Data vs. Information

Making the Exchange Network work for Tribes

Presented by: ITEP & the Exchange Network Tribal Governance Group (TGG)
Objectives for this Session

- Describe the connection between data and information
- List some questions to ask yourself when planning to use data and information in your program
- Describe the function of the Exchange Network for environmental data and information management
- Identify ways that technology supports data management tasks
- Discuss how tribes use data for environmental management decisions
Protecting Tribal Traditional Lifeways

Water quality standards and assessment, etc.

- Easy access to data
- Efficient/Quality data collection
- Quality assurance plans
- Good translation of data to information
- Info to community & decision makers

What and Why to assess

(Example: Chief and Council, state legislature, NCAI resolutions, meetings with Congressional delegates, legislation)

Share with:
- Other tribes
- State agency

Report to:
- EPA

Credit: Angie Reed, Penobscot Indian Nation
What is Data?

- **Facts** (such as measurements or statistics) used as a basis for reasoning, discussion, or calculation. *Data can be qualitative or quantitative.*

- **Outputs** from a device that includes both *useful* and *irrelevant* or redundant information and *must be processed to be meaningful.*

What is Information?

- **Knowledge** obtained from investigation, study, or instruction

- **On its own, data is meaningless, until it is processed or manipulated for a specific use, and then it becomes information.**

http://www.infogineering.net/
Data vs. Information

- Water quality indicators ➔ Water quality advisories
- Fish counts ➔ Robustness of habitat/resources
- Air quality measurements ➔ Public health alerts
- GPS coordinates ➔ Open dump locations
- Acres of wetlands ➔ Economic development impacts
- Other examples? ➔ Other examples?
Examples of Data Becoming Information

NWIFC state of watershed report
GIS mapping of mercury pollution sources and rates
USGS National Hydrography map
Information becoming Action (Decisions!)

Protection of salmon habitats and spawning grounds, evidence for legal battles against culvert blocking

Decision to deploy air pollution monitors to assess for toxic compounds near schools

Stream flow histories to assess drought conditions & planning

*How have you used data to make decisions, especially those that impact tribal lifeways and traditions?*

*Penobscot Case Study*
What is Exchange Network?

- The goal of the Exchange Network (EN) is to improve decision making by providing timely access to consistent, accurate environmental data
- Using technology appropriately to meet your goals
  - Increased efficiency
- Data analysis and assessment tools for better information
The *Exchange Network* is focused on using environmental data for improved decision-making.

**Data → Information**
- Data management
- Data standards
- Data flows
- Databases
- Data exchanges
- Data analysis & interpretation
- Data ownership/stewardship/sovereignty

**Information → Knowledge**
- Trends analysis
- Site comparisons
- Attainment decisions
- Compliance assurance
- Traditional and historical knowledges

*Environmental Information Network*
What Can the EN Do for Tribes?

- Build technical capacity for program/department
- Enhance data management tasks including collection, analysis, and reporting
- Leverage resources by using tools/solutions built by others
- Connect with other tribes with similar issues/concerns
- Develop shared solutions to common problems
- Mentoring and technical assistance from other tribal professionals

*Strengthen and reinforce tribal sovereignty by providing tribes with tools and technology to effectively manage data that informs their decision makers and communities.*
Considering Data Use – *The 5 Ps*

- What is the end goal of your data collection project?
  - Regulatory reporting requirements
  - Assessments and Attainment decisions
  - Planning/Development decisions
  - Cleanup/protection decisions
  - Use by others for decision-making

- Good data management systems require planning
  - Don’t build a house without blueprints--need to know where the kitchen and bathroom is before laying plumbing
  - What does your data “house” look like?

- Prior Planning Prevents Poor Performance
Data Use (cont.)

- Is the data usable?
  - Metadata important for understanding context/provenance of data
  - QA/QC important for validating robustness of data-related processes

  *Data Quality Objectives*

- Understand the limitations
  - Program & Staff capacity and needs
    - IT support & infrastructure
    - Technical capacity & training needs
    - Ongoing maintenance and operation, licensing, software upgrades, etc.
  - Decision-making needs (what information is required?)
  - Data generated by others needs careful consideration
Information-sharing Considerations

- Who is your intended audience?
  - Jargon/terminology
  - Sophistication/Education level
  - Background and connection to information

- What do you want your audience to understand?
  - Highlight the main points/conclusions from your data

- Are there limitations to the data or your interpretations of it?
  - What the data doesn’t say is as important as what it does
  - Data quality and data system design are factors
  - Data sharing policies—is the information shareable and with whom?
Tribal Environmental Data User Stories

- What decisions or information do you want from your data?
  - The questions you want to answer with your data impact your data management techniques
    - QA/QC activities for collection, validation, comparability, etc.
    - Interpretation & Analysis of results
    - Assessment of resources (water bodies, air shed, forest resources, etc.)

- How can technology help advance your program goals?
- How can technology help streamline and enhance your data management activities?
Tribal Data “User Stories”

- Review Bishop and Penobscot User stories

- **For Tribes: How do you use data to make decisions for your environmental program activities?**
  - Split into groups of 2-3 and brainstorm ideas for your own “user story” (real-world examples of how you use data)
  - Report out to full group, Q&A

- **For EPA/Others: How do you (or could you) use tribal data for decision-making?**
User Stories Discussion

- Learn from the past, look to the future
- What are the gaps? What are the needs?
  - TGG needs assessment
  - EE/EN Digital Strategy
Protecting Tribal Traditional Lifeways

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Questions? Feedback? Thank you!

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