



U.S. Fish & Wildlife Service

Arthur R. Marshall

Loxahatchee National Wildlife Refuge

Summary and Future Plans



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Summary

- Completed in-depth review of important hydrodynamic and water quality processes occurring in the Refuge
- Dual Modeling Approach:
 1. A completely mixed flow (CMF) mass balance model
 2. MIKE-FLOOD/ECOLAB spatially explicit model

Summary

- Applied sound scientific principles and approaches to setup CMF and MIKE FLOOD
- Initial simulations helped identify model data needs and knowledge gaps
- Recognized that data availability constraints limited rigorous model calibration and validation

Summary

- Despite data deficiencies, potential success of the hydrodynamic model and the phosphorous fate and transport model is good and fair, respectively
- Imperative to identify additional monitoring data needs to support future modeling efforts

Summary

- CMF model is efficient; provides excellent spatially-averaged marsh and rim-canal information.
- MIKE-FLOOD provides spatial variability within the Refuge
- Dual modeling approach increases overall confidence in numerical predictions

Workshop #2

- **Tentative Date: August 2007**
- **MIKE FLOOD & EcoLab**
 - **Hydrodynamics**
 - **Chloride**
 - **TP**
- **CMF (STELLA)**
 - **Reconfigured cell-structure**
 - **TP**

Future Plans

- Modeling Refuge hydrodynamics at low marsh stages
- Post-processing tools for models:
Performance metrics and HSIs
- Model comparison: including (but not limited to) SFWMM, ATLSS, ELM, EDEN,
- Additional monitoring needs for model performance: Rainfall, Velocity, Wind