

GCMRC'S APRIL 2010 INTEGRATED MODELING WORKSHOP

AGENDA

Saguaro Lake Ranch
13020 Bush Highway, Mesa, AZ 85215
Phone: 480-984-2194 Fax: 480-380-1489
saguarolakeranch.com

Tuesday April 13th

Integrated Physical Modeling Update & Stakeholder Interactions (Scott Wright, Brandy Logan, Paul Grams and others w/ Josh Korman and Ted Melis, facilitators)

“Status of Temperature, Flow & Sediment Modeling – Status & Next Steps?”

08:30 AM Welcome, Introductions & Background

Opening Question: What is the status of the various research models for flow, temperature and sediment and how are they being used to support ecosystem modeling, integrated science and experimentation?

09:00 AM Overview of the ongoing modeling project, including descriptions of the various models, how they fit together, and questions that they can potentially address

Presenter: Scott Wright, USGS, California Water Science Center

09:15 AM Shifting rating curve model for sand transport -- Explanation of model and example applications. Example application 1: use of model to predict relative sand retention magnitude for given tributary input volumes and a range of alternative dam-operation scenarios (new publication pending, for some background see Wright et al., 2008). Example application 2: potential use of model in development of High-Flow Protocol triggering criteria.

Presenter: Scott Wright, USGS, California Water Science Center

10:15 AM **BREAK**

10:30 AM One-dimensional temperature models (monthly average and sub-daily) -- Explanation of models and example applications, e.g. support ecosystem modeling, evaluate TCD (for some background, see Wright et al., 2009)

Presenter: Scott Wright, USGS, California Water Science Center

11:00 AM Discussion on potential applications of sand transport and 1D temperature models – **BLUE CARD SESSION** – what next in terms of modeling research?

Moderator s: Josh Korman and Ted Melis

TWG Chair: Shane Capron

NOON **LUNCH**

1:00 PM Overview of the Delft3D modeling package and data collection during the March 2008 flood (Eddy project 1B) in support of its use

Presenter: Scott Wright, USGS, California Water Science Center, Sacramento, CA

1:30 PM Application of Delft3D for sandbar modeling -- Explanation of model, calibration to Eminence site, discussion of potential applications

Presenter: Brandy Logan, USGS, National Research Program, Water Resources Discipline, Lakewood, CO

03:00 PM **BREAK**

03:15 PM Integration topics; for example, integration of 1D and 3D models, integration of modeling and monitoring projects, integration of physical models with biology projects

Presenter: Scott Wright, USGS, California Water Science Center, Sacramento, CA

04:00 PM Discussion on potential applications of Delft3D model for sandbar modeling and habitat studies – **BLUE CARD SESSION**

Moderator s: Josh Korman and Ted Melis
TWG Chair: Shane Capron

05:00 PM **ADJOURN**

06:30 PM **DINNER**

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Wednesday April 14 – 15th

Integrated Ecosystem Modeling Workshop & Stakeholder Interactions (Carl Walters and others
w/Josh Korman and Ted Melis, facilitators)

“Outcomes of the March 2010 Ecopath/Ecosim Modeling Workshop at Cedar Key, FL”

08:30 AM	Welcome, Introductions & Background
09:00-09:30 AM	Objectives of Glen & Grand Canyon Analyses (Walters) <ul style="list-style-type: none">• What are we trying to achieve with these models (see Christensen and Walters, 2004 on ecopath w/ ecosim modeling)• What are key hypotheses to evaluate using models<ul style="list-style-type: none">○ Policy Issues/Questions (these will be summarily listed on wall)○ ID key papers that still need to be developed/published?
09:30-10:00 AM	Persons/Makinster - Key hypotheses explaining 1991-2009 trend in Lees Ferry adult trout abundance and condition factor (also, see Chapter 2 from Coggins, 2008)
10:00-10:30 AM	BREAK
10:30-11:00 AM	Kennedy - Food base and food web in Glen Canyon - Summary of key findings from food base project (including 2008 HFE response – see Rosi-Marshall and others, 2010)
11:00-11:30 AM	Korman - Effects of 2008 HFE on age-0 rainbow trout in Lees Ferry reach (see Korman and others, 2010)
11:30-Noon	Walters - Introduction to Lees Ferry models
	FORMAT - [20-minute presentations + 10 minutes of Q/A]
Noon-01:00 PM	LUNCH
01:00-03:00 PM	Walters - Results from Monthly Lees Ferry trout model and Lees Ferry Ecopath with Ecosim (EwE) model
	FORMAT – [presentation, then interactions with TWG members)
03:00-03:30 PM	BREAK

03:30-05:00 PM Discussion with stakeholders on WED morning topics – policy alternatives & future experimental strategy – **BLUE CARD SESSION**

Moderator s: Josh Korman and Ted Melis
TWG Chair: Shane Capron

05:00 PM **ADJOURN**

06:30 PM **DINNER**

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Thursday April 15th

08:00 – 10:00 AM – Aquatic Ecosystem - Marble and Eastern Grand Canyon Reaches

Presenters: 1) Ted Kennedy on productivity (30 min), 2) Andy Makinster on length analysis and movement of RBT (30 min), 3) Mike Yard on predation versus temperature (30 min), 4) Carl Walters on EwE – how might modeling be useful to resolve the above issues and link the Lees Ferry reach to the LCR model (30 min)?

FORMAT - [20-minute presentations + 10 minutes of Q/A]

10:00 AM **BREAK**

10:15 AM Dynamic changes in the aquatic ecosystem near the LCR; mechanisms that have caused recent dramatic increases in native fish abundance; policy implication for native fish recovery of linkages between trout and flow regulation, minimum requirements for non-native fish control to maintain continued recovery of native fishes

Presenter: Carl Walters - EwE modeling of the LCR inflow reach (plus, Nearshore Ecology study)

11:00 AM Discussion with stakeholders on THU morning topics – policy alternatives & future experimental strategy – **BLUE CARD SESSION** – incorporation of workshop findings and TWG recommendations (e.g. relation to EIS, DFCs, etc.) into the AMP process?

Moderator s: Josh Korman and Ted Melis

TWG Chair: Shane Capron

12:30 PM **LUNCH**

ADJOURN

NOTE: BLUE CARD SESSION – the idea here is for TWG members to write down their key issues and questions that might be appropriate for time periods so identified. These blank cards will be distributed throughout the meeting room for use throughout the presentation periods and should be filled out and passed on to the TWG chair (Shane Capron). Since these discussion periods are relatively limited, the facilitators will look to the TWG chair to determine the appropriate number and types of issues to be discussed during these periods from the assorted cards collected from the members. Topics for which there is insufficient time for discussion may later be discussed among TWG members at their future meetings.

STAYING AT SAGUARO LAKE RANCH DURING THE WORKSHOP - Information about reserving accommodations and taking meals at Saguaro Lake Ranch – there are 27 cabins available on a first-come first-serve basis that can accommodate up to 54 persons (sharing rooms) or 27 (all with single accommodation). Please see the letter below and call the Ranch to make your reservations. **They will also ask you about which meals you will be taking while at the workshop – call them about the meals you need while on site if you choose to stay elsewhere overnight or are commuting from the PHX area.** Ask about alternative accommodations when you call if they are fully booked or you desire to stay off site at another location.

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November 25, 2009

Ted Melis
tmelis@usgs.gov

Dear Ted-

Thank you for your phone call and request for information about the possibility of having two conferences here in 2010. The first conference would be a small group of 10 attendees for the two nights of January 20th and 21st. **The second group would be a larger group of 30-40 for the three nights of April 12th, 13th and 14th.** We currently have both dates available.

Our daily conference rate is \$150 per person, double occupancy, and \$175 for a single. This includes lodging, three meals, meeting space and beverage/snack breaks. State sales tax of 7% and optional gratuities or activities would be additional. We have several rooms in the lodge as well as an outbuilding which we use for meetings. If you need to break down the daily rate for the federal per diem rates, the single rate of \$175 is \$115 for room and \$60 for food, the double rate of \$150 is \$90 for room and \$60 for food.

The ranch enjoys a spectacular location, offers comfortable accommodations and delicious food as well as a unique atmosphere conducive to education and team building. We appreciate your interest in our facility and look forward to providing your groups with all of the amenities important to creating a successful learning experience. Please contact me with any further questions and we hope to hear from you soon.

Sincerely,

Stephen V. Durand
General Manager

SUGGESTED READINGS FOR MODELING WORKSHOP PARTICIPANTS

I. 2008 High Flow Experiment Reports & Publication Status - The following reports have been completed as final and are now available. These reports are suggested as reading prior to the ecosystem modeling workshop and will be particularly important to discussions during the workshop that pertain to experiment high flows and their influence on the Colorado River ecosystem below Glen Canyon Dam.

- 1) **SANDBAR CHANGES** - Project 1.C - “Sandbar Response Following the 2008 High-Flow Experiment on the Colorado River in Marble and Grand Canyons, Arizona” by Joe E. Hazel Jr., Paul E. Grams, John C. Schmidt and Matt Kaplinski [currently available at: www.gcmrc.gov and www.usgs.gov as U.S. Geological Survey Scientific Research Investigations Report 2010-5015],
- 2) **SANDBARS AND CULTURAL SITES** - Project 1.C – “Weather and aeolian sand-transport data from the Colorado River corridor, Grand Canyon, Arizona” by Draut, A.E., Sondossi, H.A., Hazel, J.E., Jr., Andrews, Timothy, Fairley, H.C., Brown, C.R., and Vanaman, K.M. [currently available at www.gcmrc.gov and www.usgs.gov as U.S. Geological Survey Open-File Report 2009-1190, 98 p. Link: www.gcmrc.gov/research/high_flow/2008/documents.aspx <http://pubs.er.usgs.gov/usgspubs/ofr/ofr20091190>],
- 3) **SANDBARS AND BACKWATERS** - Project 1.D - “2008 High-Flow Experiment at Glen Canyon Dam: Morphologic Response of Eddy-Deposited Sandbars and Associated Aquatic Backwater Habitats along the Colorado River in Grand Canyon” by Paul E. Grams, John C. Schmidt, Matthew E. Andersen [currently available at www.gcmrc.gov and www.usgs.gov as U.S. Geological Survey Open File Report 2010-1032],
- 4) **RIPARIAN VEGETATION** - Project 2 - “Riparian Vegetation Response to the March 2008 Short-Duration, High-Flow Experiment—Implications of Timing and Frequency of Flood Disturbance on Nonnative Plant Establishment along the Colorado River below Glen Canyon Dam” by Barbara E. Ralston [currently available at: www.gcmrc.gov and www.usgs.gov as a U.S. Geological Survey Open File Report 2010-1022],
- 5) **AQUATIC FOOD PRODUCTION** – Project 3 - “Short-Term Effects of a High-Flow Experiment on Macroinvertebrates in the Colorado River below Glen Canyon Dam” by Emma J. Rosi-Marshall, Theodore A. Kennedy, Dustin W. Kincaid, Wyatt F. Cross, Holly A.W. Kelly, Katherine A. Behn, Tyler White, Robert O. Hall Jr. and Colden V. Baxter [currently available at: www.gcmrc.gov and www.usgs.gov as USGS Open File Report 2010-1031],
- 6) **RAINBOW TROUT SPAWNING & SURVIVAL** – Project 4.A - “Effects of High-Flow Experiments from Glen Canyon Dam on Abundance, Growth, and Survival Rates of Early Life Stages of Rainbow Trout in the Lees Ferry Reach of the Colorado River” by Josh Korman, Matthew Kaplinski and Theodore S. Melis [currently available at: www.gcmrc.gov and www.usgs.gov as U.S. Geological Survey Open File Report 2010-1034],
- 7) **2008 HFE SUMMARY** - U.S. Geological Survey Fact Sheet – “2008 High-Flow Experiment at Glen Canyon Dam Benefits Colorado River Resources in Grand Canyon National Park” by Theodore S. Melis, David J. Topping, Paul E. Grams, David M. Rubin, Scott A. Wright, Amy E. Draut, Joseph E. Hazel, Jr., Barbara E. Ralston, Theodore A. Kennedy, Emma Rosi-Marshall, Josh Korman, Kara D. Hilwig, and Lara M. Schmit,

[available at: www.gcmrc.gov and www.usgs.gov as U.S. Geological Survey Fact Sheet 2010-3009].

II. Additional Papers to Review Related to Presentations:

- Christensen, V. and Walters, C.J., 2004, Ecopath with Ecosim: methods, capabilities and limitations, *Ecological Modelling*, v. 172, p. 109–139.
- Coggins, L.G., 2008, ACTIVE ADAPTIVE MANAGEMENT FOR NATIVE FISH CONSERVATION IN THE GRAND CANYON: IMPLEMENTATION AND EVALUATION, University of Florida dissertation, 173 p.
- Wright, S.A., Schmidt, J.C., Melis, T.S., Topping, D.J. and Rubin, D.M., 2008, Is there enough sand? Evaluating the fate of Grand Canyon sandbars, *GSA Today*, Geological Society of America. Vol. 18, no. 8, p. 4-10.
- Wright, S.A., Anderson, C.R. and Voichick, N. 2009, A SIMPLIFIED WATER TEMPERATURE MODEL FOR THE COLORADO RIVER BELOW GLEN CANYON DAM, *River. Res. Applic.*, v. 25, pp. 675-686. Also Published online June 17, 2008 in Wiley InterScience (www.interscience.wiley.com) DOI: 10.1002/rra.1179.