

Appendix D. History of Restudy Performance Measures

Restudy Performance Measures

During the Central and Southern Florida (C&SF) Project Comprehensive Review Study, referred to as the Restudy, performance measures were developed to evaluate relative ability of plans to meet ecological and hydrological objectives. These performance measures are documented in Appendix D of the Restudy's final feasibility report (USACE and SFWMD 1999). Many performance measures used during the Restudy to evaluate hydrology and water quality of the system are still being used, but they have been refined and grouped into a smaller set of performance measures. Also, performance measures were updated to incorporate results from new model versions, including an expansion of period of record simulated. Below is a summary of major revisions and additions to performance measures used for evaluation during the Restudy. Additional performance measures with ecological indicators have been developed since the Restudy.

Greater Everglades Wetlands

During the Restudy, 51 separate performance measures were used to evaluate hydrology. Some of these have now been grouped into a smaller set of performance measures. In addition, interpretation of performance relative to their targets was altered, instead of trying to meet the target (Natural Systems Model or South Florida Water Management Model 2000 existing condition) at discreet locations, an envelope or range of targets was developed for each landscape type based on model results for the entire landscape. Using an envelope captures some of the uncertainty of the model results without losing the scientific underpinnings of the target.

While refining Greater Everglades performance measures, locations of indicator regions, which are locations used to evaluate performance, were refined. The process for determining indicator regions is described in Appendix E of this document.

Northern Estuaries

For Caloosahatchee and St Lucie Estuaries, the number of events outside of the salinity envelope was revisited to accommodate the longer period of record in SFWMM version 5.0. Additionally, two performance measures have been added for Lake Worth Lagoon and Loxahatchee River Estuary salinity envelopes.

Southern Estuaries

Salinity envelopes were identified for most of contributing basins for Biscayne Bay, and seasonal flow targets were created for Miami River and South Bay, while Snake Creek's target was revised. These salinity envelopes are based on estimated requirements of target communities or organisms and regression analyses relating salinity to flows from selected coastal control structures in the C&SF Project. A separate seasonal flow target and

performance measure was established to create a persistent positive freshwater gradient from freshwater wetlands into the bay.

New regression analyses relating Florida Bay salinity to water stages in Everglades National Park were completed and improved by focusing on gauges located nearest to each basin and incorporating additional environmental variables. Targets were expressed in terms of salinity references rather than stage references for Joe Bay, Little Madiera Bay, Terrapin Bay, Garfield Bight and North River Mouth. Performance measures with targets were created for two additional embayments: Manatee Bay and Barnes Sound.

Water Supply

Frequency of water restrictions performance measures were revisited to ensure they focus on regionally significant water restriction events. Local or insignificant water restriction events are no longer considered.

Flood Protection

The Restudy performance measure for flood protection in the South Miami-Dade Agricultural Area was updated to incorporate calibration and validation results from SFWMM version (5.0). The target is based on 1983-1993 stage hydrographs of seven selected cells. A new measure was added to evaluate performance relative to Interim Structural Operation Plan 2001 citations operations.

Water Quality

Twenty-four performance measures were developed by Dr. William W. Walker and used by the water quality sub-team during the Restudy to evaluate effect of alternatives on performance of the Everglades Construction Project. A subset of these performance measures has been modified to evaluate hydrologic conditions and ecological during CERP implementation. The evaluation method used by Dr. Walker during the Restudy is not incorporated in the current set of performance measures due in large part to its inclusion of all CERP components to evaluate plan alternatives rather than individual project alternative plans.

References

USACE and SFWMD. 1999. Central and Southern Florida Project Comprehensive Review Study Final Integrated Feasibility Report and Programmatic Environmental Impact Statement. United States Army Corps of Engineers, Jacksonville District, Jacksonville, Florida, and South Florida Water Management District, West Palm Beach, FL.

http://www.evergladesplan.org/pub/restudy_eis.aspx