

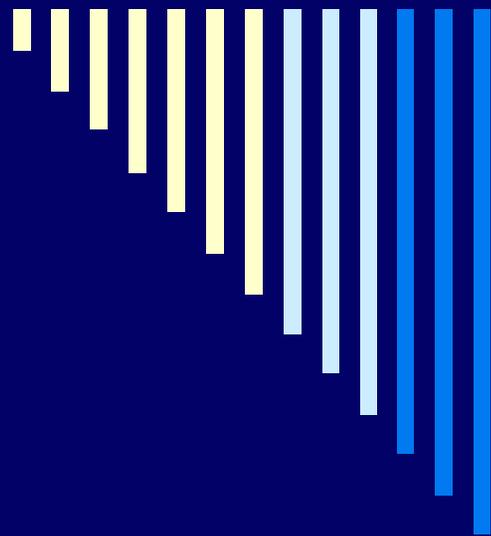
Adaptive Management Work Group Meeting
October 25-26, 2004

Update from Technical Work Group
(Predicated on TWG Acceptance of Recommendation from LTEP Ad Hoc Sep 27-28)

- I. Management Actions and Treatments Considered To Date
 - a. Mechanical Removal as conducted at present and a research and development of new approaches to mechanical removal, including mainstream and tributaries
 - b. Warming of water with a TCD
 - c. Dam releases
 - d. HBC translocations and augmentation
 - e. Sediment and turbidity augmentation
 - f. HBC habitat enhancement in LCR
 - g. Fish disease and parasite control measures
 - h. Vegetation removal (ongoing by NPS in FY 04)
 - i. Repatriation of native species
 - j. Transgenic fish
 - k. Biocontrol (related to g and j)
- II. Resources Considered for Effects Measurements from Actions and Treatments
 - a. Trout
 - b. Other non-native fish
 - c. Humpback chub
 - d. Other native fish
 - e. Food base
 - f. Sediment
 - g. Recreation
 - h. Cultural resources
 - i. Socioeconomic
 - j. Hydropower
 - k. Terrestrial resources
- III. Initial Criteria Considered for Identification of Factors Having Known and Unknown Effects
 - a. Quality of Information (expert opinion, agency reports, peer-reviewed journal; need to establish hierarchy of acceptance for sources of information)
 - b. Quantity of information (has experiment been done more than once; same results if so?)
 - c. Level of risk to resource; if risk is high, consider carefully; opportunity cost
 - d. Cost of implementing action (short-term and long-term; relate to risk)
 - e. Evidence exists for Grand Canyon vs. evidence exists for other comparable systems
 - f. Has a knowledge assessment been done for this interaction (cause and effect relationship)

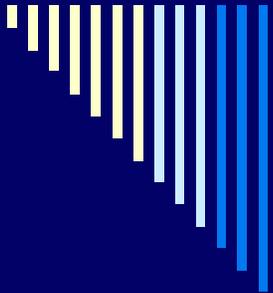
IV. Process and Schedule to Complete

Milestone	Date to be Completed	Responsible Parties
Define actions and treatments	October 20, 2004	LTEP Ad Hoc, GCMRC, TWG, Cooperating Scientists
Establish criteria for known and unknown effects	December 2004	LTEP Ad Hoc, GCMRC, TWG
Conduct knowledge assessment	February 2005	GCMRC, Cooperating Scientists, Science Advisors
Conduct workshop to evaluate actions and treatments, begin design for treatments	March 2005	GCMRC, LTEP Ad Hoc
TWG Update and Input	May 2005	GCMRC, LTEP Ad Hoc
Draft Plan Produced for AMWG Review	July 2005	GCMRC, AMWG
Science Advisors Risk Assessment	October 2005	Science Advisors
TWG Review	November 2005	GCMRC, TWG
Finalize Plan/AMWG Review	December 2005	GCMRC, AMWG
Recommendation to Secretary	January 2006	AMWG
Begin Compliance	February 2006	Action Agencies



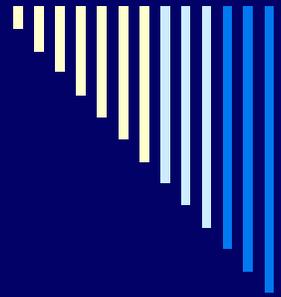
Long-term Experimental Plan Development Update

AMWG Meeting
October 25, 2004
Dennis Kubly



AMWG Directive August 2004

- Motion: Approve the extension for the production of the Long Term Experimental Plan by TWG and GCMRC, with a draft plan to be delivered to AMWG by Summer 2005, and a final plan by January 2006, with a detailed report to be delivered in October 2004 on timeline and responsible parties for plan development.
- Passed by consensus.

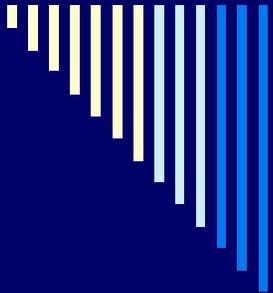


I. Define Management Actions and Treatments

Both are purposeful manipulations of the system. The former category is considered to have known, positive effects and therefore is implemented and maintained; the latter category has unknown effects and is purposefully turned on and off, or implemented in different states, to determine those effects.

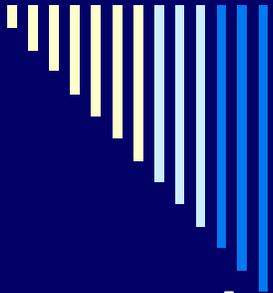
HYBRID DESIGN

	Known Effects (Mgmt Actions)		Unknown (Treatments)	
Interval				
1	X	X	X	
2	X	X		X
3	X	X	X	X
4	X	X	X	
5	X	X		X
6	X	X	X	X



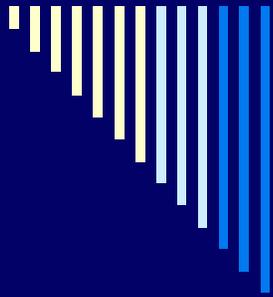
II. Develop Criteria for Assessment

- ❑ Quality of information (expert opinion, agency reports, peer-reviewed journal articles)
- ❑ Quantity of information (has the experiment been replicated with equivalent results?)
- ❑ Level of risk to resource from action or treatment
- ❑ Cost of implementing the action or treatment



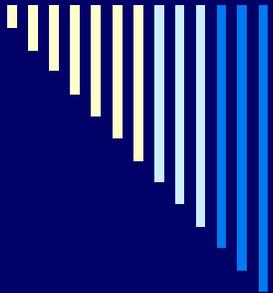
III. Finish Knowledge Assessment

Aggregation, analysis, and synthesis of information gathered from studies of experiments and their effects on target resources, with emphasis on studies in the Colorado River in Grand Canyon or in closely related systems



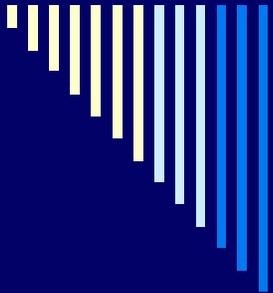
Actions & Treatment Assessment

	Mechanical Removal	Temperature Control	Dam Releases	HBC Augmentation
HBC				
Sediment				
Trout				
Cultural				
Hydropower				
Recreation				



IV. Conduct Expert Workshop

- GCMRC lead; provide knowledge assessment
- Participants apply criteria to knowledge assessment to segregate management actions and treatments
- Utilize broad range of expertise, including internal and external scientists and managers
- Begin formulation of experimental design for treatments



V. Write, Review, Implement

- GCMRC lead; LTEP Ad Hoc support
- Science Advisors risk assessment
- TWG review
- AMWG review and recommendation
- Secretary of the Interior decision
- Action agencies environmental compliance and consultation