



Overview of Collaborative Adaptive Management (CAM)

CAMNet

Rendezvous
on the Trinity River

October 6-8, 2014
Weaverville, CA

David Galat
University of Missouri



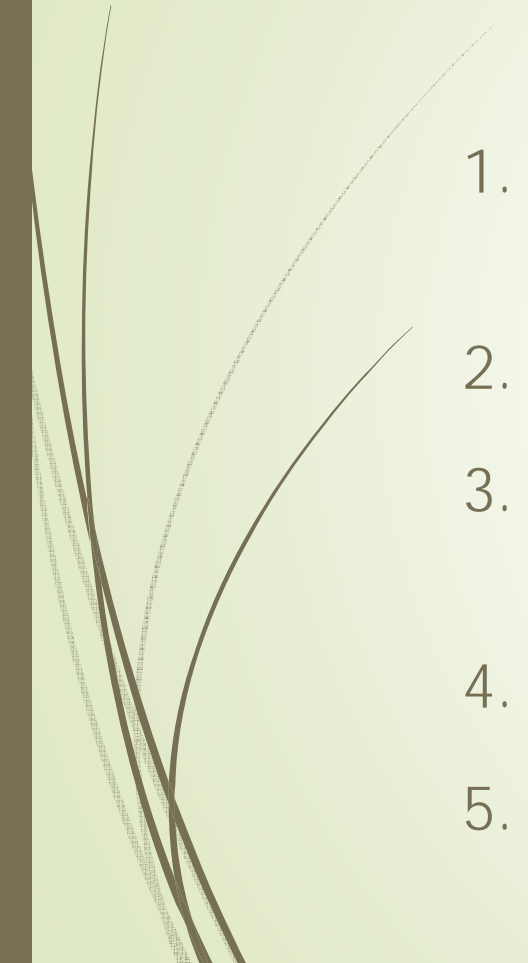
Adaptive
Management


CAM

Collaboration



Objectives


1. Define CAM & synergies among collaboration, AM & adaptive co-management (ACM)
 2. When to use and not to use CAM
 3. Key features for designing CAM & ACM processes
 4. Elements of an effective CAM process
 5. Integrating CAM & SDM
- 



What is a Collaborative Adaptive Management (CAM) Approach?

Principles of *collaborative problem solving* are integrated with the steps of the *adaptive management cycle*

Pratt Miles, J. D. 2013. Designing collaborative processes for adaptive management: four structures for multistakeholder collaboration. *Ecology and Society* 18(4): 5



What is a Collaborative Adaptive Management (CAM) Approach?

Collaborative problem solving identifies stakeholder interests and seeks solutions that address multiple interests through a creative process in which the participants discover the differences among them by listening to one another (Boulder Principles; Center for Appropriate Dispute Resolution in Special Education)

Pratt Miles, J. D. 2013. Designing collaborative processes for adaptive management: four structures for multistakeholder collaboration. *Ecology and Society* 18(4): 5

Adaptive Management uses iterative decision making through time to enhance learning-by-doing and adapts based on what is learned to reduce uncertainty and improve management

Management is making a decision and implementing an action from it

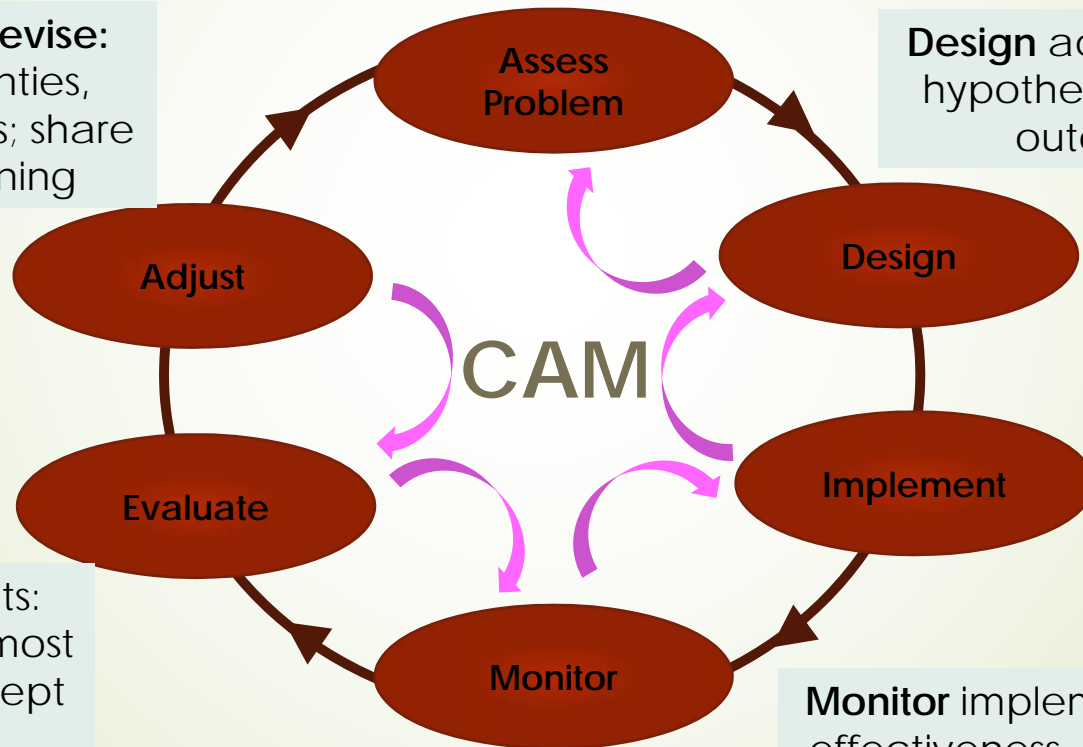
Stakeholder is a person or group with a vested interest in the outcome of a decision

Adaptive Management Cycle

Assess: ID - issues, CMs, management objectives, hypotheses, indicators, assumptions, uncertainties

Adapt / Revise:
uncertainties, hypotheses; share the learning

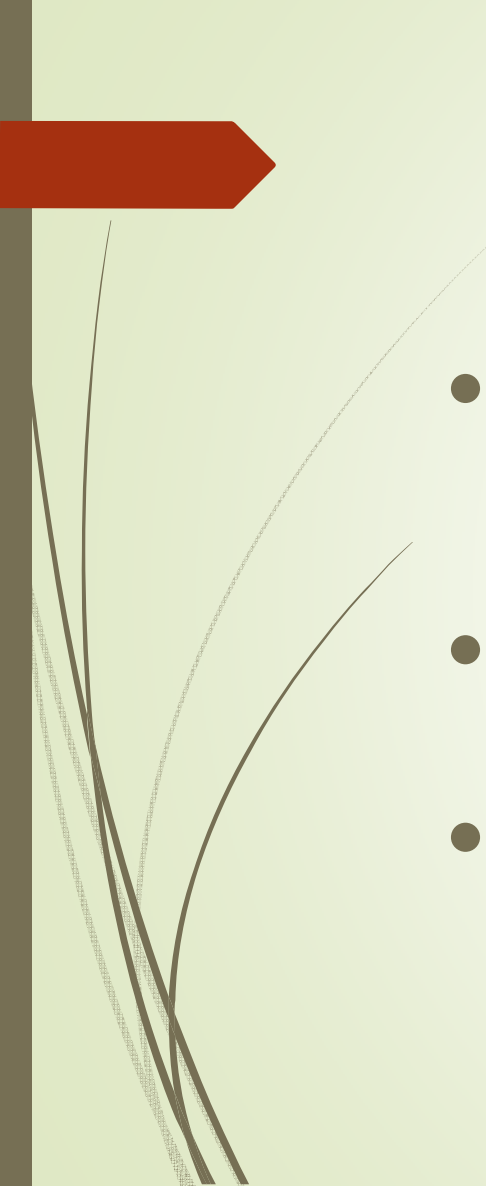
Design actions to test hypotheses; predict outcomes



Implement the actions as designed; document deviations!

Evaluate results: which actions most effective? accept / reject hypotheses?

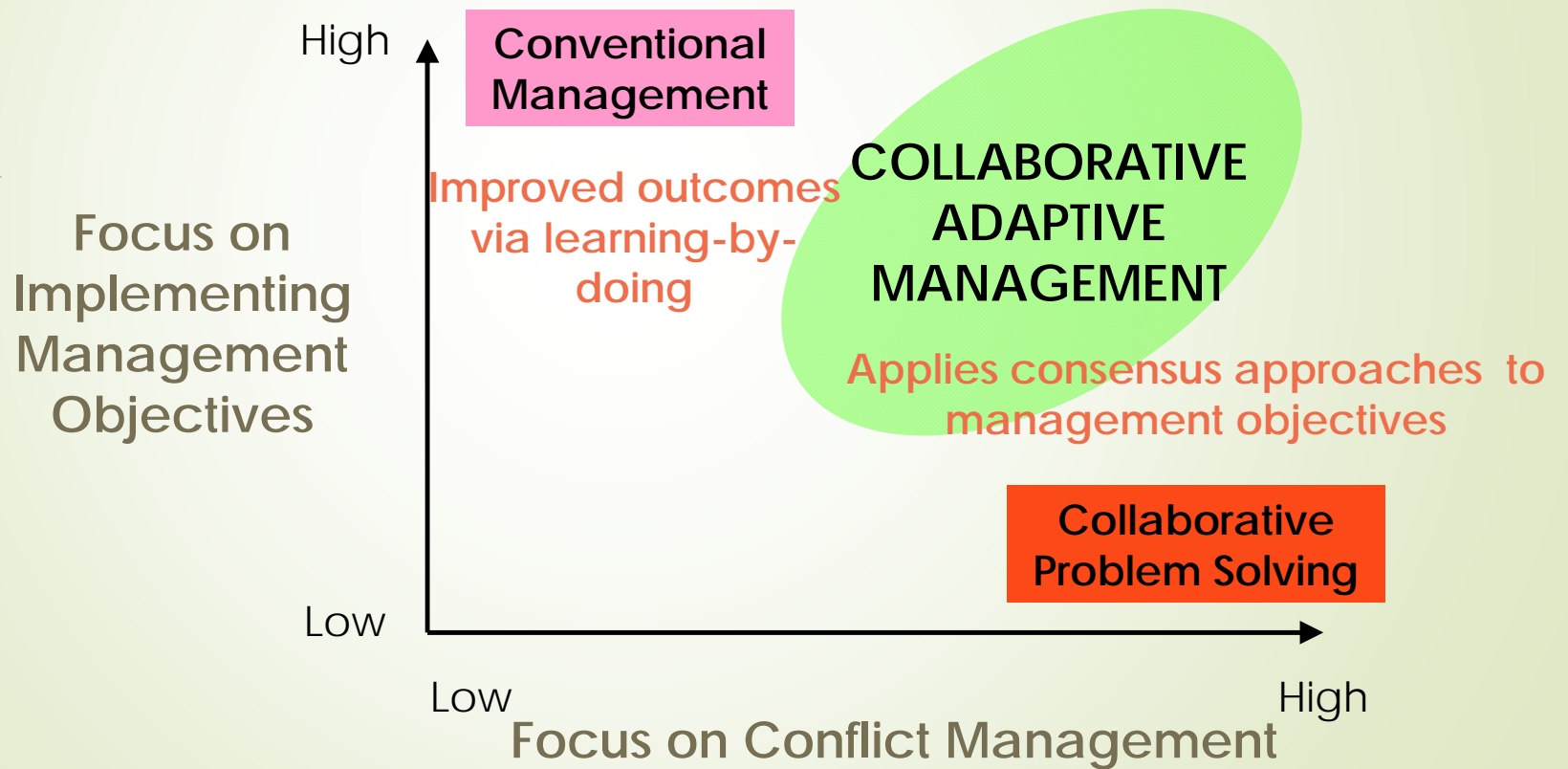
Monitor implementation, effectiveness, validation



AM + Collaboration = CAM Emerging, Symbiotic Tools?

- AM & collaboration emerged independently as tools to address natural resource management issues.
- AM requires anticipation, communication, learning, & adjustment.
- Collaborative problem solving offers tools to address polarization, mistrust, unequal power, & failed decision-making structures.

Integrating Management Objectives with Collaboration to Achieve Outcomes






Are CAM and Adaptive Co-management (ACM) different?

Principles of collaborative problem solving are integrated with the steps of the adaptive management cycle

(Pratt Miles, J. D. 2013. Ecology and Society 18(4): 5)

A combination of the iterative learning method of AM and the linkage and networking dimensions of collaborative management in which rights and responsibilities are jointly shared

(Armitage et al. 2007 Adaptive co-management; Smedstad, J. A., and H. Gosnell. 2013.. Ecology and Society 18,4: 8)



Key Features for Designing Collaborative Processes to Support AM

- Provide forums for interaction among managers, scientists & stakeholders
- Invite & document input from affected stakeholders at key junctures in the AM process
- Share data & information with stakeholders
- Identify in advance when monitoring results & new information will be evaluated to enable changes in management if warranted
- Design decision-making structures to incorporate & act on new information

(Pratt Miles, J. D. 2013. Ecology and Society 18(4): 5)



Key Features of Adaptive Co-management

- Shared vision, goal, and/or problem definition to provide a common focus among actors & interests
- A high degree of dialogue, interaction & collaboration among multiscaled actors
- Distributed or joint control across multiple levels with shared responsibility for action & decision making
- A degree of autonomy of different actors at multiple levels
- Commitment to the pluralistic generation & sharing of knowledge
- A flexible & negotiated learning orientation with an inherent recognition of uncertainty

(Armitage et al. 2007 Adaptive co-management)



CAM

"Adaptive management without collaboration lacks legitimacy, and co-management without learning-by-doing does not develop the ability to address emerging problems"

(Berkes 2009. Journal of Environmental Management 90:1692-1702)



What Situations are best suited for CAM?

- There are questions about the best management approach
- Opportunity for multiple stakeholders to participate in learning & developing a shared understanding about establishing goals, objectives, & management decisions
- Opportunities to test lower-level risk
- Management options are reversible
- Reasonable decision space



What Situations are NOT suited for CAM?

- Only one party is involved.
- Alternative outcomes cannot be identified or are not possible.
- One or more parties are unwilling or unable to compromise
- There is agreement among all affected parties about the management action to be taken.
- Management options are not reversible

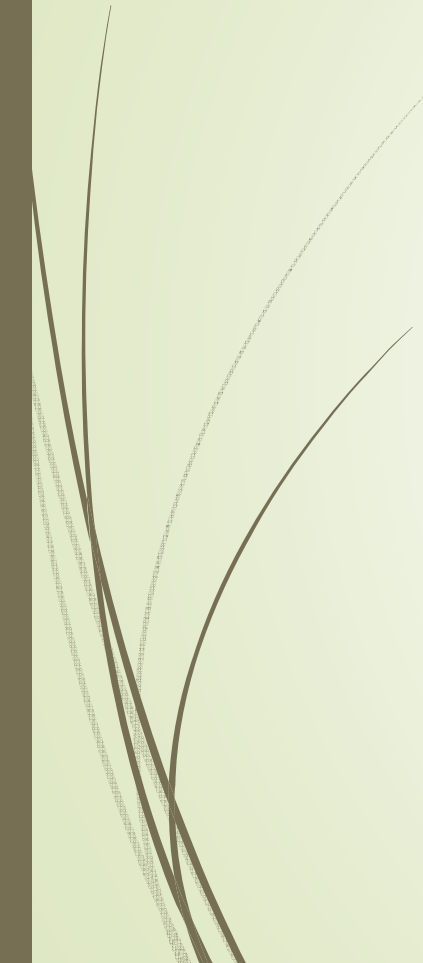


Elements of an Effective CAM Process

1. Stakeholders, managers & scientists are identified & are actively participating in a stated AM process.
2. Management goals & objectives are clearly stated & agreed on by all parties.
3. Key uncertainties (unknowns) are identified.
4. A conceptual model of the system is developed that is understood by all parties.
5. Alternative management actions, outcomes & decision points are identified by consensus.

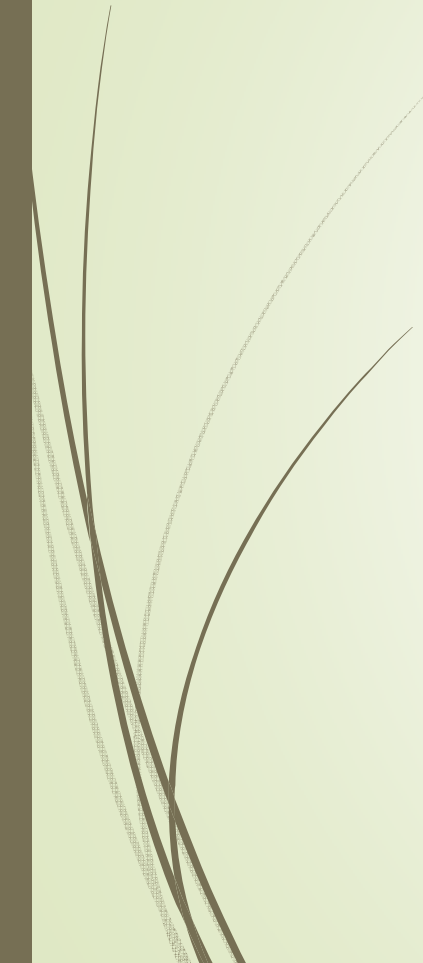


Elements of an Effective CAM Process

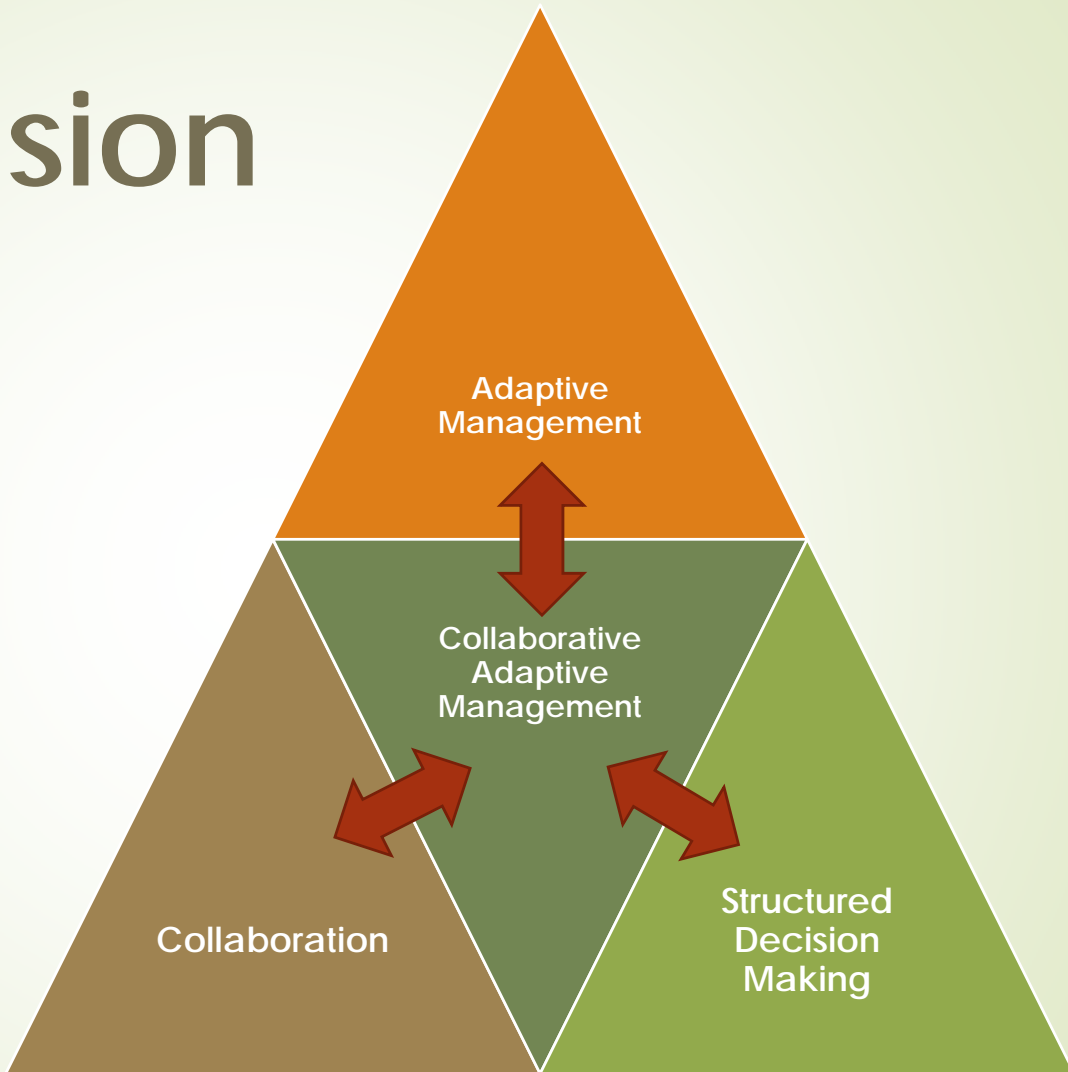
- 
6. Baseline (before) monitoring & effectiveness (after) monitoring are conducted.
 7. Monitoring results are compared to objectives, uncertainties, & outcomes & shared among all parties.
 8. A governance system is in place to revise future management decisions based on learning & adjustments are made when indicated.
 9. Learning is effectively communicated between stakeholders & decision makers



Synergy Among Collaboration and Decision Analysis for CAM

- Collaboration provides the 'lubrication' between the scientific process and the social, political and economic knowledge necessary to formulate and implement decisions
 - Decision Analysis provides a structured approach to predict the effects of management actions
- 

Conclusion





Acknowledgements

**Conversations with & reading products
of many colleagues:**

Jim Berkley

Jim Peterson

Mike Conroy

Tom St. Clair

Craig Fleming

Len Shabman

Lance Gunderson

Jennifer Pratt-Miles

Chad Smith

Ken Williams

Steve Light

Sandy Zellmer

Kent Loftin

Dave Marmorek



PS: How Google Works

- Think *extremely* big; 'the moonshot'
- Fail fast: learning trumps knowing
- Primacy of data over experience, intuition, or hierarchy in decision making

(Schmidt & Rosenberg. 2014. How Google works. Grand Central Publishing)