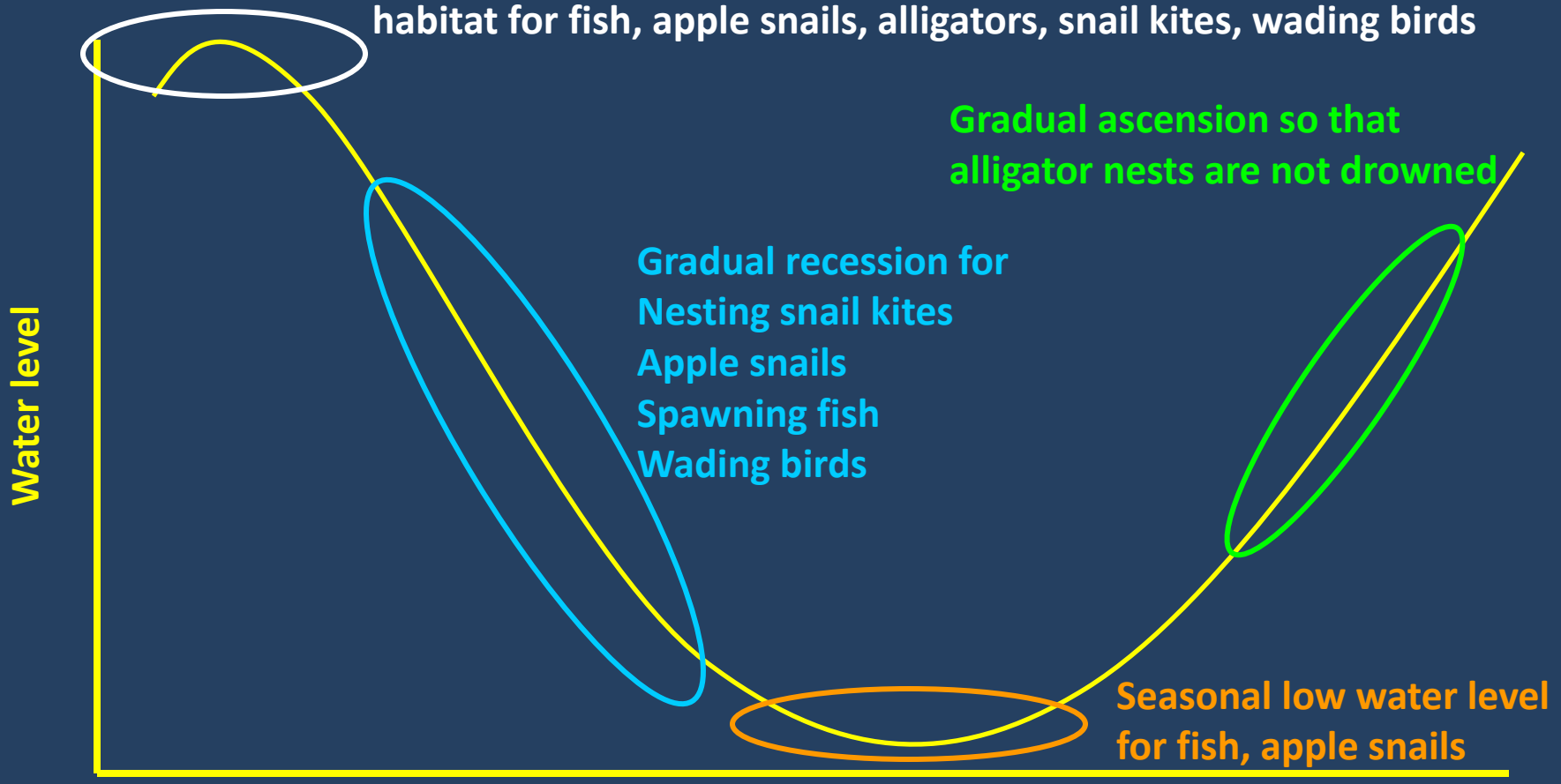
- Newer model: AFET-W
- Longer Period of Record (1965-2005)
- Updated project components

Relationship between restoration and reservation:

Reservation protections cannot alter authorized performance of Headwaters Revitalization Schedule



Fish and Wildlife Hydrologic Requirements for Upper Chain of Lakes



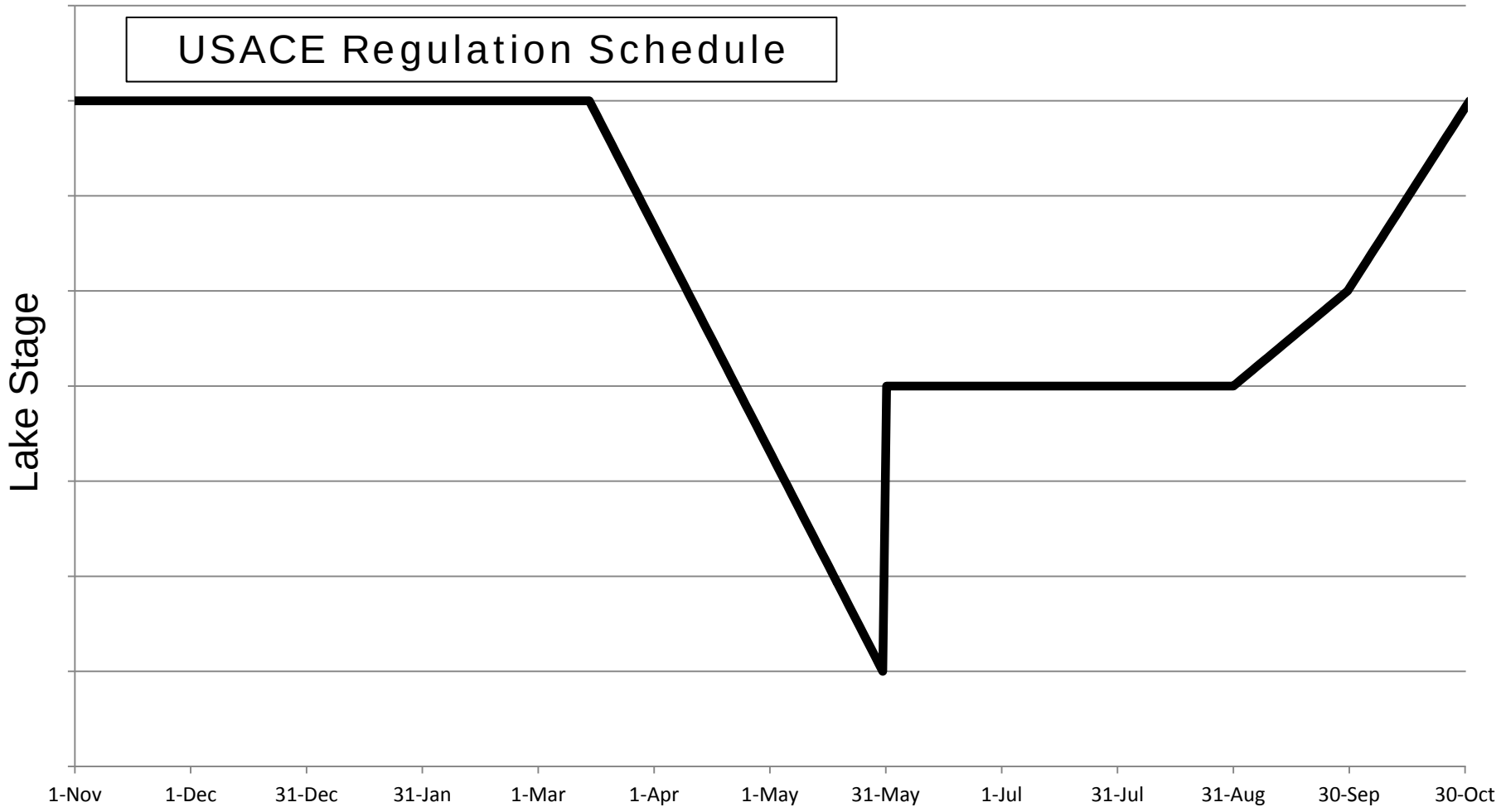
Performance Measures for the Upper Chain of Lakes

- **Unique performance measure for each reservation water body.**
- **The performance measure is represented as an annual hydrograph.**
- **Hydrograph represents the threshold for lake water levels below which is needed to protect fish & wildlife.**

Basis for Seasonal High and Low

- **Seasonal High**
  - **Based on the highest stage allowed in the regulation schedule and the date on which it occurs; approximately 90th percentile**
  - **Protecting water levels that go this high, inundates the existing area of wetlands at the lake margin**
  - **The number of species and abundance of individual organisms are related to the amount of habitat**
- **Seasonal Low**
  - **Based on 90th percentile of water levels on May 31 for the regulated time period**
  - **Variable low water levels are needed to maintain habitat for fish & wildlife**

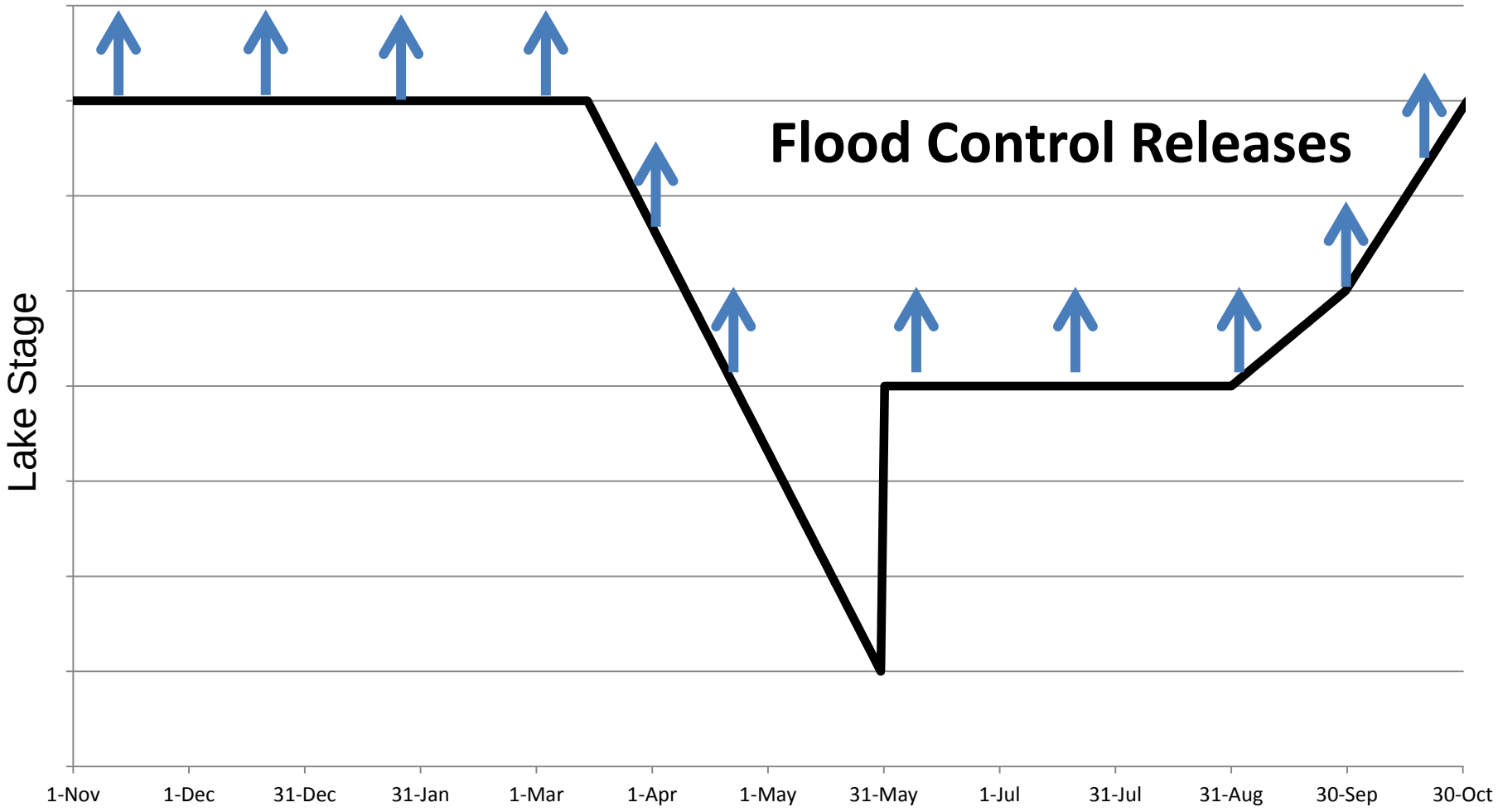
Proposed Reservation Process



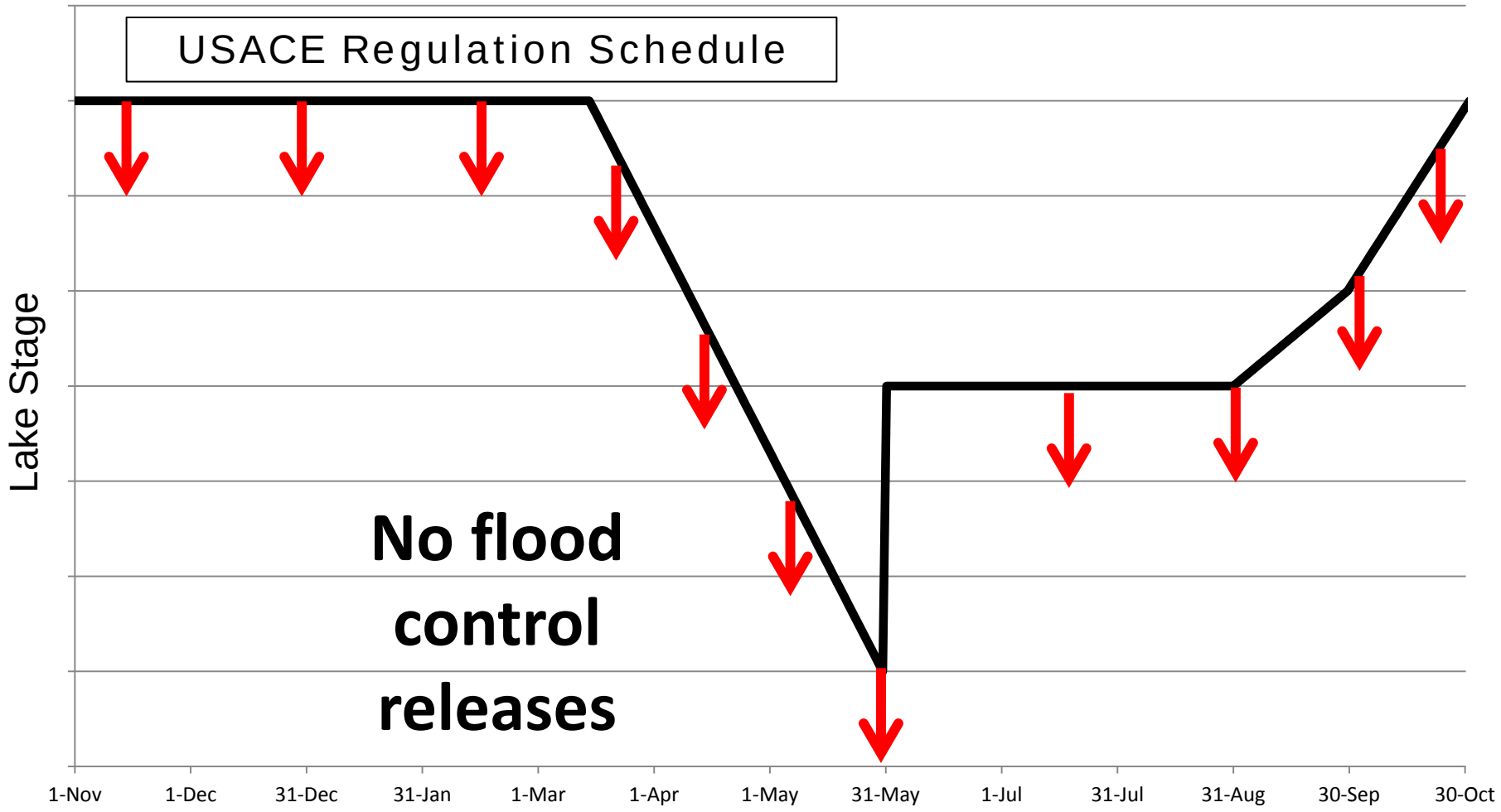
Regulation Schedules

- **Central & South Florida Flood Control Project**
  - **All the lakes upstream of the Kissimmee River have an established regulation schedule.**
  - **All of the water bodies are interconnected via canals and control structures.**
- **Each lake has a different regulation schedule federally mandated by the USACOE**
  - **Water must be moved out when above the schedule.**
  - **Mandated responsibility of local sponsor - Not optional.**
- **SFWMD implements schedule as the local sponsor using the federally authorized water control plan**

Proposed Reservation Process



Proposed Reservation Process



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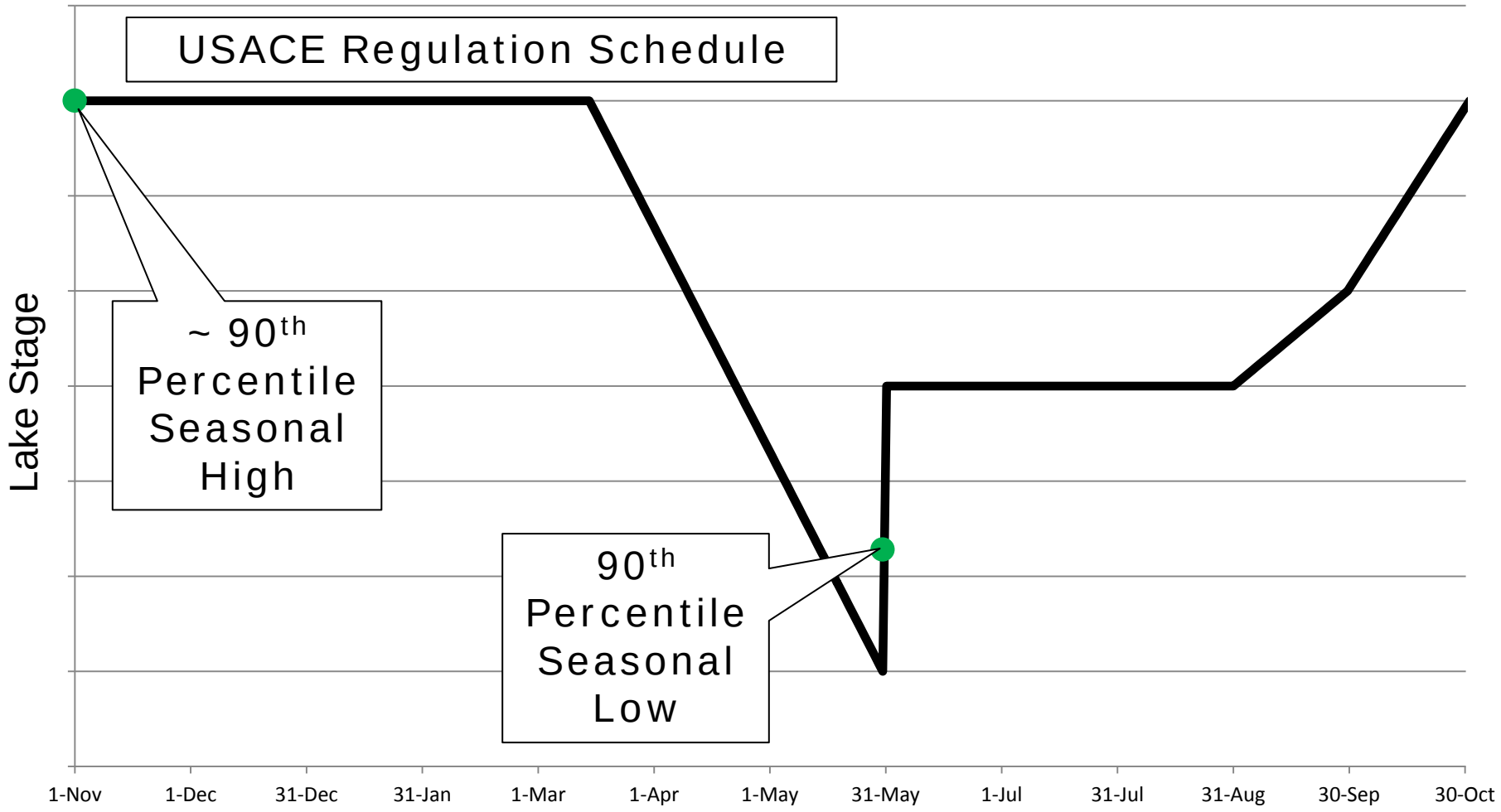

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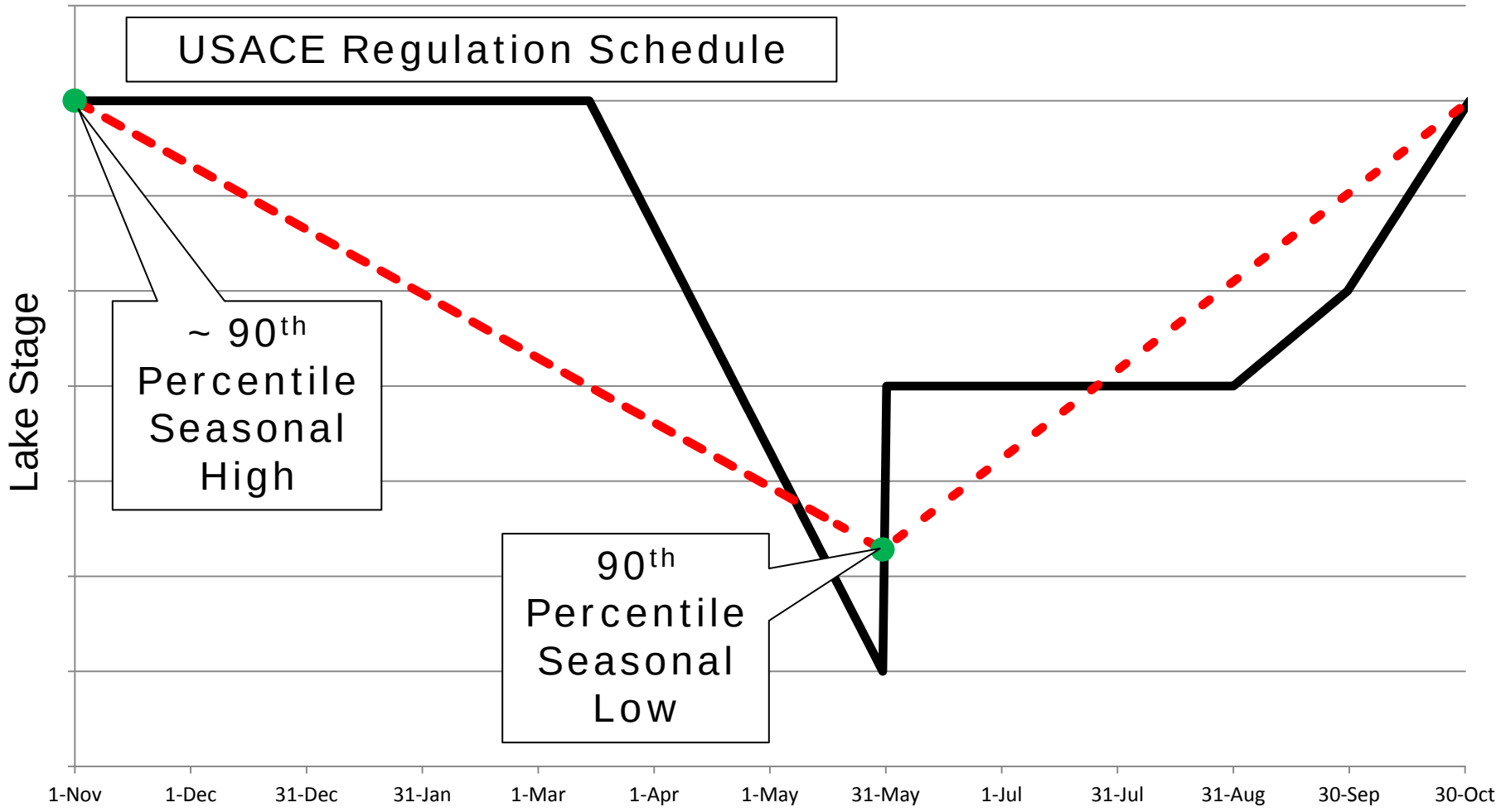

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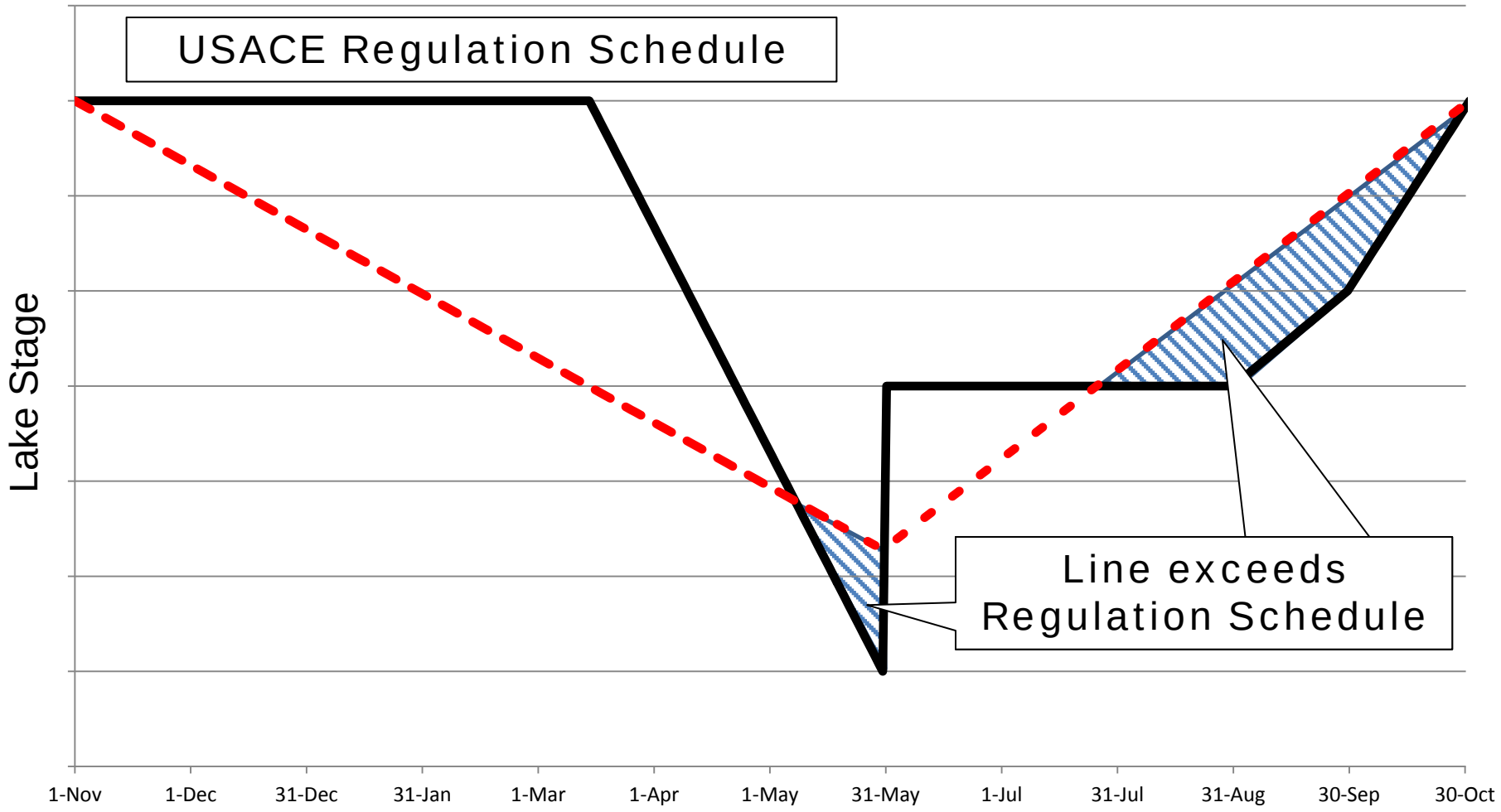

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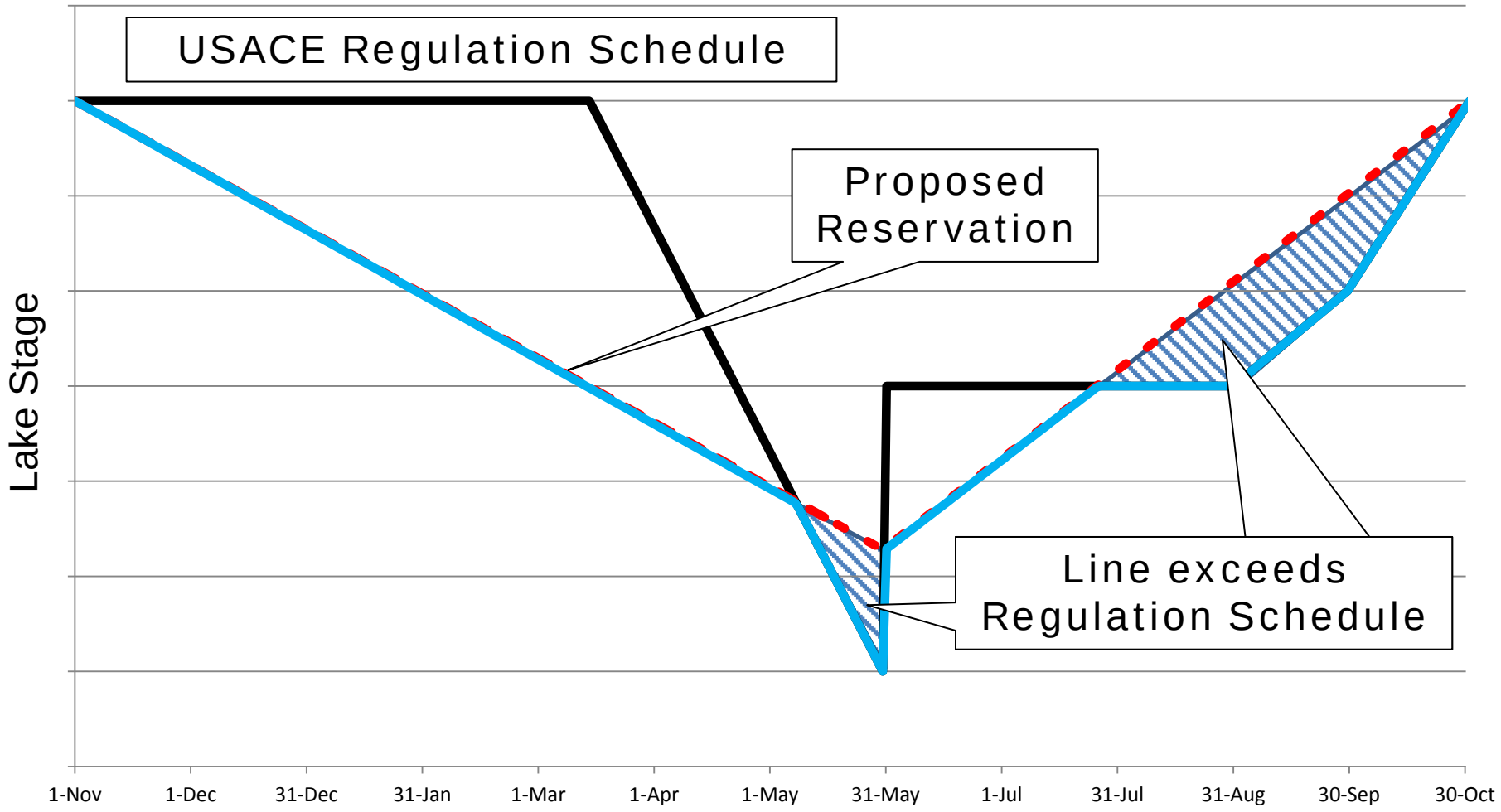

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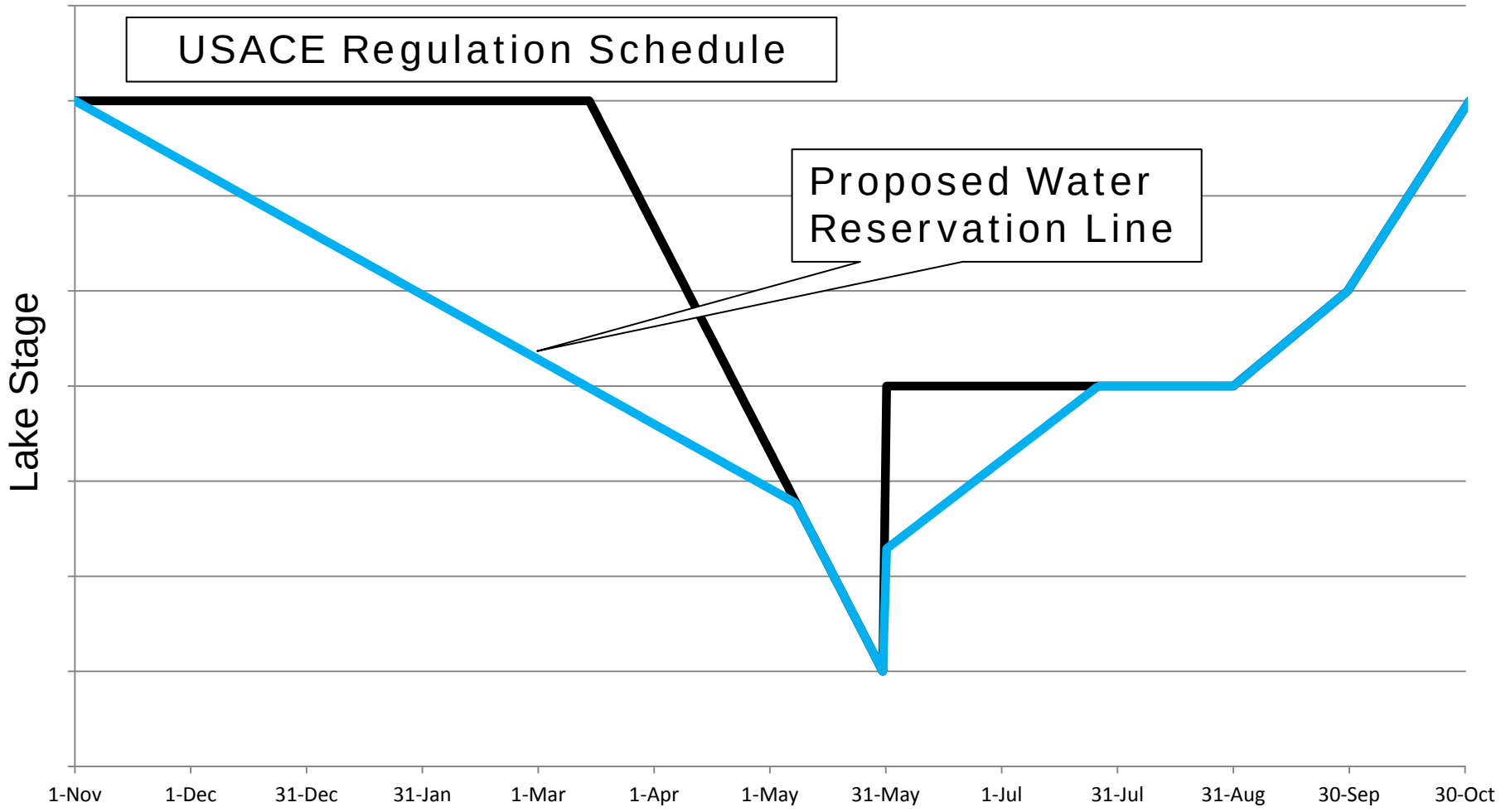
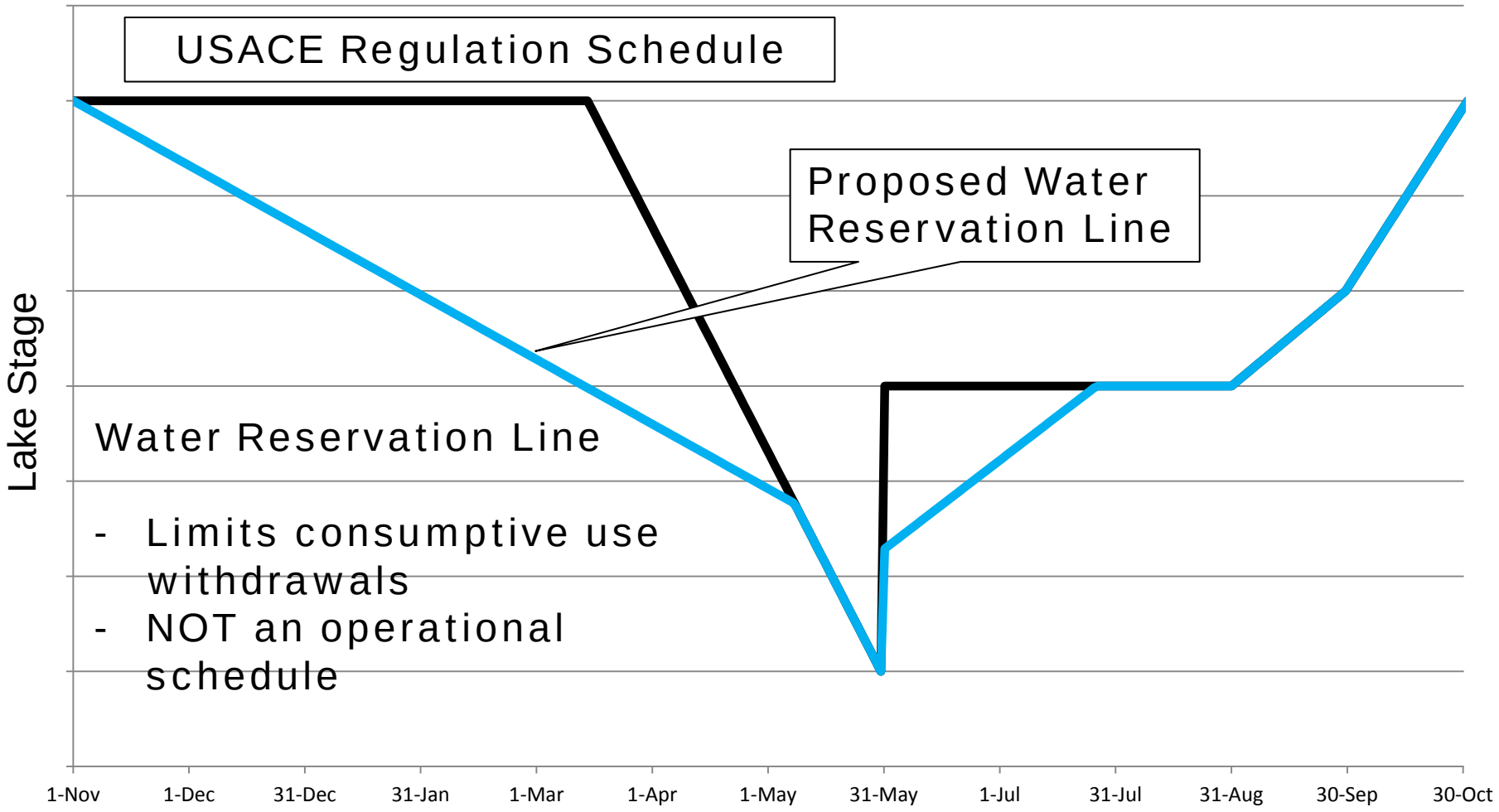


Proposed Reservation Process



Rule Development Workshop for
Kissimmee Basin Water Reservations
December, 2014

Overview of the Draft Rule Language

Scott Burns, Chief Scientist
Applied Sciences Bureau

Photo: Kissimmee River

Reservation Integrated with CUP Program

Statutory authority:

- **"The Governing Board 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 . . . ." §373.223(4), F.S.**
- **"Protection" – ensuring a healthy and sustainable, native fish and wildlife community; one that can remain healthy and viable through natural cycles of drought, flood, and population variation.**

Reservation Integrated with CUP Program

- **Reservations do not:**
  - **Direct C&SF operations.**
  - **Drought proof the natural system.**
  - **Ensure optimal performance or wildlife proliferation.**
  - **Include a recovery or prevention strategy component.**
  - **Ensure water deliveries.**
- **Reservations do:**
  - **Prevent new uses from accessing reserved water.**
  - **Protect existing legal uses that are not contrary to the public interest.**

Reservation Integrated with CUP Program

Underlying Considerations:

- **Subject lakes are C&SF Project components and are controlled by federal regulation schedules**
  - **District, as local sponsor for Project, must operate structures to assure lake levels remain within defined federal regulation schedules**
  - **C&SF Project operations not affected or changed by rule**
  - **No change to regulation schedules are anticipated (No KBMOS)**

Proposed Rule Concepts: Chapter 40E-10, F.A.C.

Three aspects of reservation:

- Identification of reservation water body
  - Text and figures of water bodies describe
    - » No legal description
    - » Project Canals and connecting canals
- Reservation itself
  - "All" – KCH and River/floodplain
  - Line (UCOL)
- Regulation of contributing water bodies
  - Surface water
  - Groundwater

Applicant's Handbook

Definition of types of withdrawals:

- **Direct withdrawals of surface water**
  - **From a reservation waterbody**
- **Indirect withdrawals of surface water**
  - **From contributing waterbodies**
  - **Provide some of hydrology for reservation water bodies, but not where fish and wildlife reside**
- **Indirect withdrawals of groundwater**
  - **Surficial Aquifer System**

Applicant's Handbook

- **Criteria regarding uses not withdrawing reserved water**
  - **No further evaluation is required to assure reserved water is not withdrawn if any of listed criteria are satisfied.**
- **Criteria summary:**
  1. **Direct withdrawals above the reservation line(s) for Upper Chain of Lakes that satisfy referenced criteria.**
  2. **Indirect withdrawals of surface water that satisfy 3.11.5.C.**
  3. **Permit modification involving a direct withdrawal that does not change.**

Applicant's Handbook

- **Criteria summary, cont.:**

4. **Re-allocation or transfer of allocation existing on rule effective date.**
5. **Re-allocation or transfer of allocation issued after rule becomes effective for use that complies with rule criteria.**
6. **Use does not fall within defined withdrawals addressed by rule.**
7. **Floridan Aquifer System withdrawals.**
8. **District authorized withdrawals when the District is operating C&SF Project for flood protection, maintenance, or to benefit fish and wildlife.**

Applicant's Handbook

Withdrawals from Contributing Waterbodies

- **Indirect withdrawals of surface water**
  - **Wetlands or other surface waters – existing wetland criteria**
  - **Manmade contributing waterbodies:**
    - » **Text and graphics:**
      - **Upper Chain of Lakes**
      - **Headwater Revitalization Lakes**
      - **Kissimmee River**
    - » **Allocation Criteria**

Applicant's Handbook

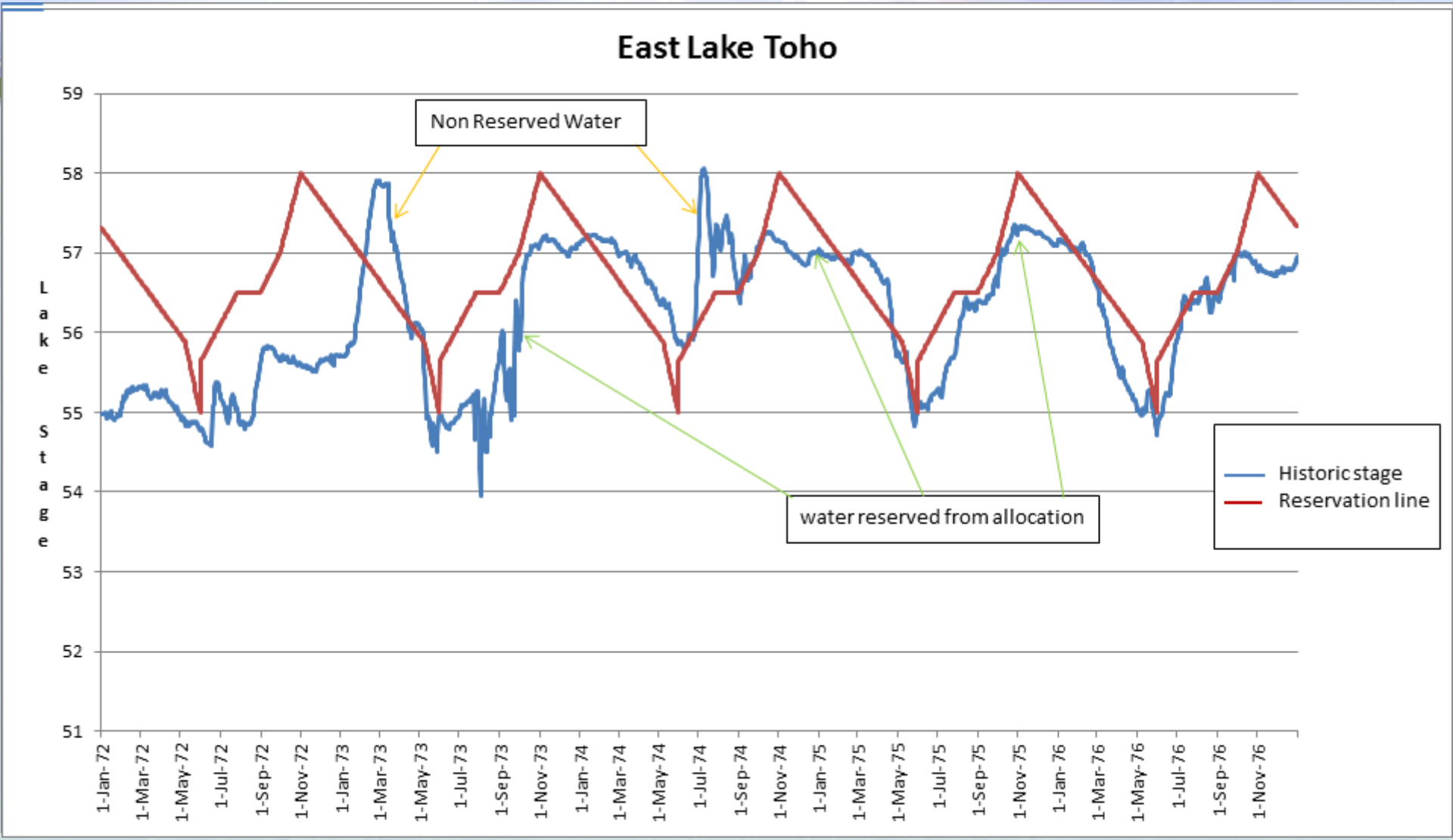
Allocation Criteria Re: Withdrawals from Manmade Contributing Waterbodies

- To demonstrate the proposed withdrawal is not using reserved water, Surficial Aquifer System wells must impose no more than a 0.5 foot drawdown, individually and cumulatively, at the landward edge of the reservation waterbodies.

Applicant's Handbook

"WS" Designated Permits: Authorize surface water withdrawals from UCOL:

- **Unique, ephemeral source**
- **Allocations do not have 1 in 10 level of certainty**
- **New category of consumptive use permit**
  - **Water available for withdrawal as determined by the District on a daily basis, consistent with reservations**
  - **Additional criteria – Reasonable-Beneficial Use and Interference**


East Lake Toho
Non Reserved Water
water reserved from allocation
Historic stage
Reservation line
Lake Stage
59
58
57
56
55
54
53
52
51
1-Jan-72
1-Mar-72
1-May-72
1-Jul-72
1-Sep-72
1-Nov-72
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1-Mar-76
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1-Sep-76
1-Nov-76

Applicant's Handbook

Additional Reasonable-Beneficial Criteria for "WS" Permit Applications:

- **Suitability of source to the use**
  - Conjunctive use or
  - Use that is compatible with intermittent nature of the source (e.g. storage)
- **Downstream check for Kissimmee River Project**
  - Flows at S-65
  - Individually and cumulatively analyzed
  - Not reduce discharges at S-65 by greater than 5% over a range of hydrologic variability between 1965 - 2005
    - » Within range of acceptability; no impact on River's environmental performance

Applicant's Handbook

Additional Reasonable-Beneficial Criteria for "WS" Permit Applications, cont.:

- **Allocation:**
  - **Daily allocation only, based on lower of:**
    - » **Reasonable-beneficial demand for use**
    - » **Rated capacity of associated withdrawal facilities**
  - **Phased projects:**
    - » **Demands increase over permit duration as phases implemented**
    - » **Permit allocation based on final project phase**
    - » **Amount authorized to withdraw, when available, on daily basis limited to active phase; applicant to provide schedule**

Applicant's Handbook

- **Daily authorization of withdrawals:**
  - **Determined by District**
  - **Daily Notification provided by District on web**
- **Daily determination of water availability:**
  - **1st: Determine if lake stage is greater than reservation stage**
  - **2nd: Identify cumulative authorized daily withdrawal and compare to amount of water available from the lake using stage / storage relationships**
    - **Recognizing full and active phase allocations**

Applicant's Handbook

Interference with Existing Legal User Criteria:

- When water available is insufficient to meet all authorized allocations of "WS" permits, permitted uses will be restricted
  - By priority of right
  - Daily allocation of most junior user(s) (last issued permit) is dropped from daily calculation
  - Until adequate available supply exists for all permittees

Applicant's Handbook

User Priority:

- "First in time, first in right"
- Specific scenarios addressed:
  - Modifications: additionally allocated water is the date of modification; originally permitted allocation date is unchanged
  - Phased projects: date of permit issuance, but active phase used in calculation
  - Renewals: maintain original user priority per initial permit
  - Transfers: maintain previously established user priority

Applicant's Handbook

C&SF Project related discharges and withdrawals:

- District making discharges from reservation waterbodies for:
  - Flood projection purposes
  - Operations associated with maintenance of Project components
  - To benefit fish and wildlife
- District operation of the C&SF Project does not constitute interference with an existing legal user's right or impose any mitigation responsibility

Applicant's Handbook

Special Conditions for "WS" Permits:

- **Allocation:**
  - **Daily**
  - **From a specific , ephemeral source (direct and indirect) that does not have a 1 in 10 level of certainty**
  - **Compliance:**
    - » **Based on daily quantity withdrawn (not cumulative or average)**
    - » **Withdrawal shall not occur unless authorized by District**
    - » **Daily withdrawals and District authorization records reported quarterly**
    - » **Accounting method and means of pump calibration stated on each report**

Applicant's Handbook

Special Conditions for "WS" Permits:

- **For withdrawals from manmade contributing waterbodies:**
  - **Daily canal stage elevations measured and compared to same day stage elevations of the receiving reservation waterbody**
  - **Recorded with the withdrawal amount, reported quarterly**
- **Phased projects:**
  - **Withdrawal authorization for active phase**
  - **Permittee to notify District of phase implemented**
  - **Upon verification, District will increase daily allocation volume**

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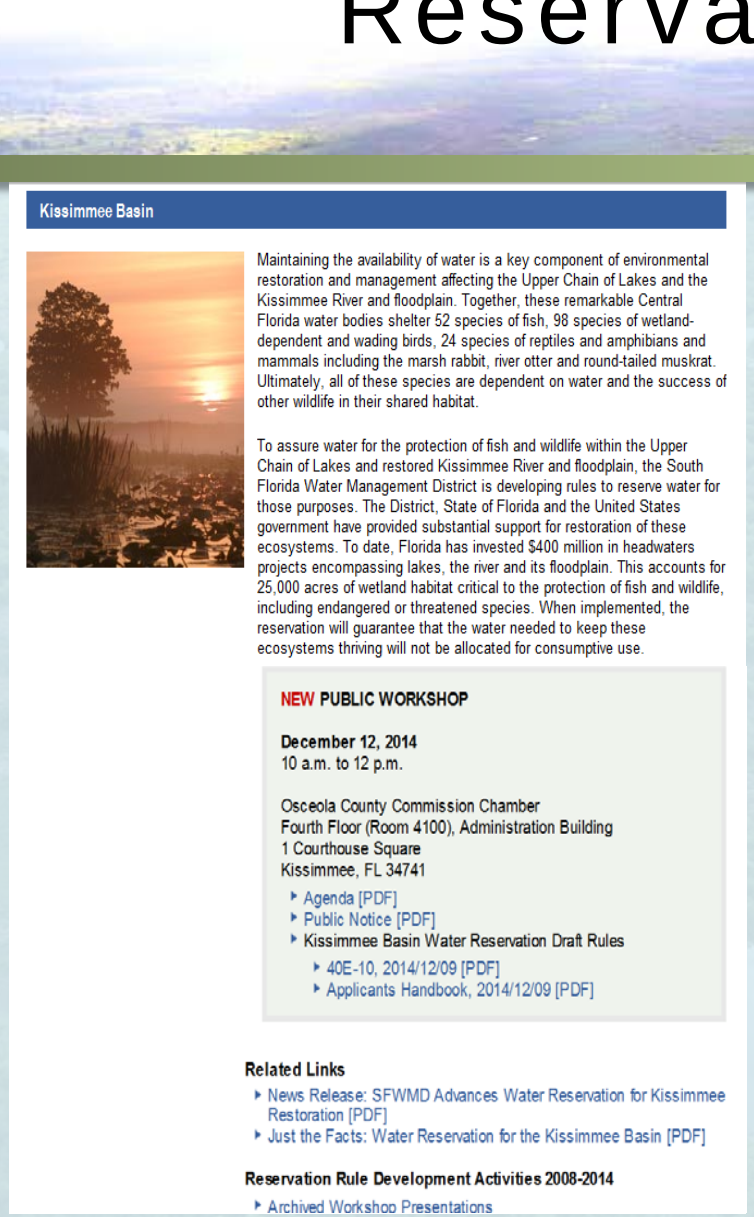
Next Steps

Don Medellin, Principal Scientist
Applied Sciences Bureau

Photo: Kissimmee River

Reservations Web Page



Kissimmee Basin

Maintaining the availability of water is a key component of environmental restoration and management affecting the Upper Chain of Lakes and the Kissimmee River and floodplain. Together, these remarkable Central Florida water bodies shelter 52 species of fish, 98 species of wetland-dependent and wading birds, 24 species of reptiles and amphibians and mammals including the marsh rabbit, river otter and round-tailed muskrat. Ultimately, all of these species are dependent on water and the success of other wildlife in their shared habitat.

To assure water for the protection of fish and wildlife within the Upper Chain of Lakes and restored Kissimmee River and floodplain, the South Florida Water Management District is developing rules to reserve water for those purposes. The District, State of Florida and the United States government have provided substantial support for restoration of these ecosystems. To date, Florida has invested $400 million in headwaters projects encompassing lakes, the river and its floodplain. This accounts for 25,000 acres of wetland habitat critical to the protection of fish and wildlife, including endangered or threatened species. When implemented, the reservation will guarantee that the water needed to keep these ecosystems thriving will not be allocated for consumptive use.

NEW PUBLIC WORKSHOP

December 12, 2014
10 a.m. to 12 p.m.

Osceola County Commission Chamber
Fourth Floor (Room 4100), Administration Building
1 Courthouse Square
Kissimmee, FL 34741

- Agenda [PDF]
- Public Notice [PDF]
- Kissimmee Basin Water Reservation Draft Rules
  - 40E-10, 2014/12/09 [PDF]
  - Applicants Handbook, 2014/12/09 [PDF]

Related Links

- News Release: SFWMD Advances Water Reservation for Kissimmee Restoration [PDF]
- Just the Facts: Water Reservation for the Kissimmee Basin [PDF]

Reservation Rule Development Activities 2008-2014

- Archived Workshop Presentations

Web page address
http://www.sfwmd.gov/reservations

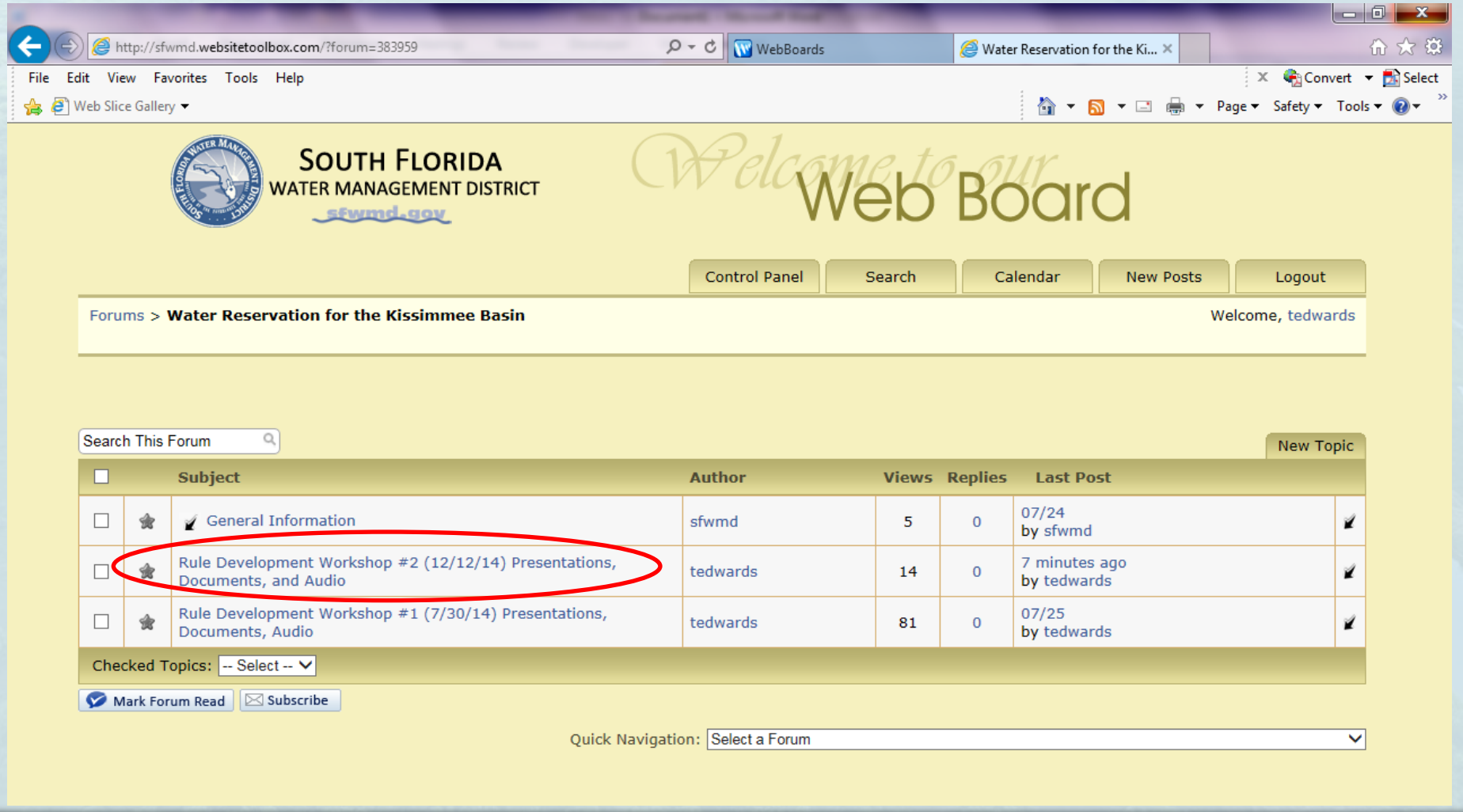
Web Conferencing Board

Web Address: http://sfwmd.websitetoolbox.com/?forum=224365

SFWMD Projects Forums				
★	Florida Bay MFL Criteria	2	2	Final Report for Florida Bay ... 12/30/13 by tedwards
★	C-139/Western Basins Regional Feasibility Study Project Moderators:tkosier	7	7	C-139 RFS Demonstration Summa... 01/08/13 by tkosier
★	The Loxahatchee Impoundment Landscape Assessment (LILA) Moderators:ecline	27	7	LILACC 04/10 by ecline
SFWMD Rule Development				
★	Water Reservation for the CERP Caloosahatchee River (C-43) West Basin Storage Reservoir Moderators:tedwards, jgodin, kchuiraz	11	4	Rule Development Workshop #3 ... 01/16 by tedwards
★	Water Reservation for the CERP Biscayne Bay Coastal Wetlands Project (Phase 1) Moderators:jgodin, kchuiraz	8	5	Comments on Draft Rule 02/19/13 by jgodin
★	Water Reservation for the Kissimmee Basin Moderators:tedwards	3	3	Rule Development Workshop #2 ... 9 minutes ago by tedwards
Workshops				
★	Everglades Mercury/Sulfur Monitoring and Research Disseminating information and documents to interested parties working on mercury/sulfur monitoring and research in the Greater Everglades ecosystem Moderators:bengu	7	6	2011 Mercury and Sulfur Works... 08/05/11 by kchuiraz

Mark Forums Read

Web Conferencing Board



Public Input

- SFWMD's web site provides information for your review: http://www.sfwmd.gov/reservations
  - *Draft rule language*
  - *Technical Document to support the rule – Upon Completion*
- Public comments are requested to be submitted by **January 15, 2015**
  - *Written comments to Jan Sluth, Office of Counsel- sluth@sfwmd.gov*
  - *Comments can also be submitted to web board*

Next Steps

- Workshop presentations will be posted to the Kissimmee Reservations web page
- Revise draft technical document
- Revise draft rule language

Next Workshop:

- Proposed Draft Rule Language
- Draft Technical Document
- Statement of Estimated Regulatory Costs

Next Steps

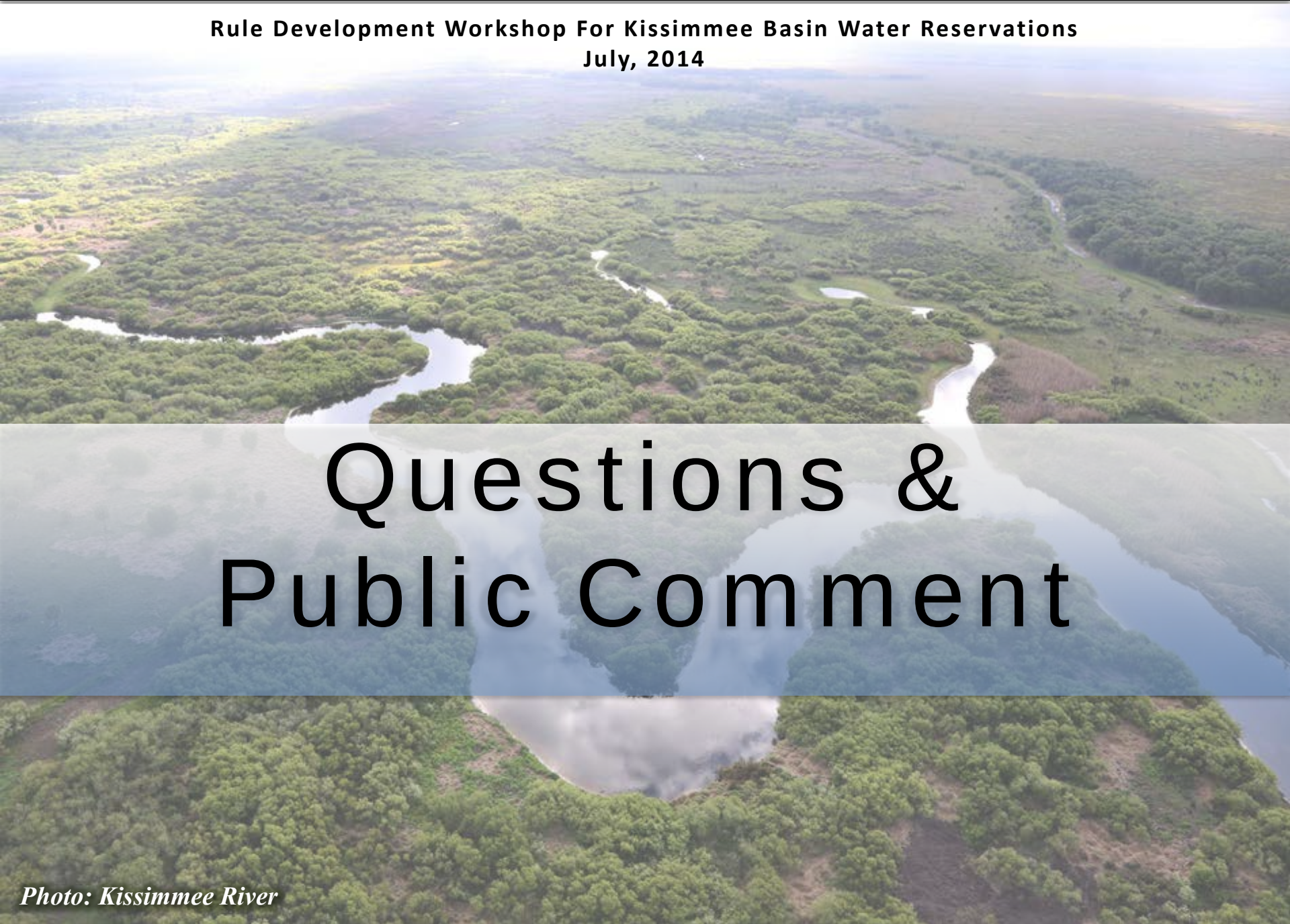
- **January 8, 2015** - Water Resources Advisory Commission Meeting - Kissimmee Reservations Status Update
- **January 15, 2015** - Governing Board Meeting - Kissimmee Reservations Status Update
- **End of Dec./Early Jan.**- Finalize draft technical document to support reservation rule
- **February 2015 –** Public Workshop #3

Next Steps

Web Pages with Helpful Information

- **Kissimmee Reservations Main Web Page:**
  www.sfwmd.gov/reservations
- **Kissimmee Web Board:**
  http://sfwmd.websitetoolbox.com/
  (under SFWMD Rule Development)
- **SFWMD Rules Web Page**
  www.sfwmd.gov/rules

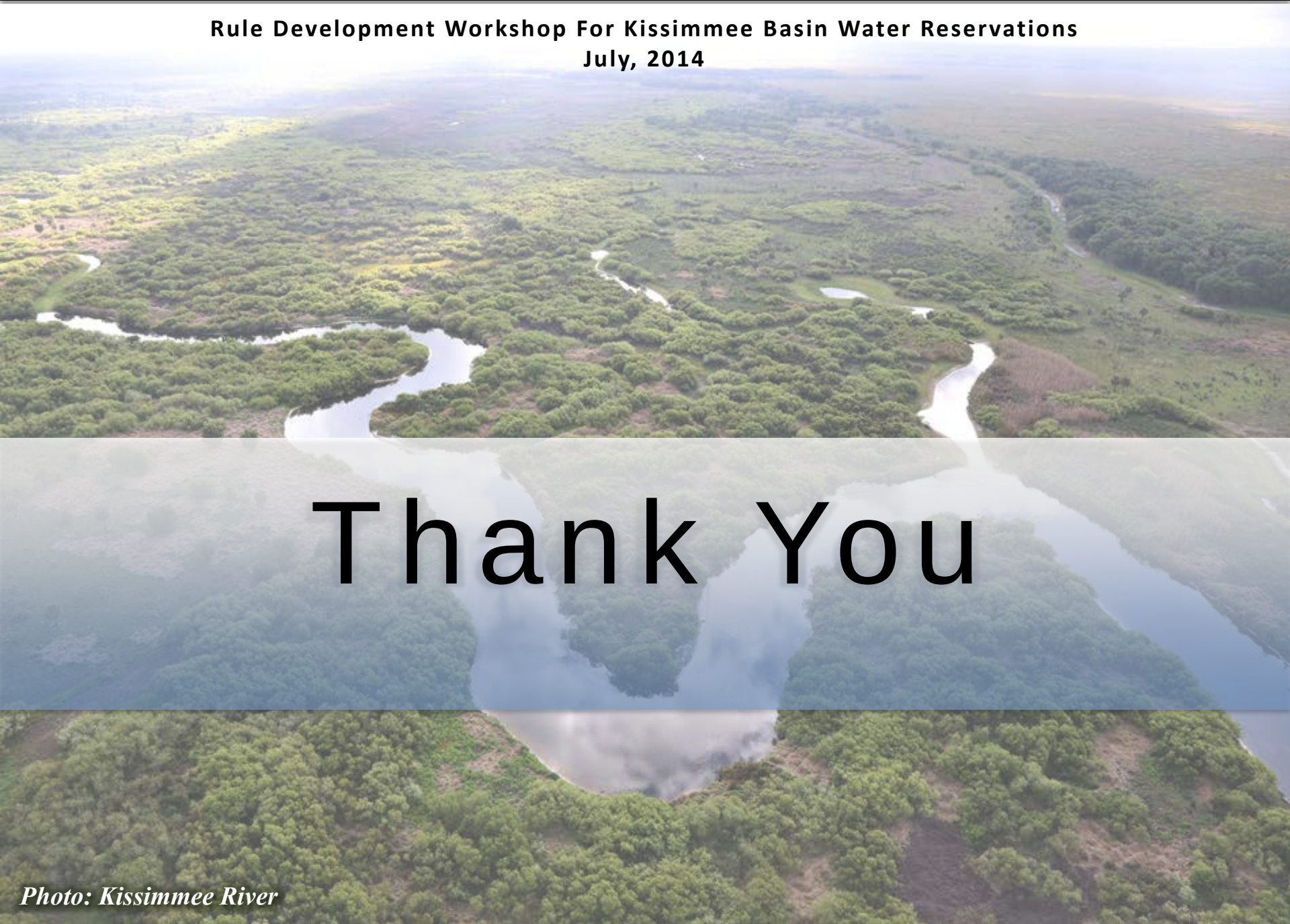
Rule Development Workshop For Kissimmee Basin Water Reservations
July, 2014



Questions & Public Comment

Photo: Kissimmee River

Rule Development Workshop For Kissimmee Basin Water Reservations
July, 2014



Thank You

Photo: Kissimmee River