Lake Okeechobee Watershed Project

Provisional Existing Conditions and Future Without Project

Presented by:
LOW Modeling Team

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Topics

• 2012 Existing Condition Baseline (ECB)
• 2050 Future Without Project Baseline (FWO)
Key System Changes From ECB to FWO

- **Kissimmee River Restoration**
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- EAA
The Lower Kissimmee Basin is partitioned into three major sub-watersheds: Pools A, BCD (Pool BC & Pool D combined into Pool BCD), and E.

Stage-volume and stage-area relationships updated for Pool BCD.

Structure S-65C is removed.
Kissimmee Basin Inflows to Lake Okeechobee

Average Monthly Flows at S65E (cfs)

- FWO
- ECB
Key System Changes From ECB to FWO

- Kissimmee River Restoration
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- C-43 Phase 1 Reservoir
- EAA
Indian River Lagoon ECB in RSMBN

C44 Basin
- S-80 discharges into the St. Lucie Estuary.
- C44 Basin runoff has potential to backflow into Lake Okeechobee when Lake stage is below 14.5 feet NGVD.
- C44 Basin supplemental demands for surface water irrigation are met by Lake Okeechobee.

C23, C24, TMC and NF-SF-B456 (NSF) Sub-watersheds
- Three outlet structures discharge from each of the basins into the St. Lucie Estuary.
- Structure capacity is assumed to be limited only by available basin runoff.
- No regional deliveries to meet demands.
Indian River Lagoon FWO in RSMBN

FWO Project Features
- Consistent with latest CERP Indian River Lagoon - South DDRs that update the authorized 2004 PIR.
- Includes latest operational intent (Opti6) per St Lucie River Watershed Protection Plan (January 2009).
- Basin demands can be met by project features.

C44 Reservoir and STA
- Storage capacity: 50,246 acre-feet
- Footprint: 12,125 acres (assumed 9700 effective acres / 80%)
- Inlet: 1060 cfs capacity, modeled as pump; source: C44 Basin
- Inlet: 250 cfs capacity, modeled as pump; source: C23 Basin
- Outlet: 550 cfs capacity, modeled as pump; destination: C44 Basin
Indian River Lagoon FWO in RSMBN

C23/ 24 Reservoir

- Storage capacity: 92,094 acre-feet
- Footprint: 8675 acres (assumed 6940 effective acres / 80%)
- Inlet: 900 cfs capacity, modeled as pump; source: C23 Bas
- Inlet: 900 cfs capacity, modeled as pump; source: C24 Basin
- Outlet: 300 cfs capacity, modeled as pump; destination: C23 Basin
- Outlet: 300 cfs capacity, modeled as pump; destination: C24 Basin
- Outlet: 200 cfs capacity, modeled as pump; destination: C23/ C24 STA
Indian River Lagoon FWO in RSMBN

C23/ C24 STA
- Storage capacity: 3852 acre-feet
- Footprint: 3323 acres (assumed 2568 effective acres / 80%)
- Inlet: 200 cfs capacity, modeled as pump; source: C23/ C24 Reservoir
- Outlet: 200 cfs capacity, modeled as pump; destination: TMC Basin

Ten Mile Creek Reservoir and STA
- Storage capacity: 7078 acre-feet
- Footprint: 820 acres (assumed 656 effective acres / 80%)
- Inlet: 360 cfs capacity, modeled as pump; source: TMC Basin
- Outlet: 200 cfs capacity, modeled as pump; destination: TMC Basin
Key System Changes From ECB to FWO

- Kissimmee River Restoration
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- EAA
Caloosahatchee ECB in RSMBN

C43 Basin

- S-79 discharges into the Caloosahatchee Estuary.
- C43 Basin runoff has potential to backflow into Lake Okeechobee when Lake stage is below 11.1 feet NGVD.
- C43 Basin supplemental demands for surface water irrigation are met by Lake Okeechobee.
Caloosahatchee FWO in RSMBN

C43 Reservoir

- Modeled consistent with September 2007 PIR
- Storage capacity: 175,800 acre-feet
- Maximum footprint: 9,379 acres
- Inflow, capacity 1500 cfs, modeled as pump; destination: C43 Reservoir
- Outflow, capacity 1200 cfs modeled as pump; destination: C43 Canal
- Operates to meet estuary environmental target time-series (EST05)
Key System Changes From ECB to FWO

- Kissimmee River Restoration
- Indian River Lagoon-South
- C-43 Phase 1 Reservoir
- EAA
EAA ECB in RSMBN

- Model water body components as follows:
  - Miami Water Body = S3 + S8 + A2W
  - NNR/Hillsboro Water Body = S2 + S6 + S7 + A2E + B North + B South + New Hope South
  - WPB Water-Body = S5A

- Simulated runoff from the North New River – Hillsboro basin will be apportioned based on the relative size of contributing basins via s7 route vs. S6 route.
- G-341 routes water from S-5A Basin to Hillsboro Basin
- EAA runoff and irrigation demand compared to SFWMM (ECB) simulated runoff and demand from 1965-2005 for reasonability
- Compartment C land in the Miami Canal Basin between STA-5 and STA-6 is not considered to be in production (shrub Land Use). Then, no irrigation demands are required in this area.
- Compartment B (excluding cell 4) land in the North New River/Hillsboro is not considered to be in production (shrub Land Use). Then, no irrigation demands are required in this area.
EAA FWO in RSMBN

- **A1 FEB**: 15,853 acres
- STAs are simulated as single waterbodies
- **STA-1E**: 6,546 acres total area
- **STA-1W**: 7,488 acres total area
- S-5A Basin runoff is to be treated in STA-1W first and when conveyance capacities are exceeded, rerouted to STA-1E
- **STA-2**: cells 1,2 & 3: 7,681 acres total area
- **STA-2N**: cells 4,5 & 6; refers to Comp B-North; 6,531 acres total area
- **STA-2S**: cells 7 & 8; refers to Comp B-South; 3,570 acres total area
- **STA-3/4**: 17,126 acres total area
- **STA-5N**: includes cells 1 & 2: 5,081 acres total area
- **STA-5S**: includes cells 3, 4 & 5; uses footprint of Compartment C: 8,469 acres total area
- **STA-6**: expanded with phase 2: 3,054 acres total area
- **STA-3/4** receives Lake Okeechobee regulation target releases at or below 60,000 acre-feet annual average for entire period of record
DISCUSSION