Breakout Group A - Sample Matrix of Marsh Metrics. CRRC, December 2007.

Description of Matrix: A list of potential marsh metrics for discussion will be provided in Column A as a conversation starter (in this case aboveground vegetative productivity is used as an example). Some example screening criteria are provided in Row 1 to show how an individual marsh metric could be evaluated. Each breakout group has flexibility to add, modify, or delete a particular marsh metric or screening criteria during their analysis, but keep in mind that the Organizing Committee must combine all the matrices at the end. In Rows 3-5, example indivdual comments from group members are shown separately to illustrate how different opinions from multiple members might be captured. The breakout group does not have to identify opinions by individual group member in the matrix, although some group members or a breakout group may choose to do so. A final word - The formatting of the matrix is much less important than the content!

Loose Guidance: Each breakout group can choose which marsh metrics they would like to evaluate and what level of detail to provide. It's possible that only 5-10 marsh metrics may be identified by a breakout group as valuable in a HEA and evaluated in detail. That's okay. Some breakout groups may choose to try and evaluate all the metrics. That's okay too. The goal of this multi-day exercise is to capture a diversity of opinon with respect to these metrics and evaluate the pros/cons of the most likely marsh metrics that will be used in HEAs. If breakout group members have relevent literature to suggest for later consideration, then put a citation or description of the citation in the matrix. Best professional judgement or opinions are fine to include too, as are specific NRDA case examples that are applicable to the marsh metric. The recorder will try and capture raw input from the breakout group during the initial stages, and then it's expected that the breakout groups will fine-tune their matrices as the Workshop progresses. The Organizing Committe anticipates terminology issues because of the subject matter. If these issues do come up, then the recorder and group leaders will try to resolve them appropriately in the matrix.

Ranking of Marsh Metrics: At several points during the Workshop, the Organizing Committee is going to ask for a ranking of the marsh metrics so that the marsh metrics under discussion by the entire group becomes more narrow. The rankings will be captured in each of the breakout groups' matrix by adding a column for the rankings on the left side of the list of metrics. The facilitator will provide more details at the appropriate point in the Workshop, but be thinking about how you would prioritize marsh metrics.

		Field Measurement Difficulty	Suitability of Baseline Data	Sensitivity to Contaminant	Variability	Accurate Service Loss and Recovery Estimators	Restoration Scalability	Computational Difficulty in HEA	Cost
Aboveground Vegetative Productivity									
Person A (example)		Highly accurate measurement possible and non-destructive methods also can be used, typically with associated computational assumptions. Training for field crews is minimal and equipment/lab costs are typically low.	Range of baseline values known in many areas for a few species but data is variable by region and species. Baseline changes with elevation and other physiochemical factors.	Good predictor for oil but less useful for metals	High variability within region, state, or watershed; Seasonal variability can be high but watershed-specific ranges have been developed in many parts of the U.S	Precedent to use this metric as an indicator of service loss and recovery. Highly accurate measurement is useful for distinguishing affected areas from baseline conditions. This metric was successful during Case XYZ.	Metric can be used for injury and for scaling restoration.	Inter-annual and seasonal data have been synthesized for common species in many areas. Known data relationships over time can be integrated in HEA calculations with minimal difficulty.	Replicate clip plots paired with structural measurements are needed to distinguish potential service losses from baseline.
Person B (example)		Clip plot methods well-established. Jane Doe et al. is a good citation.	Comparisons across habitats or studies can be difficult because researchers measure different things, such as net aboveground primary productivity (g/m2/yr), or total Biomass (a.k.a. standing stock) (g/m2), or Peak Biomass (g/m2). Wet and Dry productivity and biomass values also have to be compared directly with one another, or a conversion factor must be used. Public confusion over difference between biomass and productivity possible.	Difficult to tie functional metric directly to any contaminant.	If enough measurements are taken to estimate the site-specific variability, management decisions can be based on the acceptable level of error.	Percent Cover better as an idicator than this metric because people understand percent cover.	No opinion.	Past experience with incorporating this data into service loss estimates or HEA have not been productive within a NRDA Workgroup. This metric was not useful on Case ABC.	Too many covariates to use effectively in most areas. Reference areas, baseline data, experimental replication all factor in to higher costs than needed.
Person C (example)		Easy to measure but establishing agreement on the periodicity of measurement is often a stumbling block.	Agreement can never be reached on which source of baseline data to use. Should EMAP data be used, more robust values from the peer-reviewed literature, gray literature or agency reports?	No opinon	This metric is too variable to make NRDA decisions with.	Accurate decisions can be made, but given the uncertainty, a low and high end nubmer always seem to be at odds during a NRDA technical discussion. In some cases, a lower productivity at a particular site compared to reference does not mean that a habitat has not recovered.	Metric only scalable in certain restoration scenarios, such as marsh creation.	Easy to incorporate into service losses within HEA if discounted service acre months are used. Discount acre years are often too conservative.	No opinion.