CENTRAL
EVERGLADES
PLANNING
PROJECT

SCREENING FRAMEWORK (NORTH OF REDLINE)

Presented to
SFER Working Group Workshop

by
CEPP Modeling Team

March 9, 2012

CEPP PLAN FORMULATION FRAMEWORK

TREATMENT /STORAGE

CONVEYANCE/DISTRIBUTION/SEEPAGE

INITIAL SCREENING

RANGE OF QUANITY/QUALITY MEASURES

↓

SCREEN AND OPTIMIZE
(RESOPS, Eco-criteria, Cost)

↓

Option A | Option B

WATER BUDGET

COMBINE OPTION A AND OPTION B WITH CONVEYANCE, DISTRIBUTION AND SEEPAGE MEASURES

NOTE: Potentially large number of combinations

SCREEN AND OPTIMIZE
(RSM, Parametric Costs, Eco-Criteria)

A1 A3 A7 B2 B3 B6

Final Array of Alternatives

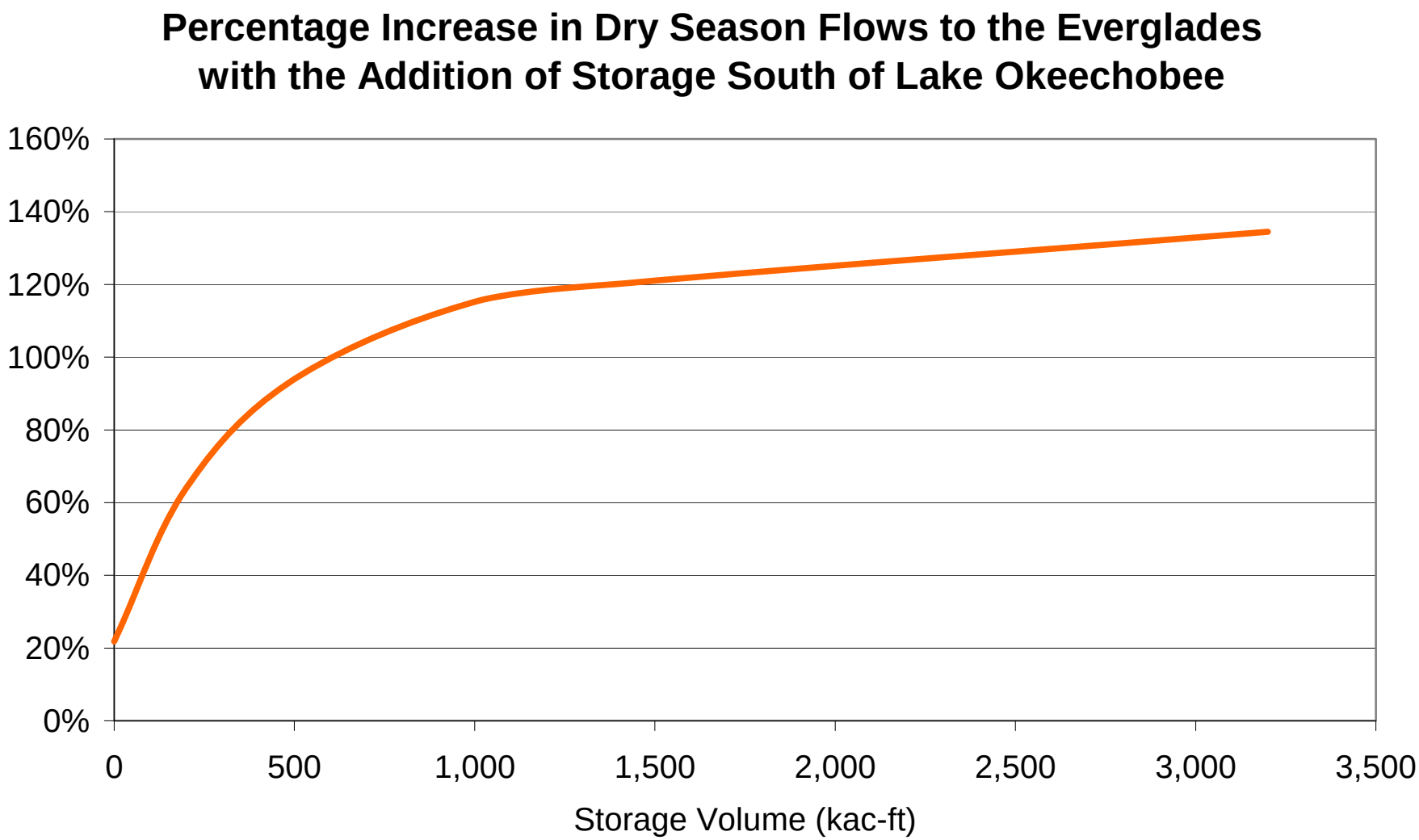
DETAILED EVALUATION
(Ecological benefits, Planning-level Costs, CE/ICA, P&G criteria, System of Accounts)

TSP

Screening Tools and Techniques

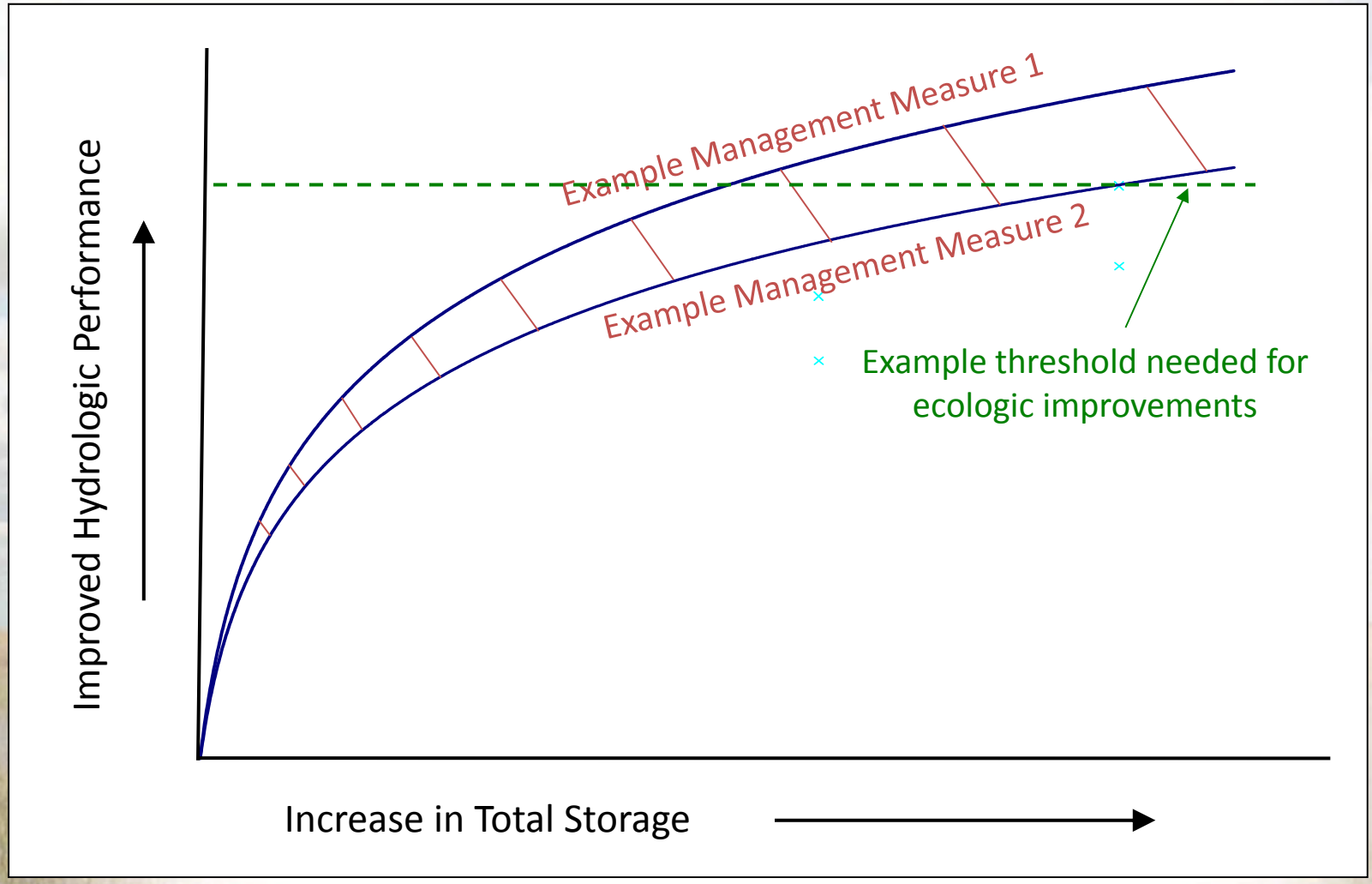
- The benefit of screening is to quickly test the performance of alternative configurations and scenarios to identify feasible ideas for further in-depth analysis.
  - Not a replacement for the detailed regional models
  - Can reduce the burden on the more complicated regional models (RSM) and inform project decision making efforts.
- Optimization and inverse modeling techniques can be used to automatically evaluate thousands of operating rules and select the best performers.

Example: Screening Techniques

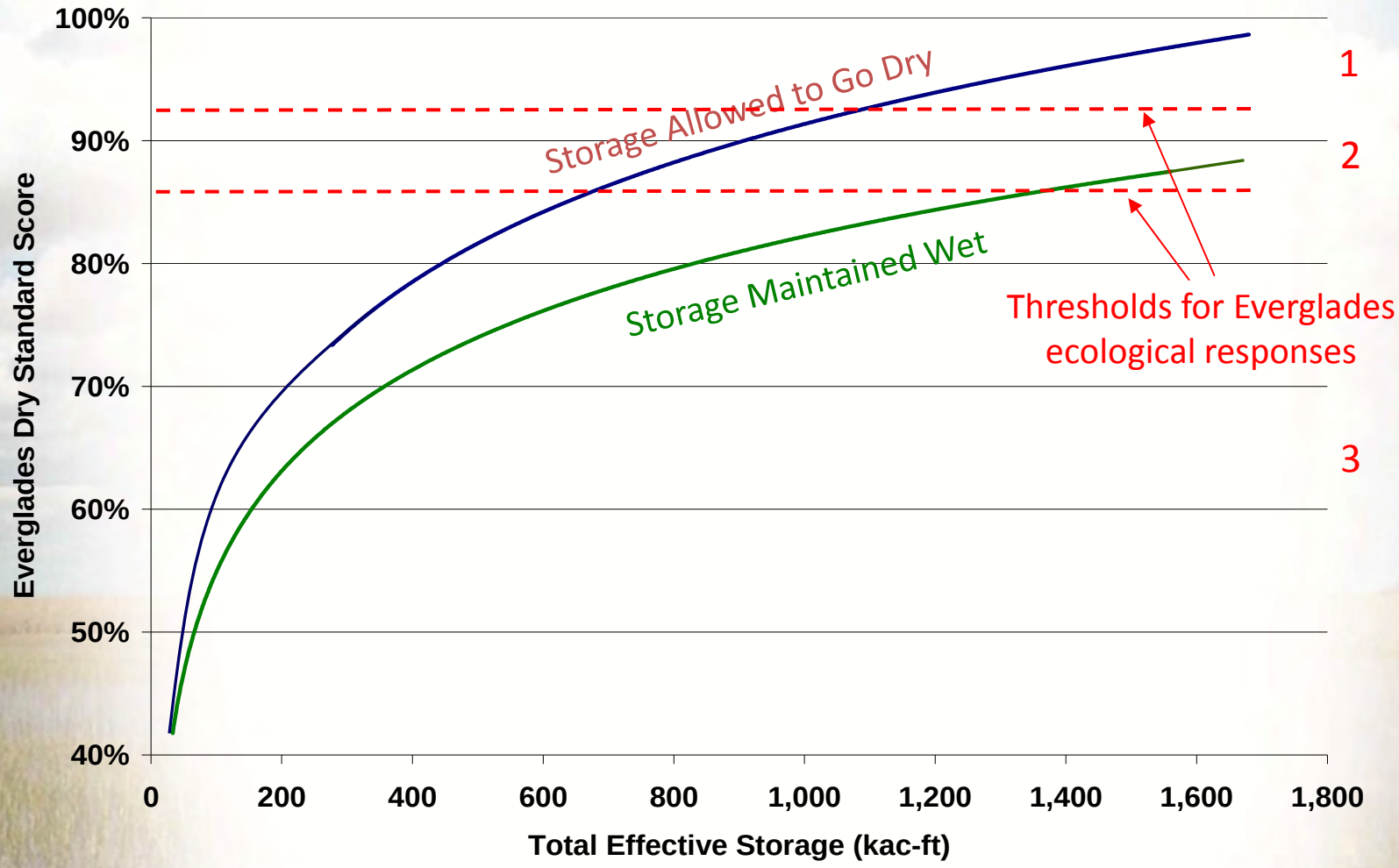


Based on RESOPS Screening Analysis of November to May Deliveries During the 1965 to 2005 Period.

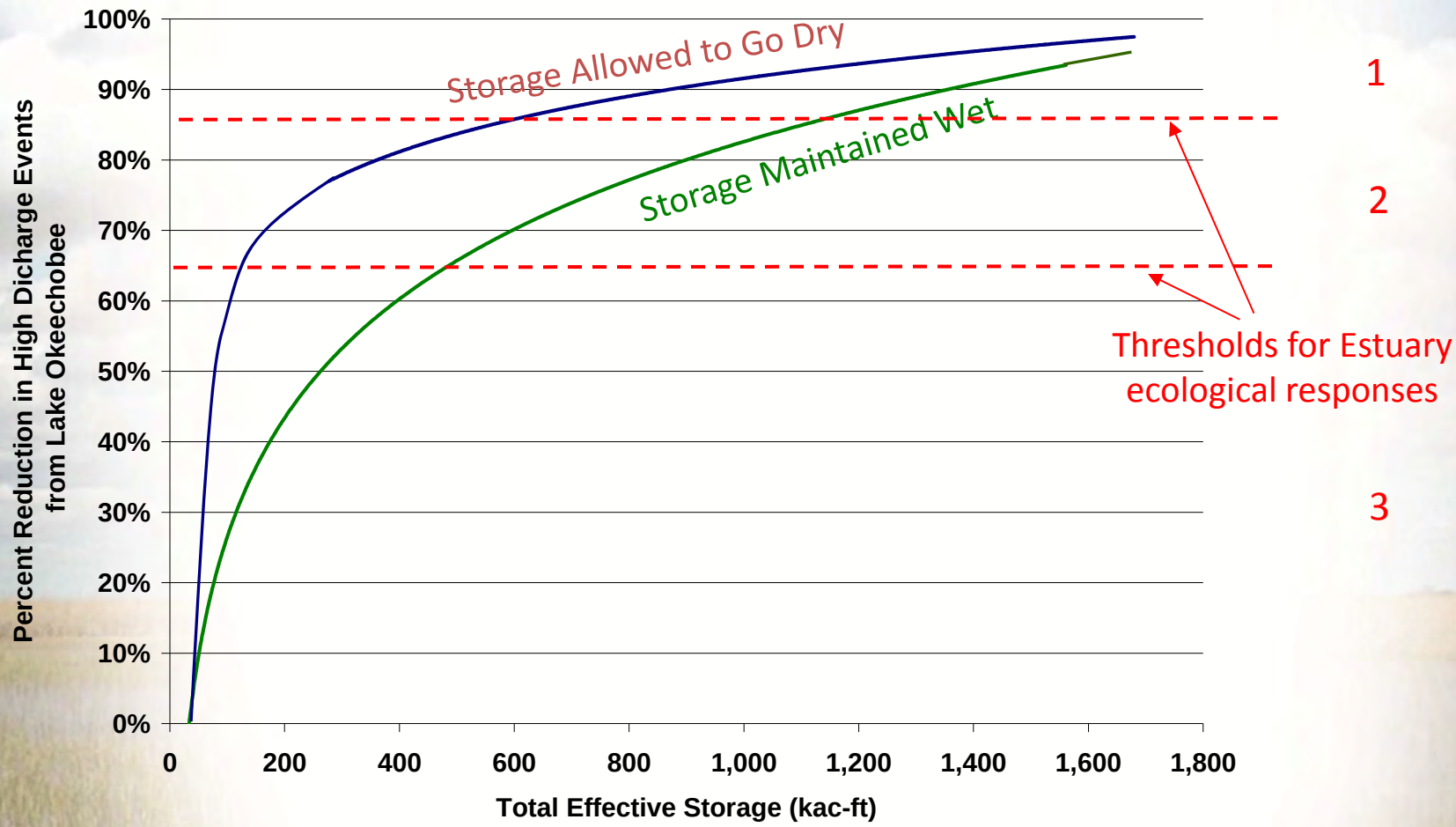
Example Screening Graphic



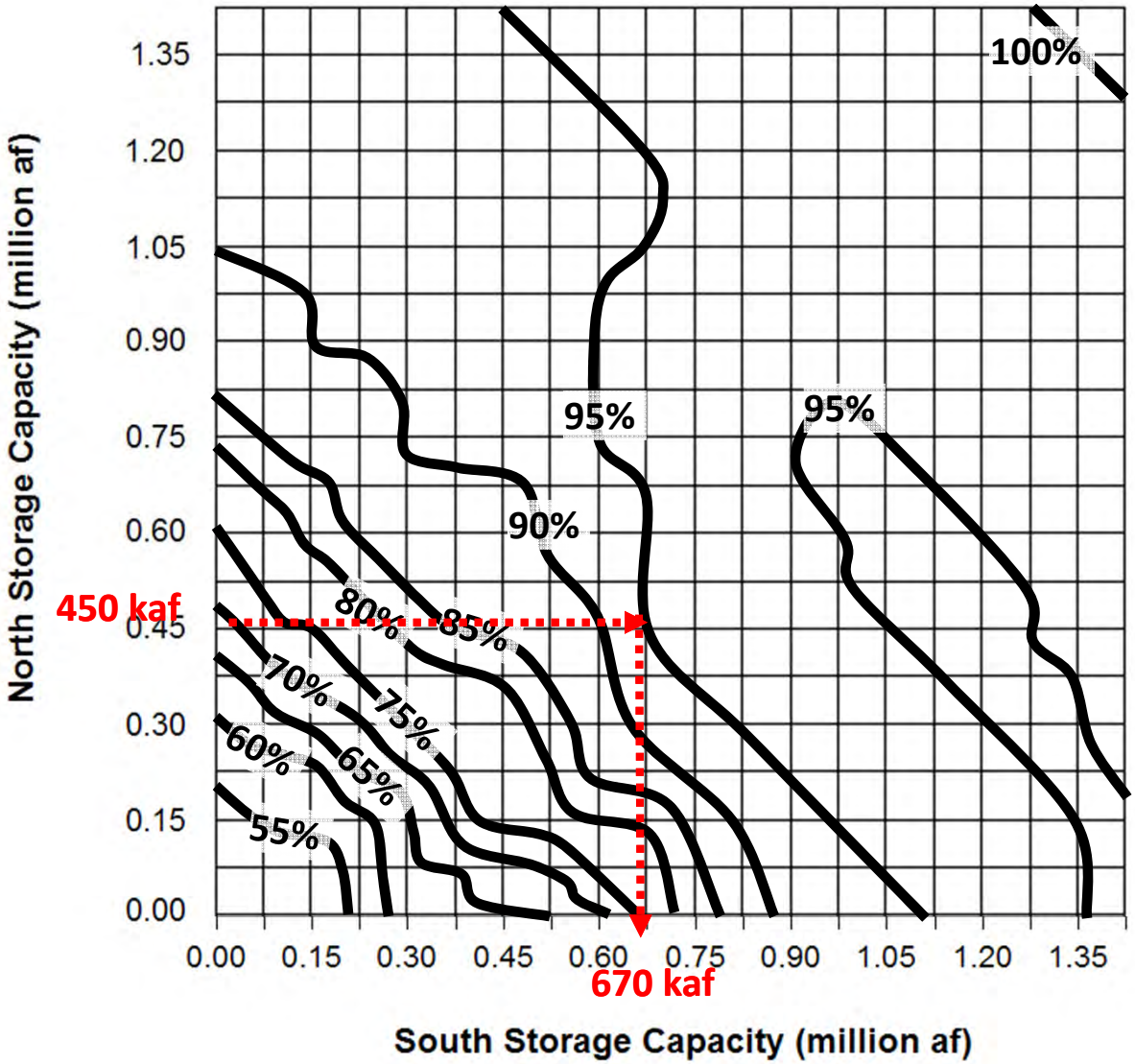
River of Grass Trend Analysis Graphic for Everglades Dry Standard Score



Trend Analysis Graphic for Lake Triggered Damaging Estuary Discharges



% Reduction in Lake-Triggered High Discharges to the Northern Estuaries

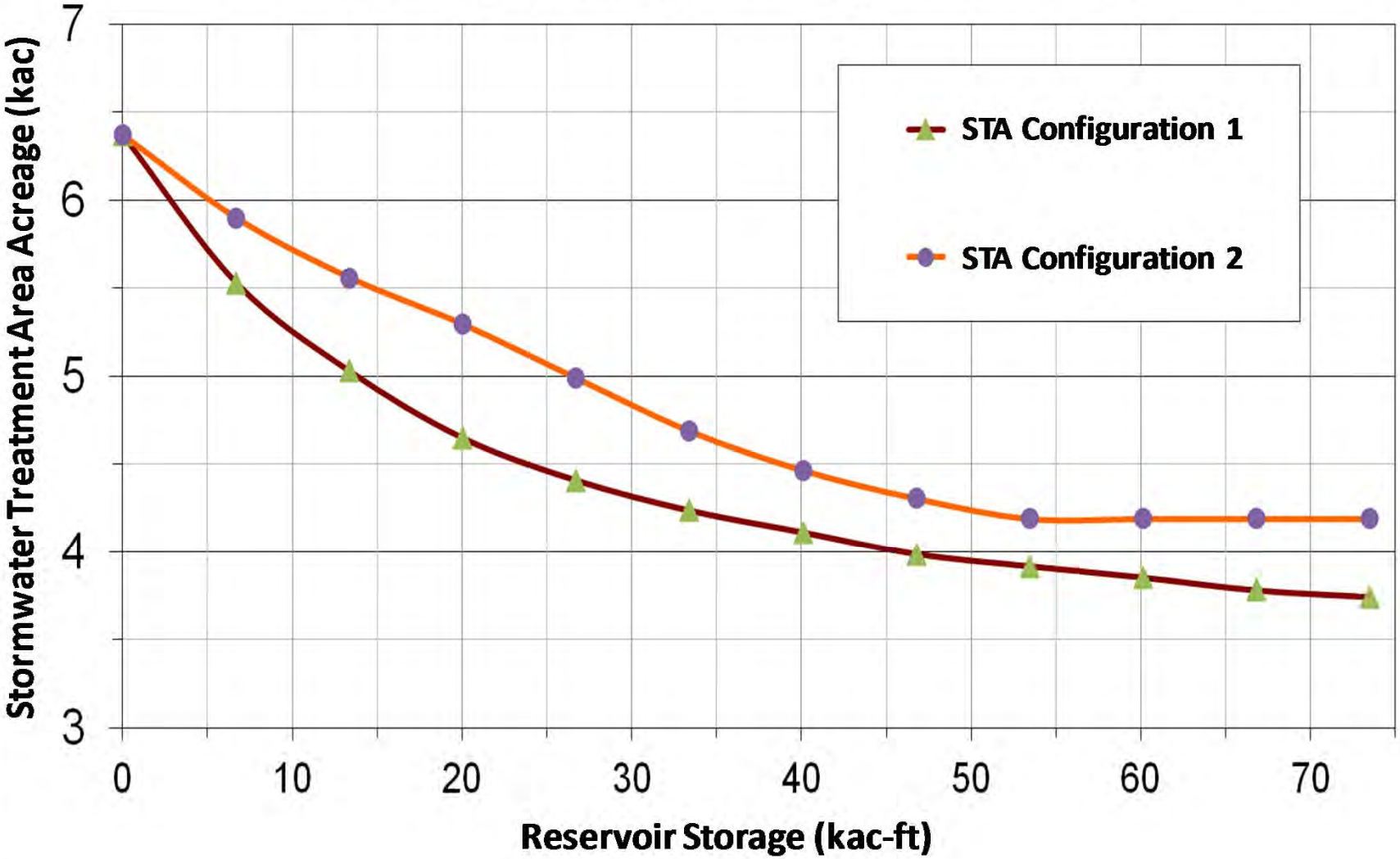


Performance Maps provide guidance for selecting storage size combinations to achieve desired levels of performance.

Results from RESOPS Model simulations of specific configurations will consider more detailed specifications and performance may vary from the general guidance provided here.

Note:
Each of the 400 points used to create this map represents an optimized operation of the corresponding storage configurations. Approx. 350 RESOPS model simulations were performed for each storage configuration.

Example STA / Storage Screening

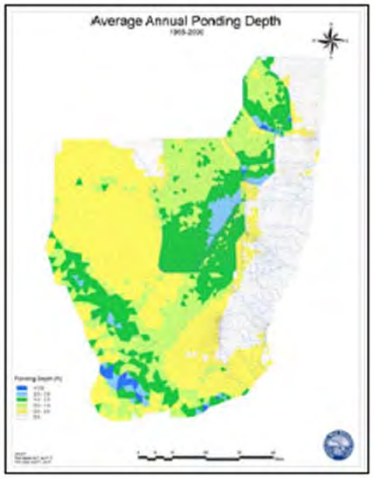


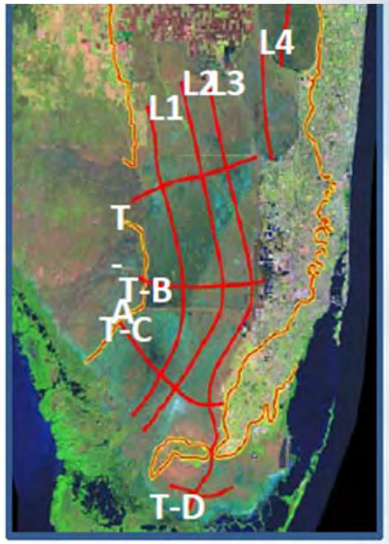
Potential Uses

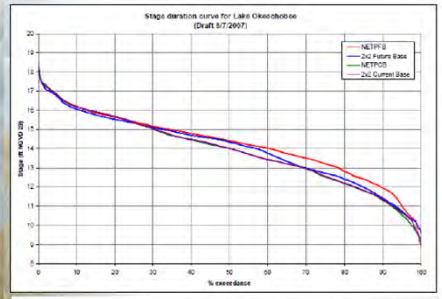
- Identifying feasible ranges of feature sizing for alternative identification
- Comparing the viability of proposed management measures
- Informing the discussion on what objectives are most critical to design
- More…

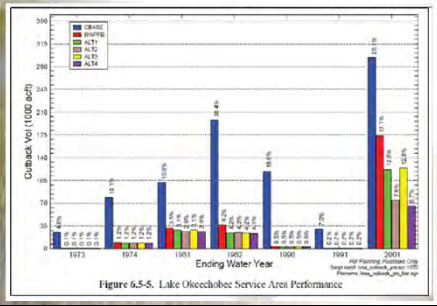
Hydrologic Evaluation

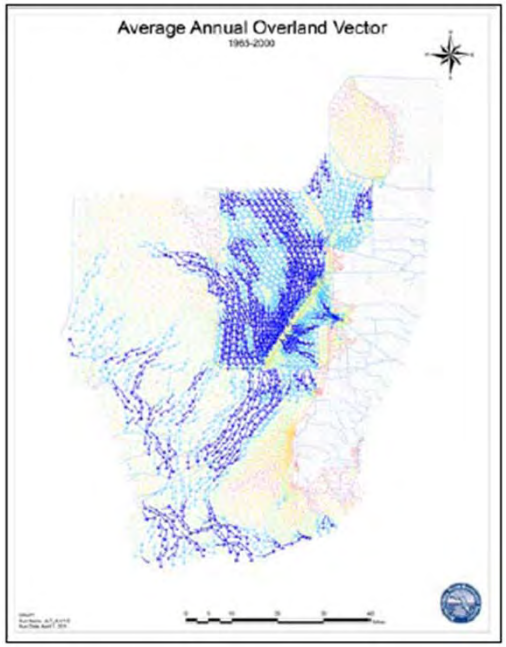
- Stages/Head
  - Durations
  - Hydroperiods
- Flow Distributions
- Flow Directions
- Basin Water Budgets
- Seepage

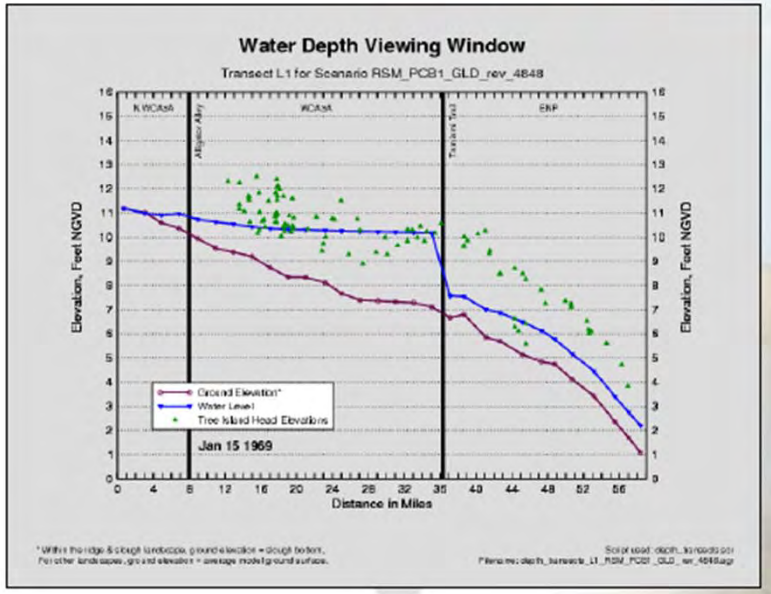












CEPP Performance Measures

Planning Region	Performance Measure	Description
Lake Okeechobee	**Lake Stage**	Measure of optimum stages for Lake Okeechobee littoral zone health (stage envelope and high and low stage)
Northern Estuaries	**Salinity Envelopes**	Measure of suitability for oyster and sea grass habitat based on frequency of flows from S-79 and S-80
Greater Everglades	**Hydrologic Surrogate for Soil Oxidation**	Measure of cumulative drought intensity to reduce exposure of peat to oxidation
	Inundation Pattern in Greater Everglades Wetlands	Measure of the number and duration of inundation events used to calculate the percent period of record of inundation
	Number and Duration of Dry Events in Shark River Slough	Measure of the number of times and mean duration in weeks that water drops below ground
	Sheet flow in the Everglades Ridge and Slough Landscape	Measure of the timing, distribution and continuity of sheet flow across the landscape
	Slough Vegetation Suitability	Measure to evaluate the hydrologic suitability for slough vegetation (hydroperiod, dry-down, dry and wet season depths)

General Timeframe / Milestones

- Overall goal of screening: To help inform decision making in identifying CEPP alternatives
- By mid to end of April, many screening products will be available.
- CEPP will attempt to define north of red-line alternatives for detailed evaluation by mid-May
- Preliminary alternative results with detailed model (RSMBN) by June

DISCUSSION