

**Glen Canyon Dam Adaptive Management Work Group**  
**Agenda Item Information**  
**February 3-4, 2010**

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Agenda Item

Socio-economic Workshop Results

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Action Requested

- ✓ Feedback requested from AMWG members.

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Presenters

Helen Fairley, Cultural Program Director, Grand Canyon Monitoring and Research Center  
Shane Capron, Chair, Technical Work Group (Western Area Power Administration)

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Previous Action Taken

- ✓ By AMWG: At its April 29-30, 2009 meeting, AMWG passed a budget motion that included the following language:

“Continue to address the following issues of concern:

“...

- “c. General comment on Goal 10. There is a lack of economic analysis capacity in the program to evaluate trade-offs or other economic concerns. Additional capacity should be considered. Unknown funding needs at this time.”

- ✓ By TWG:

On July 10, 2009, TWG provided the following response to AMWG:

“GCMRC, WAPA, and NPS will collaborate on development of a workshop that will evaluate program needs, including funding, to address the lack of economic analysis capacity. This subject likely will be brought back for consideration in the FY11-12 budget cycle. TWG considered adding this workshop process and results into the workplan but it was not adopted as part of the motion.”

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Relevant Science

N/A

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Background Information

The GCMRC organized and convened a Socioeconomic Workshop for the Technical Work Group (TWG) on December 2-3, 2009. The purpose of the workshop was to assist the GCMRC in identifying and discussing socioeconomic questions that would be useful to inform decision making for the Glen Canyon Dam Adaptive Management Program (GCDAMP). The Mary Orton Company, LLC (Mary Orton and Chuck Anders) was retained to facilitate the workshop.

The following panel of independent economists was asked to participate in the workshop and then recommend potential approaches, methodologies, and anticipated timeframes to address the identified socioeconomic needs of the GCDAMP.

Dr. John Loomis, Colorado State University, Fort Collins  
Dr. Joel Hamilton, University of Idaho (Emeritus), Moscow  
Dr. Michael Hanemann, University of California, Berkeley

Socioeconomic Workshop Report, continued

Dr. Lon Peters, Northwest Economic Research Inc., Portland

In addition, the following presenters made oral presentations to inform panelists and TWG members about economic research of direct or potential relevance to the Glen Canyon Dam Adaptive Management Program:

Dr. John Duffield, University of Montana, Missoula: Economic Values for National Park System Resources within the Colorado River Basin

Dr. David Harpman, Bureau of Reclamation, Denver: Integrative Recreation Economics Tool

Dr. Yeon-Su Kim, Northern Arizona University, Flagstaff: Economic Impacts of Grand Canyon River Runners and the 2000 Low Summer Steady Flows of the Colorado River

Mr. David Marcus, independent consultant, Berkeley: Glen Canyon Dam Releases – Economic Considerations

Mr. Clayton Palmer, Western Area Power Administration, Salt Lake City: The Alchemy of Power Economics: Converting Watts to Dollars

Dr. Thomas Veselka, Argonne National Laboratories, Chicago: Estimating Colorado River Storage Project Power Economics with the GTMax Model

Dr. Michael P. Welsh, Christensen and Associates, Madison: GCES Non-Use Value Study

The following TWG members, AMWG members, and other agency staff participated in the workshop:

Cliff Barrett, UAMPS

Shane Capron, TWG Chair / Western Area Power Administration

Lori Caramanian, DOI-ASWS

Kerry Christensen, Hualapai Tribe

Kurt Dongoske, Pueblo of Zuni

Jay C. Groseclose, State of New Mexico

Burt Hawkes, Western Area Power Administration

Amy Heuslein, Bureau of Indian Affairs

Linda Jalbert, National Park Service – Grand Canyon

Leslie James, CREDA

Rick Johnson, Grand Canyon Trust

Glen Knowles, US Fish & Wildlife Service

Ted Kowalski, State of Colorado

LaVerne Kyriss, Western Area Power Administration

Nikolai Lash, Grand Canyon Trust

Andy Makinster, Arizona Game & Fish Department

Steve Mietz, National Park Service – Grand Canyon

Don Ostler, States of Wyoming and Utah

Jane Rodgers, National Park Service – Grand Canyon

Tom Ryan, US Bureau of Reclamation

Dave Slick, SRP (CREDA Board member)

Larry Stevens, Grand Canyon Wildlands Council

Jason Thiriot, State of Nevada

Bill Werner, State of Arizona

Mike Yeatts, Hopi Tribe

Dave Garrett, Executive Coordinator of the Science Advisors, and Pam Garrett, also of M3 Research, also participated in the workshop.

Following the oral presentations by the presenters listed above, workshop participants broke into four groups to develop a list of potential socioeconomic questions to inform AMP decision making. Note that not all questions from the small groups were gathered, and while the groups were asked to submit their “top five”

questions, there was not necessarily full consensus about those five in all the groups. In addition, after the groups submitted their top five questions, individuals were invited to submit any additional questions that they felt were important. Following are the questions generated or topics of interest identified during the breakout group activity during the afternoon of December 2:

- A. What are the attributes of the river that are important to recreational users?
- B. How do high flow and other experiments affect recreation (river rafting fishing guides and other associated businesses, including tribes)?
- C. Do we need to determine the value of "specialness" of resources, such as, hydroelectric power generation; visitor satisfaction; value of beaches to support rafting; values of high visibility wildlife e.g., peregrine falcon, big horn sheep; and value of a blue ribbon trout fishery?
- D. What are the points of disagreement on methodologies and assumptions in regard to power analysis?
- E. What would a consensus interagency methodology for modeling hydropower and recreation (e.g., fishing and rafting) economic outcomes look like?
- F. Integrate all use and non-use socioeconomic data into a conceptual model.
- G. What are the use and nonuse costs and benefits of HFE including the marginal costs and benefits of changes in HFE duration and size?
- H. Having heard two distinct views, what is the value of hydropower capacity of GCD?
- I. What is the base case on optimal power generation?
- J. What are the requirements for economic information in GCPA, ESA, NHPA, NEPA, CRSPA, etc.?
- K. What are the associated costs to hydropower of non-TCD warmer releases?
- L. What is the sociocultural impact of recreational use in the Colorado River on Native American values associated with resources and places in the Grand Canyon?
- M. Can the values of dependable power and water supplies be reflected in future economic analysis?
- N. How much weight should non-use values be given compared to market and non-market use values?
- O. What is the economic benefit of river recreation to tribes?
- P. What is the socioeconomic impact of mechanical removal of non-native fish and other actions?
- Q. What is the total non-use value for natural cultural, and recreational resources along the river?
- R. What are the socioeconomic benefits and costs of hydropower generation from HFE to tribal communities?
- S. What is the total economic impact to upper basin water users from changes to power generation from base case?
- T. What are the non-use values for different resources (including the tribal perspective) so we can include these values in trade-off analysis?
- U. What is the value of clean power generation at GCD nationally?
- V. Can we obtain an assessment of alternative economic consequences associated with different flow regimes at GCD from one or more CRSP customers, including indirect impacts?
- W. Determine impacts on marketed hydropower and recreation values of alternative flow scenarios in real time to support decisionmaking.
- X. Can contracting for firm power WAPA be adjusted to be more flexible for current hydrology and operations without affecting the Basin Fund?



The facilitators used an interactive polling technology to obtain opinions from workshop participants. Each participant used a remote FM radio input terminal (see photo at right) to respond to questions projected on a large screen. Participants used this electronic, anonymous system to

rate the importance of each suggested socioeconomic question and also the timing of when that question should be addressed, using the following two survey questions.

**In order to inform the GCDAMP decision making, how important is it that this question be addressed?**

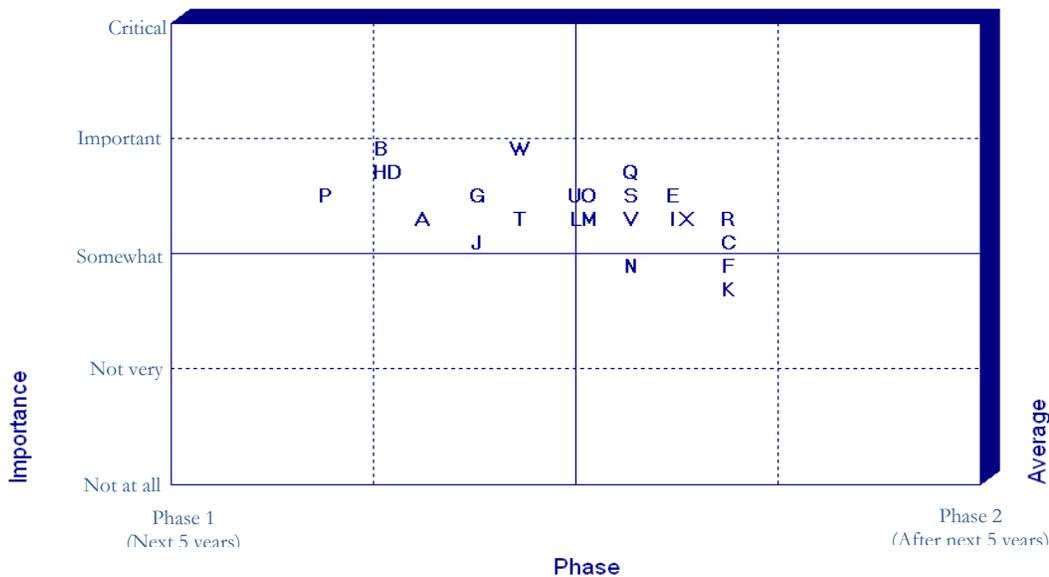
1 = Not at all important, 2 = Not very important, 3 = Somewhat important, 4 = Important, 5 = Critical

**Should this question be addressed in Phase 1 or Phase 2?** (Phase 1 was considered to be work that would begin in the next five years, with some activities perhaps starting in 2011; Phase 2 was work that would begin more than five years out or starting 2015 or later.)

1 = Phase 1 (next 5 years), 2 = Phase 2 (after next 5 years)

The survey results of the two questions were presented to the participants for discussion as a scatter diagram where the location of the letter designating each question shows the importance on the vertical axis and the timing on the horizontal axis.

*Scatter Diagram  
Importance and Timing of Socioeconomic Questions  
Official TWG Members – December 2, 2009*



This ranking should be considered only preliminary. Because the socioeconomic program is new, most of the TWG participants are in the early stages of learning about the subject matter. Their opinions are not yet fully formed and so their preferences expressed through the technology are still tentative. Therefore, **the discussion during the workshop is the primary product of the workshop**; it shows the participants’ evolution in thinking about this subject area and allows them to learn from one another. The polling results in this document can be understood only in light of those observations and conclusions.

The panel used the results of the first day to prepare a preliminary report, which was presented orally by one of the four expert panelists, Dr. Michael Hanemann. The panel recommended a two-phase approach (near-term versus long-term) for addressing the questions generated by the group on the previous day. On the basis of their expertise in the subject area and the relative rankings of the questions, the panel was able to develop a preliminary strategy for future socioeconomic research and monitoring that might be programmed by the

Socioeconomic Workshop Report, continued

GCMRC to further support the needs of the GCDAMP. The panel's presentation on its preliminary report was then followed by a period of questions by the participants and general discussion.

The final report and recommendations from the four expert panelists is currently in preparation and will be forthcoming soon (perhaps in late January, but more likely in the first two weeks of February 2010), and will be considered by the TWG at its March 2010 meeting. At that time, TWG will consider implementing some of the Phase 1 recommendations in the FY 2011-12 biennial budget and will request input from AMWG on an approach for determining when one or more of recommended Phase I activities might be initiated.

Because of the likelihood that FY2011 will be a tight budget year, if socioeconomic projects are included in the draft budget for FY 2011-12, other items may need to be cut. Feedback from AMWG on whether these projects are important to them will aid TWG in the development of a draft biennial work plan and budget that addresses socioeconomic needs of the GCDAMP in a timely manner.



# Socioeconomic Workshop: Current Status and Next Steps

**Helen Fairley (USGS)**  
**AMWG Meeting, Phoenix, AZ**  
**February 4, 2009**

# Socioeconomic Workshop: Planning

- **March – June 2009:** As a result of 2010-2011 budget discussions, GCMRC, WAPA and NPS agreed to collaborate on planning a workshop to evaluate socioeconomic program needs - including estimated funding needs
- **July 2009:** GCMRC staff (Hamill, Fairley) met with NPS (Henderson), WAPA (Palmer) and SA (Garrett) to discuss goals, objectives and basic approach for the workshop
- **August 2009:** GCMRC drafted a workshop “prospectus” consistent with input provided by NPS, WAPA and SA
  - Draft prospectus distributed at August 2009 AMWG meeting
  - Final version distributed & discussed with TWG Sept 2009

# Prospectus Proposed Phased Approach

- **Two phases proposed to plan and conduct future socioeconomic studies:**
  - **Phase I (first 3-5 years):**
    - Focus initially on updating market-based value studies
    - Plan for more expansive socioeconomic studies in future years
  - **Phase II (next 4-10 years)**
    - Build additional capacity to conduct trade-off analyses
    - Update information on non-use values

# SE Workshop Objectives

Consistent with this phased approach, the objectives of the workshop were to:

- 1. Clarify overall socioeconomic program information needs in a general sense – studies to be conducted within a ten-year timeframe**
- 2. Identify specific information needs to be addressed in Phase I (next 3-5 years)**
- 3. Prioritize Phase I research**

# SE Workshop (Dec. 2-3, 2009)

- Workshop attended by ~ 40 Participants:
  - ~16 TWG members
  - several other AMWG members and DOI/DOE agency staff
  - 7 socioeconomic researchers
  - 4 independent experts
  - 3 GCMRC staff
  - SA Executive Director
- Facilitated by Mary Orton Company, with assistance from Strategic Initiatives Inc. (Chuck Anders)

# Workshop Outline

- **Part 1:** Presentations on past socioeconomic studies relevant to AMP
- **Part 2:** Facilitated discussion with AMP members (using decision support technology)
  - identify priority socioeconomic needs
  - distinguish/prioritize Phase 1 and Phase 2 studies
- **Part 3:** Independent panel reviewed program needs; provided recommendations on next steps
- **Part 4:** Panel prepares written report – in progress

# Independent Panel Members

- **Dr. Michael Hanemann, University of California, Berkeley**
- **Dr. Joel Hamilton, University of Idaho (Emeritus), Moscow**
- **Dr. John Loomis, Colorado State University, Fort Collins**
- **Dr. Lon Peters, Northwest Economic Research Inc., Portland**

# List of Presenters and Topics

- Dr. Michael Welsh, Christensen and Associates, Madison: GCES Non-Use Value Study
- Dr. John Duffield, University of Montana, Missoula: Economic Values for National Park System Resources within the Colorado River Basin
- Mr. Clayton Palmer, Western Area Power Administration, Salt Lake City: The Alchemy of Power Economics: Converting Watts to Dollars
- Dr. Thomas Veselka, Argonne National Laboratories, Chicago: Estimating Colorado River Storage Project Power Economics with the GTMax Model
- Mr. David Marcus, independent consultant, Berkeley: Glen Canyon Dam Releases – Economic Considerations
- Dr. David Harpman, Bureau of Reclamation, Denver: Integrative Recreation Economics Tool
- Dr. Yeon-Su Kim, Northern Arizona University, Flagstaff: Assessing Impacts of the LSSF Experiment on Regional Recreation Economics

# Preliminary Recommendations from the Independent Panel (December 3, 2009)

## ■ Phase II

- Identification of issues and questions for non-use value surveys
- Develop and test non-use surveys
- Conduct non-use surveys
- Focus on marginal non-use values due to changes in flows
- Addresses questions: T, Q, G (part), C (part), N
- Rationale:
  - Non-use survey too expensive for Phase I budget
  - Non-use survey needs more precise scenarios

## ■ Phase I

- Power flow modeling & studies (both economic & financial impacts)
- Surveys of recreational users
- Surveys of tribal interests
- Economic impact & economic benefit analysis for hydro & recreation
- Addresses questions: H, W (part), D, E, U, M, G (part), V, S, I, C (part)

# Feedback on Workshop

- Generally very positive feedback
- Professional facilitator and decision-support technology were key to workshop success
- Some suggestions for improvements included:
  - Provide reading materials farther in advance of workshop
  - Provide more “Socioeconomics 101” training
  - Several people wished the workshop had been longer:
    - more time for small group discussions
    - more time to refine questions and information needs
    - more time to consider budget realities/implications

# Next Steps

- **Two reports currently in preparation:**
  - Workshop summary
  - Panel review and recommendations
  - Both reports to be distributed in mid-February
- **Need for AMWG guidance on prioritizing socioeconomic research in future budget cycles:**

*“[The need for additional economic analysis capacity] has been clearly identified as a priority by the Science Advisors and by previous NAS/NRC reviews of the program. However, it is currently not reflected in the AMWG priority questions or called for in the Monitoring and Research Plan.” (TWG 2010-11 budget notes)*

# Suggestions for AMWG

- TWG members review panel's report prior to next TWG meeting; incorporate report recommendations as appropriate & feasible into FY2011-12 budget planning cycle
- Invite panel chair to make a presentation on final report and discuss recommendations

# Questions?

