

Traditional Hualapai Ecological Knowledge



Monitoring Protocols

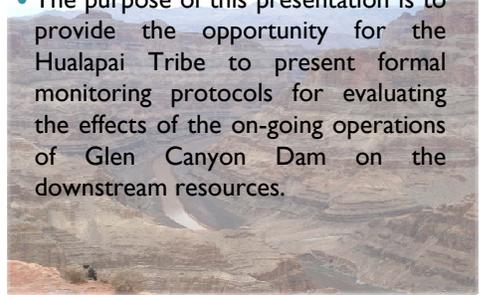
Adaptive Management Program
Technical Working Group Meeting
Phoenix, AZ
April 2-3, 2007

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HUALAPAI TRIBE

ABSTRACT

- The purpose of this presentation is to provide the opportunity for the Hualapai Tribe to present formal monitoring protocols for evaluating the effects of the on-going operations of Glen Canyon Dam on the downstream resources.



- THE PROTOCOLS include a discussion of Traditional Ecological Knowledge (TEK) which consists of Hualapai perspectives of traditional usages, beliefs, and practices within the Colorado River and Grand Canyon ecosystem.

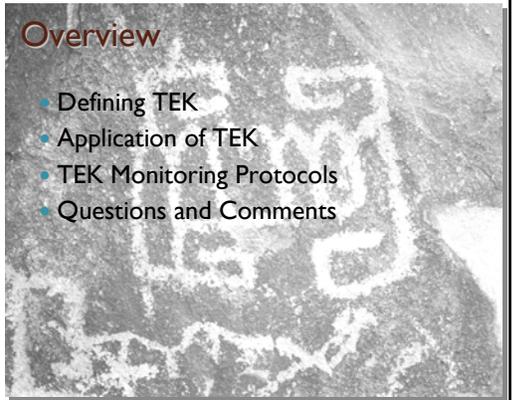


- The protocols include issues on responsible resource management strategies.



Overview

- Defining TEK
- Application of TEK
- TEK Monitoring Protocols
- Questions and Comments



Traditional Ecological Knowledge

- TEK are beliefs handed down through generations describing the relationship of living beings with their environment.
- It is a deep understanding of resource use by Hualapai people which provides the basis for a sense of place and cultural identity.



Traditional Ecological Knowledge

- TEK incorporates past and present knowledge into environmental social networking.
- TEK is important because it allows the Hualapai tribe to integrate their indigenous perspectives into scientific interpretation and methodologies



TEK and Western Science

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| <ul style="list-style-type: none"> • TEK <ul style="list-style-type: none"> ◦ Intuitive ◦ Holistic ◦ Qualitative ◦ Blends Mental & Physical ◦ Moral Values ◦ Spiritual ◦ Community ◦ Empirical/Observations ◦ Cyclic/Diachronic | <ul style="list-style-type: none"> • Western Science <ul style="list-style-type: none"> ◦ Rational-Hypotheses ◦ Reductionism ◦ Quantitative ◦ Separates Mental & Physical ◦ Value-Free ◦ Mechanistic ◦ Individual ◦ Induction/Deduction ◦ Linear/Synchronic |
|--|--|



TEK

TEK



Application of TEK

- Provides a perspective to assist in adaptive management of long-term information and analysis of the environment and resources.
- TEK can be applied in the maintenance of biological diversity in association with managing natural and cultural resources along with scientific and legal processes.



Application of TEK cont.

- Biological Ecological insight
- Indigenous Resource Management
- Protection, Conservation and Education
- Planning
- Environmental Assessments



TEK Monitoring Protocols

1. Identify and establish parameters
2. Provide guidelines for monitoring projects in the AMP
3. Establish procedures for collecting indigenous and scientific knowledge for monitoring projects
4. Provide guidance for future research agreements.



Monitoring Protocols

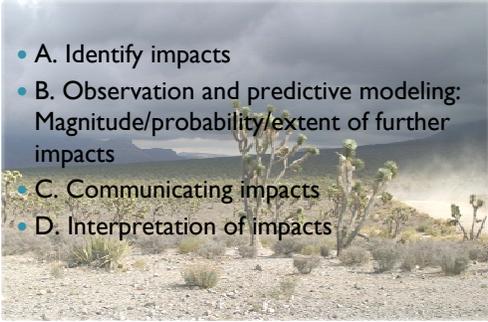
I. Parameters

- Consult with Hualapai tribal members
- Scope of Project
- Public Meetings
- Identify Sources
- Obtain Consent/Permission
- Provide Appropriate Compensation



2. Provide Guidelines

- A. Identify impacts
- B. Observation and predictive modeling: Magnitude/probability/extent of further impacts
- C. Communicating impacts
- D. Interpretation of impacts



a. Identify

- Identify Impacts: Direct, Indirect, or cumulative
- Direct: "Trailing"
- Indirect: "Oil Leakages from boat docking"
- Cumulative: Fluctuating flows



b. Observe

- Compare and contrast outcomes from previous monitoring programs
- Relate the information to past and present



c. Communication

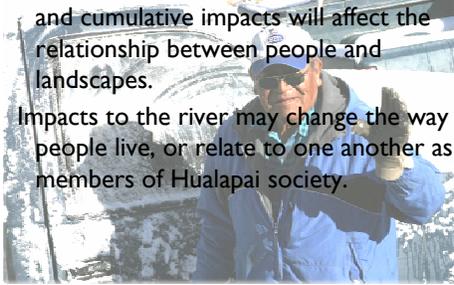
- Present impact evaluations
- Present project results
- Provide the basis for decision making.



d. Interpretation

Activities resulting from direct, indirect, and cumulative impacts will affect the relationship between people and landscapes.

Impacts to the river may change the way people live, or relate to one another as members of Hualapai society.



3. Establish Procedures

- Documentation (monitoring forms)
- Interviews (media, audio equipment, survey instruments)
- Data entry



4. Provide ethical guidance for future research

- Co-operative programs (mutual planning and implementation)
- Research design and implementation (informed by base line data through identifying, observing, communicating and interpreting environmental criteria)
- Outcomes (guide future directions for land and resource use)

Modeling Tools

Hualapai Perspectives/Culturally Sensitive Areas

- Cultural Significance of Fauna
- Cultural Significance of Landscape
- Ethnobotany
- Resource use and Impacts
- Hualapai Esoteric Knowledge
- Avian
- Small Mammals
- Reptiles



Field Survey Instruments to Address CSAs and Ethnobotany

- Natural Impacts
 - Human Impacts
 - Impact of H2O Inundation (GC dam)
 - Impact from Absence of H2O Recharge (GC dam)
 - Recommendations
- Ranking Code:
- 0 = absent
 - 1 = slight
 - 2 = moderate
 - 3 = heavy
 - 4 = severe

Ethnobotany Monitoring

- Line Intercept Method (Mueller-Dombois et al.)
- 5 sites
- 3 transects 50m length
- Riparian Zone to river's edge



Terrestrial Studies

Avian Monitoring

- Absolute Count Method (Emlen 1971) as recommended by the PEP.
- Site
- Area
- Number of Surveys



Small Mammal Monitoring

- Located Upland and Riparian Zones
- Trap-Line Transects
- 20 Traps at each transect



Reptile Monitoring

- Located Upland and Riparian Zones
- Two transects 50m length x 20m width
- Each Plot is observed and recorded



Conclusion

TEK contributes towards Hualapai understanding of social justice, ecological sustainability, economic equity, and cultural diversity.

To develop new understandings and generate new knowledge and insights. When we really learn something, we become different people...

Questions or
Comments???

