

Lake Okeechobee WSE Regulation Schedule & Adaptive Protocols

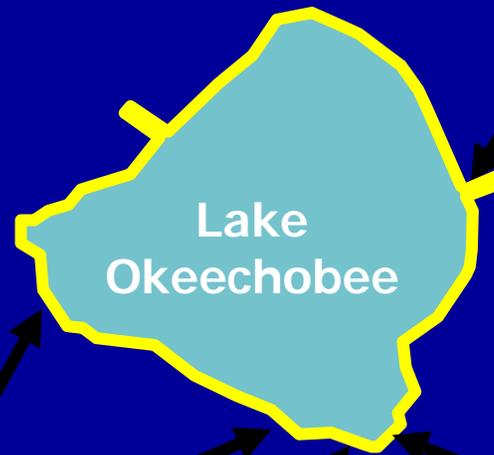
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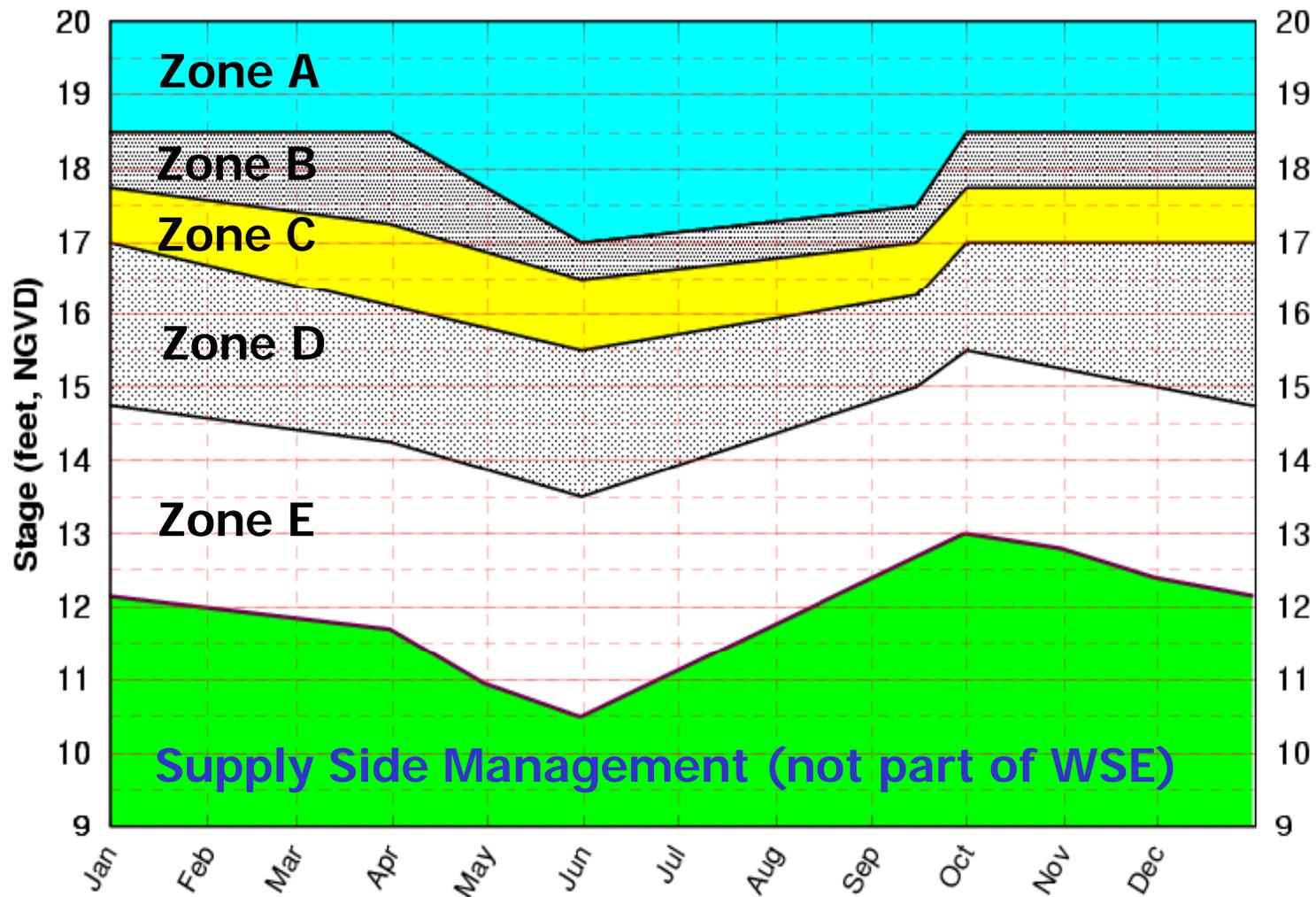
Lake Okeechobee and the Regional Hydrologic System



Lake Okeechobee Major Water Control Structures



WSE Schedule



A,B,C,D --
Regulatory
Release
Zones

E – No
Regulatory
Releases

Adaptive Protocols were developed to:

- Provide guidelines for determining specific volumes for regulatory discharges under the **WSE Schedule**
- Include procedures for making discharges to protect downstream ecosystems (e.g., salinity impacts in Caloosahatchee River)
- Occur in a highly transparent process with frequent venues for public input

Adaptive Protocols for WSE (Cont'd)

- Include quantitative performance measures for environment and water supply
- Includes multiple feedback loops
- Provides ability to take advantage of opportunities
- Is learning by doing (not a static process)

Performance Measures

- Lake Okeechobee
- Caloosahatchee & St. Lucie Estuaries
- Agricultural and Urban Water Supply
- Everglades Protection Area
- Everglades Stormwater Treatment Areas

Lake Okeechobee

- Protect SAV and emergent AV habitat
- Avoid extreme high stage (>17 ft)
- Avoid prolonged high (>15 ft. ≥ 2 months in summer, ≥ 4 months in winter)
- Avoid frequent extreme low stage (<11 ft)
- Attain a spring water level of 13.5 ft, with no stage reversals >0.5 ft during winter-spring decline

Adaptive Protocols for WSE regulation schedule

Caloosahatchee & St. Lucie Estuaries

- Protect oysters and SAV
- Maintain 300 to 2,800 cfs flow range for the CE
- Maintain 350 to 2,000 cfs flow range for the SLE
- Salinity <10 ‰ at Ft. Myers station in CE,
measured as 30-day average
- If possible, pro-active lake releases early to
reduce larger more harmful releases later

Everglades Protection Area

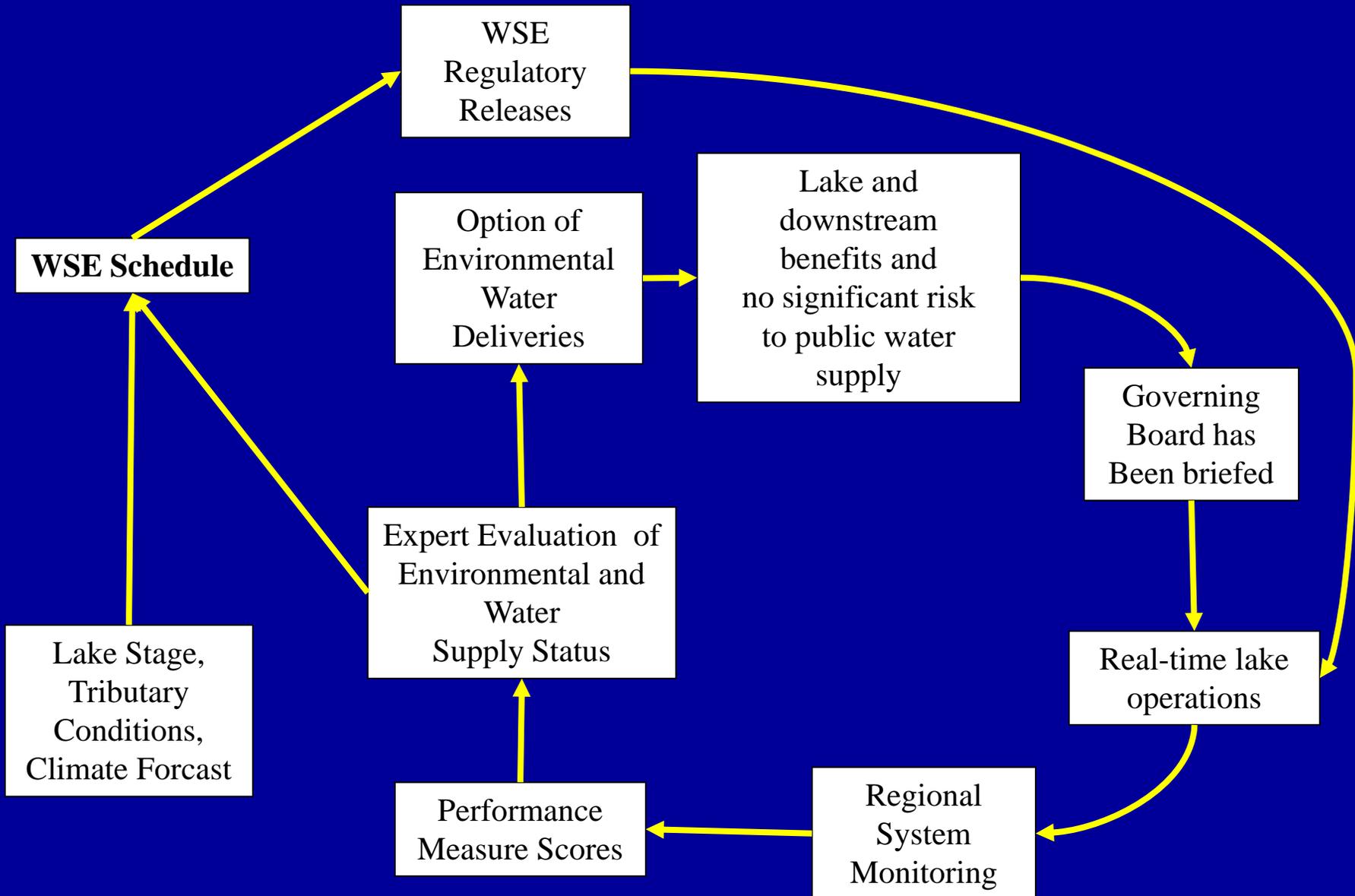
- Route lake water to best performing Stormwater Treatment Areas (STAs) to remove phosphorus
- Keep the STAs hydrated
- Avoid extreme high and low stages in Water Conservation Areas (WCAs)
- Facilitate WCA spring recession

Adaptive Protocols for WSE regulation schedule

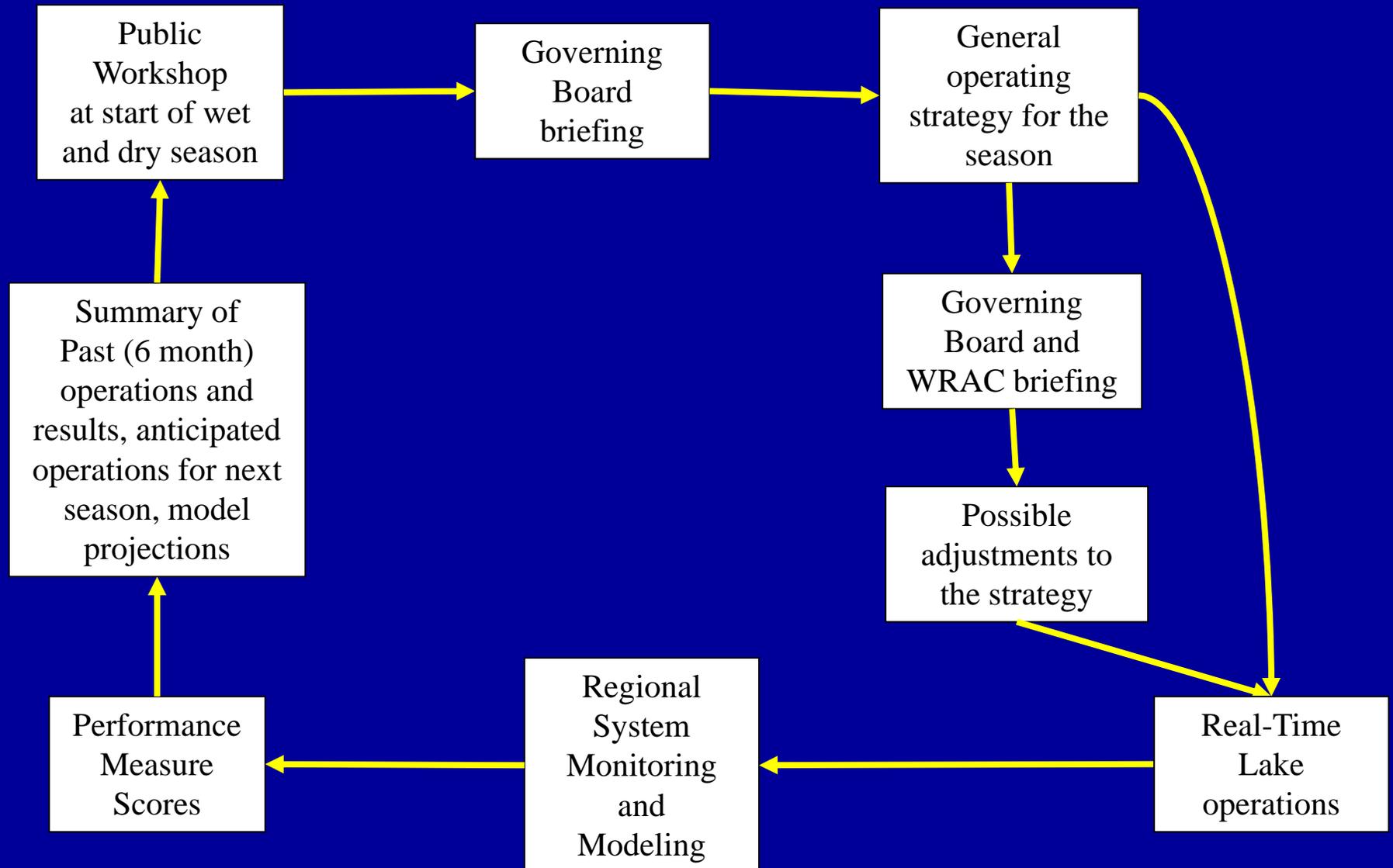
Water Supply Performance Measures

- Projected Lake stage in next two months based on Position Analysis model
- Lake tributary hydrologic conditions based on Palmer Drought Index
- 1 and 3 month precipitation outlook from NOAA
- Lake net inflow multi-seasonal forecast
- WCA stages

Feedback Loop for Real-Time Operations



Feedback Loop for Adaptive Protocols and WSE Public Process



Adaptive Protocols Summary

- Identify specific discharge amounts in WSE
- Identify pro-active discharges in wet years
- Provide opportunities for Lake releases for resource protection
- Include frequent input from public
- Aim to maximize benefits to environment without increased risk to water supply

Adaptive Protocols for WSE regulation schedule

WRAC Recommendations

(incorporated into the final protocols)

- *protocols should include the option of making environmental water deliveries to downstream ecosystems, but not exceeding 300 cfs unless approved by the Governing Board, and only in Zone D or above*
- *take advantage of opportunities where the WSE schedule calls for releases to the WCAs to provide freshwater to meet demands of the estuaries*

Steps to Revising the Adaptive Protocols

- Incorporate existing protocols into the LORS 2008 regulation schedule
- Update performance measures, and modeling as necessary, for evaluating performance of the revised protocols
- Work with WRAC sub-committee to identify additional areas for improvement
- Present to Governing Board for acceptance
- Use to guide weekly recommendation for system operations as well as Governing Board guidance to the USACE.