Abstract/background:
The RECOVER Evaluation Team, Greater Everglades (GE) sub-team is responsible for developing performance measures (PMs) to forecast the effects of implementation of specific project alternatives on progress toward achieving Comprehensive Everglades Restoration Plan (CERP) goals. The domain of the Greater Everglades sub-team runs from just south of Lake Okeechobee to the Coastal gradients abutting Florida Bay and Biscayne Bay. Similar to the other RECOVER regional sub-teems, Greater Everglades developed a suite of hydrologic, water quality, and ecological/biological performance measures to evaluate the contribution of specific project alternatives to the system-wide goals of the Plan. The following synthesis provides an overview of the existing suite of PMs used to evaluate the GE, and provides an overview of the team’s proposed updates, and identifies existing needs and gaps. Details of newly accepted or newly proposed metrics for the Greater Everglades are highlighted in the remaining GE posters in this session.

Geographic domain:

Hydrology PMs:
- Dry Down duration- number, duration and percent period of record of dry events (applied in indicator regions 129-132 Shark River Slough/ENP)
- Inundation duration- number, duration, and percent period of record of inundation events (applied in all indicator regions)
- Extreme High and Low water depths- new methods for calculating extreme lows and proposed target updates for extreme highs are under review (see related poster for details) This PM is applied in all indicator regions.

Ecological PMs:
- Wet Prairie Vegetation

Figure 1a) Natural Systems Model (target) flow vectors where vector size is proportional to flow volume. 3b) ASR flow vectors (Note- distribution of NSM flows is concentrated on the Eastern portion of Tamiami Trail relative to ASR. 3c) The Flow continuity metric compares the project alternative Coefficient of Variation (CV) across paired transects to the target flow CV.

Figure 2a) Updated methods for calculating extreme lows based on cumulative drought intensity differences between project alternatives. Black circles indicate a condition dryer than the first alternative (2015BS), blue circles indicate wetter conditions than the first alternative and movement toward target, and no circle indicates that conditions are as wet or wetter than the target condition. The size of the dot is proportional to the magnitude of difference between alternatives relative to target & 2b) Relationship between area burned and stage (modified from Backjos et al. 2003).

Water Quality PMs:
- Total Phosphorus loading and flow weighted mean
- TP concentration
- Soil TP (Neeuman et al 2000)

Relationship of Interim Goals and Total System PMs to Greater Everglades PMs

Next steps: Gaps/needs and current efforts
- Hydrology- continued refinement of methods to address seasonality, sensitivity and uncertainty, continued development of empirical targets, and review of high resolution water depth methods.
- Water Quality - implementation of predictive tools (such as GLM) or develop further guidance on proxy application
- Ecological: use a high resolution hydrologic method to accept hydrosequences can be applied to ecological models at spatial scales more relevant to the organism in question.
- Slough vegetation- continued development of empirical targets based on vegetation optics and tolerance
- Alligators/Crocodiles
- Fish
- Birds
- Reptiles
- Periphyton

Formal integration of Greater Everglades Assessment and Evaluation Teams in 2008-2009. The monitoring and assessment program will continue to support model refinement and empirical target development. Ecological models developed by assessment team principal investigators will be tested with hydrology sequences to predict change (supports evaluations and assessments)

References:
- Jan-65
- Jan-68
- Jan-71
- Jan-74
- Jan-77
- Jan-89
- Jan-95
- Jan-98

Figures 3a) South Florida Water Management Model grid with GE indicator regions

Figures 4a) GE domain & 4b) South Florida Water Management Model grid with GE indicator regions

Figures 5a) The Ross-Sah frequency distribution of hydroperiod of wet prairies. The blue line indicates the normalized frequency distribution. 5b) The selected areas of wet prairies for the Wet Prairie Vegetation Performance Measure (white polygons). The red dots are the assessed indicator sites.

Figures 6a) Integrate hydrology and water quality conceptual model and 6b) Integrated periphyton nutrient status map.

Figures 7a) The Ross-Sah frequency distribution of hydroperiod of wet prairies. The blue line indicates the normalized frequency distribution. 5b) The selected areas of wet prairies for the Wet Prairie Vegetation Performance Measure (white polygons). The red dots are the assessed indicator sites.