

## **Ecosystem Modeling Workshop**

### ***Key Points after Presentations Day1***

- 1) Measures of risk & uncertainty need to be included in ecosystem models.
- 2) Fundamental science issues need to be discussed and assessed.
- 3) Hydraulic and hydrology models for ecologists/ecology need to be presented with realistic expectations on functions and capabilities.
- 4) Problems need to be clearly defined, with objectives as well as requirements for decision support applications.
- 5) Ecosystem approaches should incorporate conservation of mass, energy, and momentum.
- 6) Spatial and temporal scale linkage issues between models need to be addressed.
- 7) Remotely collected elevation data needs to be calibrated/verified to actual elevations.
- 8) New ecosystem studies are moving towards “Functional Restoration”.

### ***Key Points after Break-Out Session Presentations***

- 1) Limited data on lower trophic level activities, trophic transfer needs bioenergetics.
- 2) Components of DSS functions were included in the presentations, referencing “Functions Restoration” capabilities.
- 3) Need to stay away from a single framework for ecosystem modeling.
- 4) Develop a hook between IBI and model output and the interrelationships between the two (mechanistic cause & effect).
- 5) Model the basic science relationships (need to develop strategies for linking the right groups of people together).
- 6) Leverage with partners to demonstrate activities and couple efforts to monitoring of sites for post action audits.
- 7) Determine the appropriate level of H&H detail for site specific applications (time and scale fidelity issues).
- 8) Selection of an external peer review panel to review products and direction of SWWRP program.

### ***Overall Comments of Ecosystem Model Needs***

- 1) Linkage of SWWRP models with CLEAR (determine functionality/i.o. issues with model)
- 2) Ecosystem Modeling System
  - a. Wetland functions
  - b. Riverine Restoration
- 3) Agent/Continuum Interaction Methods
  - a. Sturgeon
  - b. Shellfish
  - c. Waterfowl
  - d. Vegetation
  - e. Terrestrial
- 4) Unified GIS framework for ecosystem modeling
- 5) Determine requirements for USACE spatial models
- 6) Spatial and Temporal Scale Design/Applicability Guidance
  - a. Connection of low and high fidelity models
  - b. Scaling up/down
  - c. Incorporation of spatial features - tree islands, boulders, etc.
- 7) Landscape Evolution Models
- 8) Reference Condition Tool/Document
- 9) Uncertainty Methodologies Suite
- 10) Model Ensemble (Design/Develop/Demo)
- 11) Dam Removal System