

Principal questions for breakout groups to address on EFFs:

- (1) What are some examples (two would be a good number) of important research questions related to your type of environmental system (river basin, estuary, air shed, groundwater aquifer) that could not be addressed (or could not be addressed satisfactorily) unless you had an EFF?
- (2) What is the physical infrastructure needed to make an effective EFF?
 - (A) Consider needs for distributed versus centralized facilities and needs for analytical laboratories and modeling centers.
 - (B) What is the appropriate geographic scale (1, 10, 10², 10³, 10⁴, 10⁵, 10⁶ km²) for EFFs for your type of environmental system?
 - (C) What items are likely to be common needs among all EFFs, and what items will be unique to EFFs for a given type of environmental system, given environmental problem, or specific geographic area?
- (3) What should the management structure be for EFFs, particularly if there are several related EFFs for a given (large-scale environmental problem such as hypoxia in the Gulf of Mexico, where there may be EFFs in states from the headwaters of the Mississippi River down to the Gulf Coast states)?
- (4) Based on your own experience in large-scale research issues, what organization and structural elements for effective collaboration across disciplines and universities are effective, and what ones should be avoided?

Further questions/issues regarding EFFs to address in breakout sessions

- (1) How should the EFFs be linked to (i) promote information exchange among EFFs focusing on a specific issue as well as among all EFFs and (ii) enhance the interdependency among systems and regions?
- (2) What infrastructure would provide for rapid assessment of research needs? Should planning grants be used as a mechanism to better define EFFs before full-scale development?
- (3) How can the networked EFF infrastructure be used most effectively to articulate the science, engineering and policy alternatives in assessing, protecting and managing stressed, complex environmental resources?
- (4) To what extent (and how) should data collection and quality assurance protocols be standardized to improve data comparability and transferability among EFFs?
- (5) What is the role of modeling in experimental design and analysis and in integration of information within and among EFFs?
- (6) Should EFF activities be related to education at various levels and what sort of community outreach programs should EFFs maintain?