



## **Case Clinic: Matt Grabau on Working with an Altered Hydrology and Uncertainty**

**Attendees:** Matt Grabau (Presenter), Stacy Beough (Facilitator), Lindsay Murdoch, Anna Sher, Jay Thomson, Graham Buggs, Kalli Jimmie, Amanda Stahl, Hannah Riedl, & Jim Cagney

**Overview:** In the Colorado River Delta, practitioners have to accept that many factors may remain out of their control. The Colorado River Delta is a system dependent on environmental flows, national and international policy, groundwater from agricultural return flows, regulated and unregulated groundwater pumping, climate change, annual snow pack, and other factors. When reintroducing flows into a dry system, habitat creation adds a whole dimension of uncertainty to restoration. Given these uncertainties, Matt asks: (1) How do we establish specific and measurable goals for resilience and (2) How do we increase the likelihood of long-term restoration success in this challenging environment?

### **How do we establish *specific, measurable* goals to build stakeholder confidence and resilient systems?**

<b>Tips for goal-setting</b>	<b>Discussion</b>
Strive for “resilience through management”	This language provides a potential alternative to the term “restoration”, which implies return to a preexisting condition.
Focus on function > physical benchmarks	<ul style="list-style-type: none"> <li>• <i>Rates</i> are an effective way to think about function (e.g., decomposition rates)</li> <li>• Restoration strives for ecosystem functions, not number of cottonwoods</li> <li>• Physical benchmarks are short-term measures of function-centered goals</li> </ul>
Track indirect outcomes of restoration activities	<ul style="list-style-type: none"> <li>• Consider potential political outcomes (e.g. change in dam regulations, evolving agricultural practices)</li> <li>• Look to other geographies that may have benefited (e.g. Habitat changes effect migratory bird populations on a larger landscape scale)</li> </ul>
Work with funders to define success	Dialogue is important; funders and recipients ought to work together to define specific reporting measures
Defining success is hard, but necessary	<ul style="list-style-type: none"> <li>• Outcomes are only achievable when <i>articulated</i></li> <li>• Delaying projects while waiting for data is a bad habit to get into when every project has a certain degree of uncertainty</li> </ul>

Incorporate social monitoring goals	<ul style="list-style-type: none"> <li>• Complicates restoration – balance community priorities with ecological priorities</li> <li>• Having more goals creates more opportunities for success: capture cultural, economic, recreational, political impacts</li> <li>• Integrate story-telling; documentaries can play a powerful role in capturing social &amp; recreational impacts</li> </ul>
Expect the unexpected & document surprises	<ul style="list-style-type: none"> <li>• Partnering with multiple stakeholders can help to capture unforeseen benefits</li> <li>• You will never have all the information you need; be willing to take risks</li> <li>• Share failures with others so they don't replicate avoidable mistakes</li> </ul>
Be adaptive in mgmt., research, and monitoring	<ul style="list-style-type: none"> <li>• Consider climate change trajectories when predicting thresholds (e.g., climate change)</li> <li>• Build in capacity to adapt from the onset</li> </ul>
Value honesty and transparency	<ul style="list-style-type: none"> <li>• Report on mistakes as a means to share/value lessons learned through experimentation</li> <li>• Process dictates transparency (e.g., data sharing)</li> <li>• Note that there may be risk in admitting failure to certain funders</li> <li>• Know your audience to communicate effectively (bring in professional marketers, artists, translators, etc.)</li> <li>• Communicate with all stakeholders in mind</li> </ul>
Defining different types of habitat improvement	<ul style="list-style-type: none"> <li>• “Conservation” – maintaining in the face of adversity may be adequate in areas</li> <li>• “Restoration” – restoring to a previous condition in some areas</li> <li>• “Creation” – creating habitat in areas where it may not have existed to be resilient in projected future conditions</li> <li>• Gradients of success in restoration in the Delta (i.e., introduction of water to the system may advantage invasives, but still provide greater habitat value)</li> </ul>
Set S.M.A.R.T. goals	<ul style="list-style-type: none"> <li>• <u>S</u>pecific, <u>M</u>easurable, <u>A</u>ttainable, <u>R</u>elevant, <u>T</u>ime-bound</li> <li>• Use quantifiable metrics</li> </ul>

## How do we increase the likelihood of long-term restoration success in challenging environments like the Colorado River Delta?

Strategies	Discussion
Work with communities to measure non-ecological impacts	<ul style="list-style-type: none"> <li>• Empowering <i>local champions</i> is essential for long-term sustainability</li> <li>• Integrate jobs, recreation, education, etc.</li> <li>• Consider <i>public health</i> components (e.g. standing water increases mosquito habitat and water-borne pathogens)</li> </ul>
Engage schools / educators	<ul style="list-style-type: none"> <li>• Immediate benefit: informing parents of current projects</li> <li>• Future benefit: cultivating future stewards</li> </ul>
Incorporate traditional/cultural land uses into planning	<ul style="list-style-type: none"> <li>• Incorporating controlled timber harvest into Delta project</li> <li>• Subsistence fishing can draw additional local support</li> </ul>
Plan for “good quality” scientific research	<ul style="list-style-type: none"> <li>• Increase the time-period of monitoring</li> <li>• Applied research as monitoring</li> </ul>
Secure long-term environmental flows	<ul style="list-style-type: none"> <li>• Key for achieving resilience (e.g. Delta Water Trust purchasing water rights from ag.)</li> <li>• Move beyond national agreements (political will is uncertain)</li> </ul>
Create infrastructure of multi-scale collaboration	<i>Local, federal, &amp; international</i> engagement
Structure projects for <i>Adaptive Governance</i>	<ul style="list-style-type: none"> <li>• Establish threshold for governance restructuring (e.g. Columbia River)</li> <li>• Set goals for governance as well as ecological &amp; social goals (e.g. Dolores River Restoration Partnership)</li> </ul>

## Resources referenced in discussion

**Social monitoring & storytelling** through documentary film:

<https://www.youtube.com/watch?v=qCcEOlu2wbg> (skip to 1:30)

**Adaptive Governance** papers:

Chaffin, B. C., Gosnell, H., & Cosens, B. A. (2016). A Decade of Adaptive Governance Scholarship: Synthesis and Future Directions. Retrieved from

<http://papers.ssrn.com/abstract=2717757>

Cosens, B. a., & Williams, M. K. (2012). Resilience and water governance: Adaptive governance in the Columbia river basin. *Ecology and Society*, 17(4). <http://doi.org/10.5751/ES-04986-170403>

**Best practices for collaborative restoration projects:**

Contact Stacy Beaugh ([sbeaugh@tamariskcoalition.org](mailto:sbeaugh@tamariskcoalition.org)) or Shannon Hatch ([shatch@tamariskcoalition.org](mailto:shatch@tamariskcoalition.org)) for relevant documentation on establishing collaborative groups