Long-Term Experimental Plan Update

AMWG Meeting

August 9, 2004

AMWG Charge

AMWG charges the SAB, the GCMRC, and the TWG jointly to develop a long-term experimental program that responds to the AMP Strategic Plan and incorporates existing legal requirements to be completed and brought to the AMWG by January 2005. The SAB, the GCMRC, and the TWG will bring a draft of the program to the AMWG at a Fall 2004 meeting, and the AMWG will decide at that meeting whether additional recommendations to the Secretary for flows in WY05 are necessary. AMWG requests that compliance on a January 2005 long-term experimental flow program will be targeted for completion and the program implemented by July 2005.

Adaptive Management Continuum

High Uncertainty

High Knowledge

Experiments
Monitoring

Management Actions
Monitoring

Policy Change
Monitoring

Learning By Doing

Progress

- May 3 TWG meeting GCMRC provides draft plan similar to ongoing action; TWG forms Ad Hoc
- Ad Hoc has met with GCMRC 4 times and conducted 3 conf calls; interaction with SAs has occurred
- Other designs identified; ad hoc considers range from classic block design to “kitchen sink”
- Advocacy for different approaches centers on relative importance of “learning” versus “doing”
- Compromise design has been agreed upon for further development
- Remaining activities to completion have been identified

FACTORIAL DESIGN		
	Actions	
Intervals	A	B
1	X	
2		X
3	X	X
4	X	
5		X
6	X	X

FORWARD TITRATION				
	Actions			
Intervals	A	B	C	D
1	X			
2	X	X		
3	X	X	X	
4	X	X	X	X

REVERSE TITRATION				
	Actions			
Intervals	A	B	C	D
1	X	X	X	X
2	X	X	X	
3	X	X		
4	X			

HYBRID				
	Known Effects		Unknown	
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

Design Type	Pros	Cons
Forward titration	Can randomize treatments Experiment is easier to understand and administer	Inability to discern interaction terms May not determine “best” treatment until late in experiment Lack of replication Limited use in science
Reverse titration	Allows managers to try all experimental treatments at first Gives the biggest effect at start to test effect size and variance Experiment is easier to understand and administer	Inability to discern all interaction terms Could force ecosystem to different state with many treatments at start Lack of replication Limited use in science
Factorial	Greatest ability to detect treatment effects Can discern interaction terms Can use replication Can randomize treatments Can identify treatment effects early and make adjustments to better discern effects Proven history of use	Greatest complexity May not be doing the “best” for resource at any given time Experiment is more difficult to explain, understand, and administer
Hybrid block	Allows managers to implement “known” treatments at beginning Allows for replication of treatments Incorporates block design for unknowns	Managers and scientists wedded to “knowns” for duration of experiment Risk if effects of “knowns” are really not known Lack of experimentation, and hence effect sizes, for “knowns”

Request for Extension

The TWG requests AMWG to extend the period of LTEP development by approximately one year. A draft plan would be delivered at the AMWG summer 2005 meeting and a final by the winter meeting in January 2006. Intermediate steps:

- completion of a WY 2006 experimental plan by TWG
- develop a knowledge assessment for comparison of proposed actions
- develop criteria for assessment of experimental actions to place in effects categories
- conduct a workshop of scientists and managers to flesh out plan components
- a risk assessment to be completed by the Science Advisors between draft and final plans

Reasons for Extension

- Long term of the plan and likely complexity
- Time to resolve differences in approach
- Lack of in-depth knowledge assessment
- Inability near term to implement some actions
- Time to integrate plans
- Time to incorporate expertise of Science Advisors, cooperating and external scientists, including conducting a risk assessment
- Time to develop contingency plan for continued drought
- Time to determine level of compliance and to achieve