1 Implementing an Enterprise-wide Environmental Data Management System

2 Outline

- Introduction to CTUIR
- Identifying goals and problems
- Implementing solutions
- Discussion

3 CTUIR Lands

4 CTUIR Community

- Cayuse, Umatilla, and Walla Walla Tribes
- 2,400 Tribal Members
- >1,000 Employees in government and enterprises
- Rapid growth in past 10 years

5 Setting the Context

- **Goal: Creating Informed Policy**
  - CTUIR has 'treatment as a state' status with approved Water Quality Standards
  - The Tribes need to improve capacity to manage these standards
- **Data Management**
  - CTUIR has 10 years of water quality data, and continue to collect significant quantities every year
    - Data collected by different programs throughout the tribe
    - Data maintained in spreadsheets on individual PCs
  - These data need to be applied to the process of policy management

6 Proposed Solution

- Construct a centralized Water Quality Database that includes the following:
  - Flexible Data structures
  - Custom applications for entering and accessing data (user interfaces)
  - Administrative structures (QA and metadata)

7 Steps For Accomplishing Goals

- Design and implement data structure
- Compile and document disparate data sets
- Build targeted user interfaces to meet specific needs of data producers
  - Data entry (automated QA)
  - Data query and reporting
- Build more general tools for policy makers and the tribal public

8 System Architecture

- **Enterprise Relational Database**
  - Management Software (RDBMS) houses tabular, vector geographic, and possibly raster data
- **Client software**
  - packages access data (HTML, Visual Basic, JAVA, MS Access, ArcMap... etc.)

9 System Architecture

15 Data Structure

- Point sample data

24 Web-based data entry

25 Access control

27 MS Access user interfaces

- Tools for data query, visualization, and quality assurance can be quickly developed in MS Access

28 MS Access and ArcObjects

29 Intranet access data-driven maps

- Providing access to data to non-technical staff and elected officials

31 ArcGIS can act as a client

33 Custom Stand-alone Tools

- C# and VB applications

35

36

37 Points to Ponder

- Cooperation was achieved with a carrot rather than a stick
  - We offered data producers solutions rather than rules
- The technical architecture is as much a part of the solution as the standards and protocols
  - Conceptual goals are based on beliefs of what is technologically possible
- Continued technological support is the key to continued success
  - System maintenance and extensibility