National Biological Assessment and Criteria Workshop

Advancing State and Tribal Programs

Coeur d'Alene, Idaho
31 March – 4 April, 2003

CADDIS: Making Stressor ID Easier

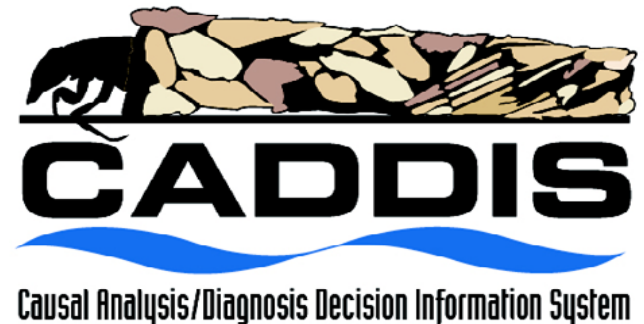## *The Causal Analysis/Diagnosis Decision Information System Development Workshop*

Presented by
Sue Norton, USEPA,
Office of Research & Development

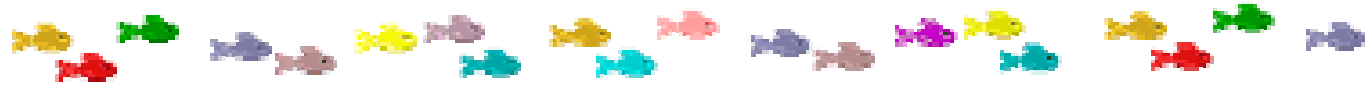# The Causal Analysis/Diagnosis Decision Information System Development Workshop

Mt. Sterling, OH

August 26-28, 2002

Why CADDIS?

Users of the Stressor Identification Guidance Need Help

- The Stressor Identification Guidance asks much from investigators:
  - In-depth knowledge of multiple stressors, multiple endpoints
  - Familiarity with different approaches to causal inference
  - Juggling many different lines of evidence

- Documenting the process for presentation to others may be burdensome.

- Research results may need additional development to be directly useful.

- Users need high quality data from field and laboratory studies that are not readily   at hand.

- Users would benefit from sharing data, results and experiences.

Workshop Objectives
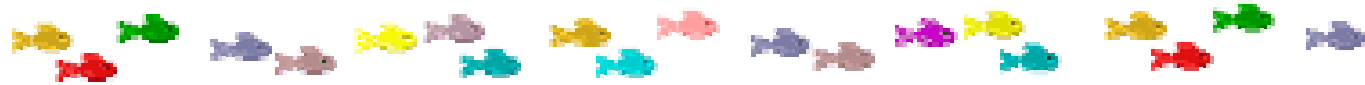
- To conceptualize an information system (decision support system, expert system) that will help investigators find, access, organize and share information useful for causal evaluations in aquatic systems.

- To identify critical research needs for system implementation and population.

- 30 participants (most from EPA)

Conceptual Diagram of the CADDIS Project, Research and User Communities

Process description & guidance

Find relevant information

Help analyze and interpret evidence

Help organize, quantify, share results

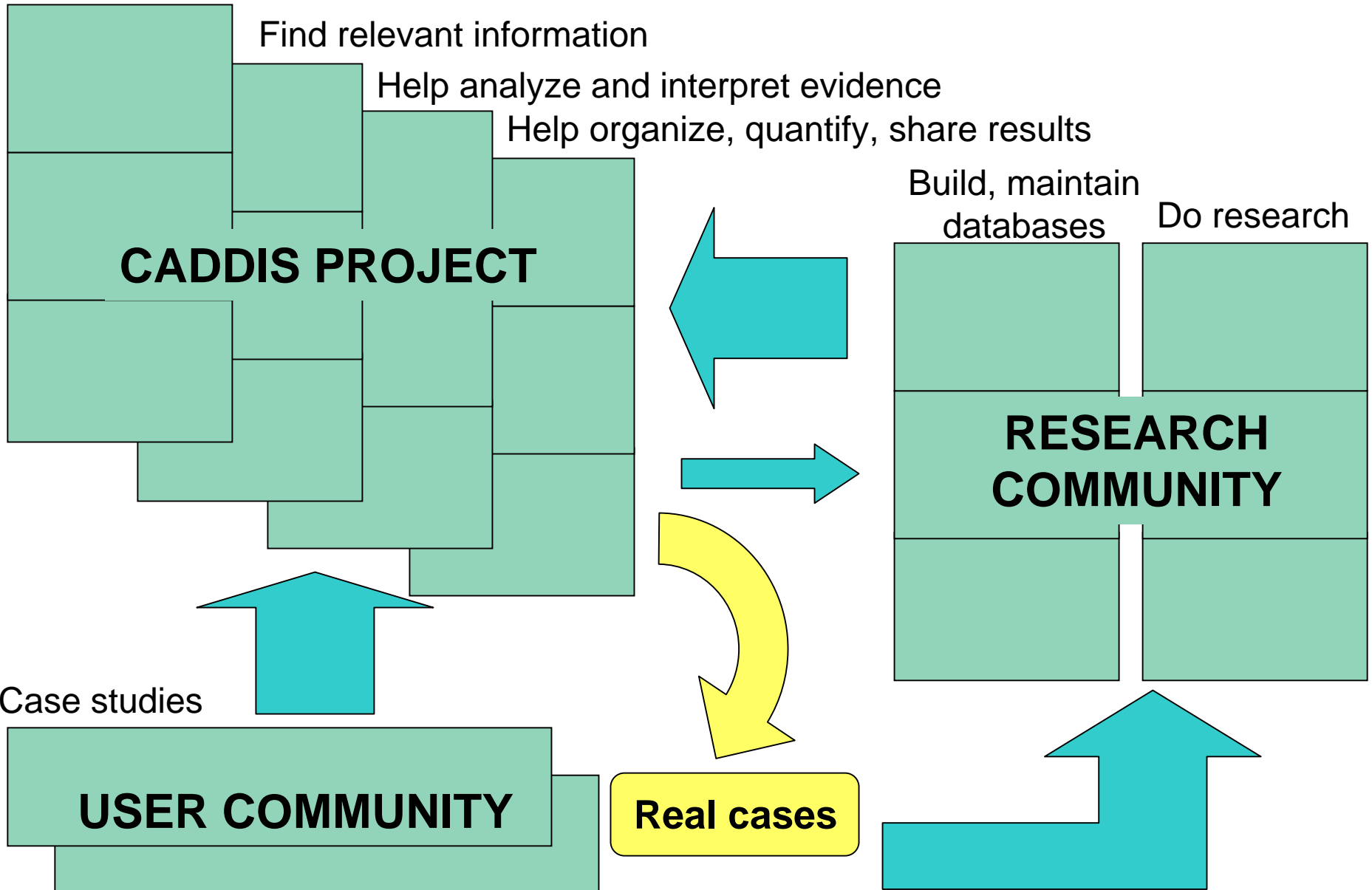**CADDIS PROJECT**

Build, maintain databases

Do research

RESEARCH COMMUNITY

Case studies

USER COMMUNITY

Real cases

Which functions have the greatest value?

Each of these CADDIS tasks can be implemented in a
variety of ways, from simple to complex

Process description & guidance

Find relevant information
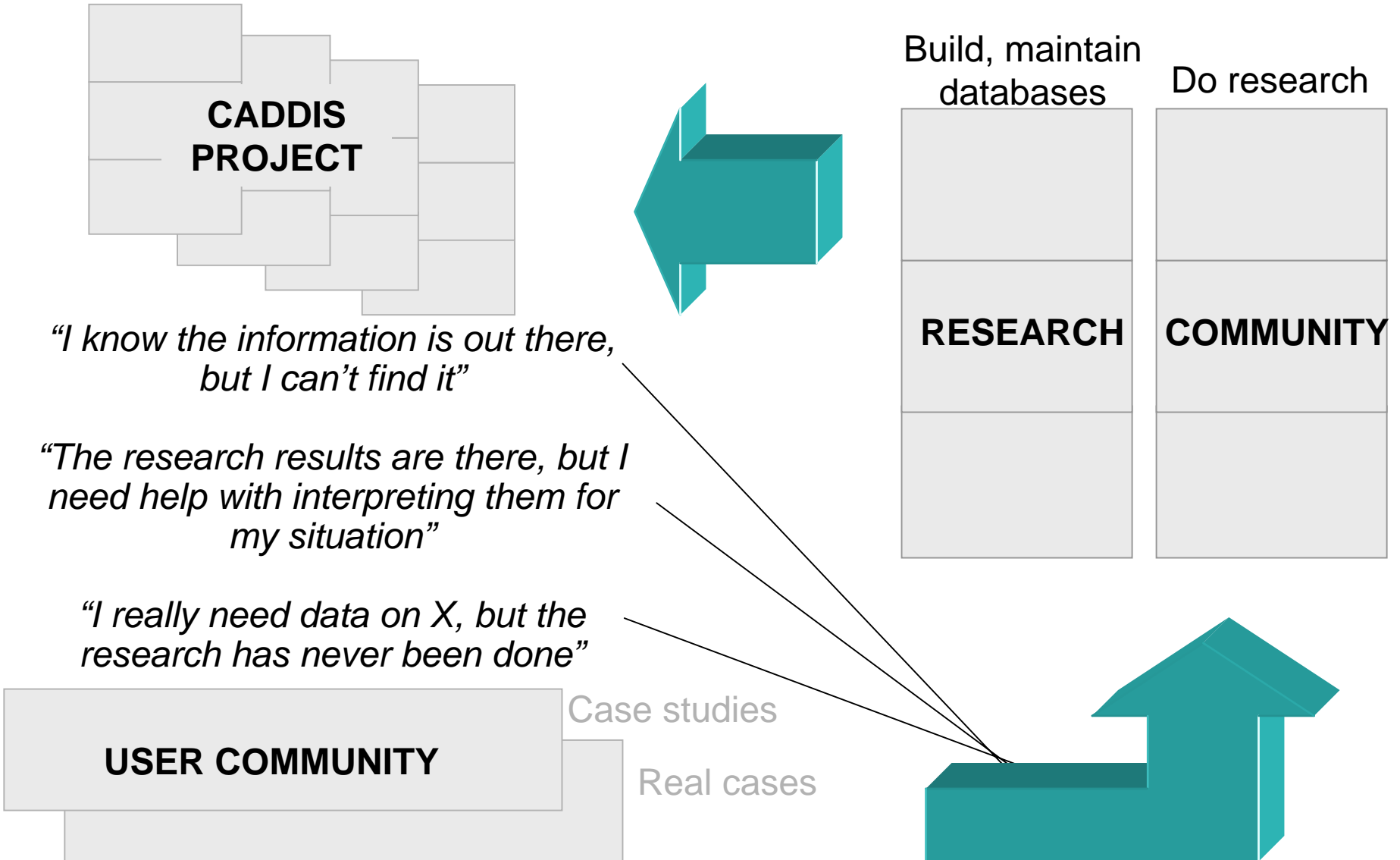
Help analyze and interpret evidence

Help organize, quantify, share results

"Here's a good link"

"Here's what to look for"

"Here's a wizard to help you get the info out"

Which database and information needs are most pressing?

CADDIS PROJECT

Build, maintain databases

Do research

RESEARCH

COMMUNITY

"I know the information is out there, but I can't find it"

"The research results are there, but I need help with interpreting them for my situation"

"I really need data on X, but the research has never been done"

Case studies

Real cases

USER COMMUNITY

How should general system development proceed?

CADDIS PROJECT

RESEARCH **COMMUNITY**

Development strategy?
Phases
Platform
Long term home
User community development

What QA procedures make sense?

User/Developer/Research interactions?

USER COMMUNITY
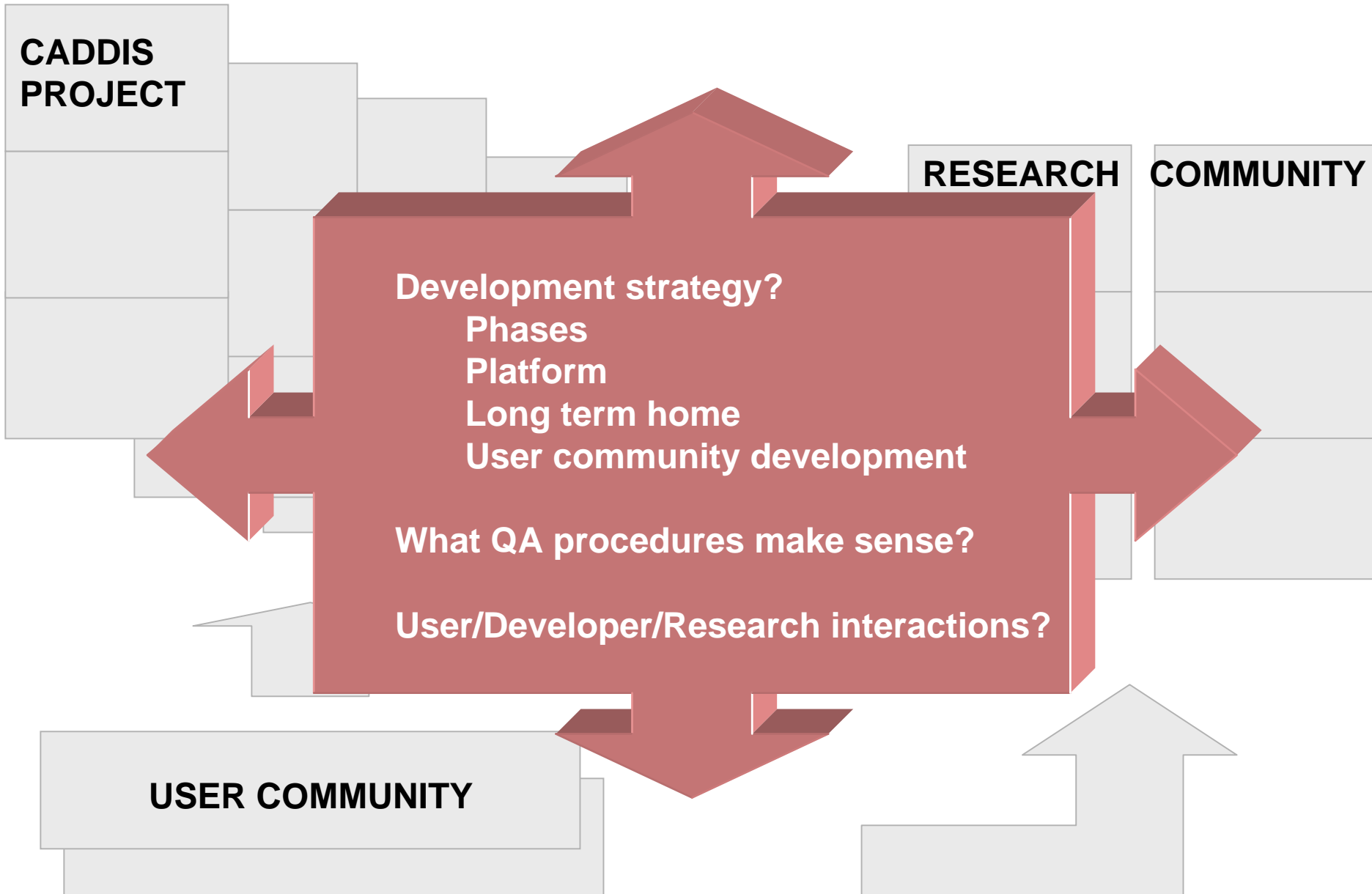
Workshop Results

General Impressions

- Professional judgement can be aided, but not replaced, by a computer system

- CADDIS should focus on providing information
  - a guide through the SI process
  - no statistical analyses

Workshop Results

Major Themes

- System functions should focus on guidance, a knowledge base and user interaction

- System development should be user-focused, modular, and iterative

Workshop Results

Priority Functions

Guidance
 	
– prompt through the process
– blank forms and tables
– advice on analyses and avoiding pitfalls
	Case Studies
	
	– searchable database
	    • EPA Cases
	    • User Input

Knowledge Base – stressor-response relationships • prioritized – organism tolerances – probabilities of association for stressors and impairments	**Conceptual Models** – examples from typical situations – modifiable – graphics tool

Workshop Results

System Development

- Need User Input
  - participation on development team
  - solicit feedback on SI web site
  - meetings and training

- Phased, iterative, and modular development process
  - manage expectations
  - incorporate feedback; keep up with changing needs
  - showcase success quickly and often

- Build into the system a communication mechanism
  - facilitate technical support (listserve, online forms)
  - identify research gaps

Workshop Results

Conclusions

- Need to be on fast track -- States are moving forward
  - get development team in place
  - get prototype system out for user feedback
    - start with simple, web-based system; move towards complex system run locally with web components
- Long-term commitment
  - developers
  - users
  - management

Questions for You

- What information or data base needs are the highest priority for your causal investigations?

  – Stressors? Assemblages? Other types of information?

- What system functionality would you find most useful?

  – Step by step guide to SI? Data analysis? Good links?

- What advice would you give us as we make decisions about system platform and home?

  – Web vs. local? Housed at EPA vs. elsewhere? Data security issues? Internet speed/connection issues?

- Are you interesting in serving on the CADDIS development workgroup or as an early reviewer as we build the system?

  – If so provide contact information here, nab Sue, Susan or Glenn later, or follow-up via e-mail: norton.susan@epa.gov