

*Synthesis*

## **Adaptive Management Planning Projects as Conflict Resolution Processes**

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**ABSTRACT.** Adaptive management planning projects use multiparty, multidisciplinary workshops and simulation modeling to facilitate dialogue, negotiation, and planning. However, they have been criticized as a poor medium for conflict resolution. Alternative processes from the conflict resolution tradition, e.g., principled negotiation and sequenced negotiation, address uncertainty and biophysical constraints much less skillfully than does adaptive management. When we evaluate adaptive management planning using conflict resolution practice as a benchmark, we can design better planning procedures. Adaptive management planning procedures emerge that explore system structure, dynamics, and uncertainty, and that also provide a strong negotiation process, grounded in principled exploration of stakeholders' interests and needs. "Crossing" procedures in this manner is a fertile way of developing new forms of professional practice.

**Key Words:** *adaptive management; conflict resolution; crossing; ecosystem management; environmental management; negotiation; planning; practice; principled negotiation; professional practice; resource management; strategic environmental assessment.*

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### **INTRODUCTION**

Lawrence Susskind remarks (Susskind 1994:7), "Too few people realize that the processes used to negotiate global agreements are as important as the technical capabilities and scientific understanding that the negotiators bring to the bargaining table." This is equally true at regional and local scales, of course. The design of processes to facilitate decision making in multifaceted, contested situations is a central issue in natural resource and environmental management.

The adaptive management tradition has made a major contribution in this area. It has developed planning processes that combine dialogue amongst stakeholders and experts, systems analysis, and exploration of uncertainty and options. However, its planning approach has been criticized as weak from a conflict resolution perspective. For example, McLain and Lee (1996:445) assert, "the scientific adaptive management approach has failed to provide adequate forums for the creation of shared understanding among stakeholders." Three case studies they analyze demonstrate, at least, that adaptive management is not a panacea when parties

are in conflict. Walters (1997) flags self-interest in research and management organizations as a major challenge for adaptive management. In effect, he is saying that in his experience, adaptive management planning processes have difficulty dealing with these interests. Reviewing the literature, Johnson (1999) remarks: "the most challenging problems in applying adaptive management are not scientific, but rather [are] in the social/political arena."

How, then, can adaptive management planning processes be adapted so that they can work better as conflict resolution processes? This is a pivotal question for practitioners, because processes that both probe uncertainty and engage conflict well are essential for good policy development. Science derived processes like adaptive management planning address uncertainty much more skillfully than they address conflict. On the other hand, processes derived from bargaining traditions such as principled negotiation (Fisher and Ury 1981) engage conflict much more skillfully than they engage uncertainty. Crossing the two can lead us to process designs that are a better fit to these science intensive public policy conflicts.

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## **ADAPTIVE MANAGEMENT PLANNING PROJECTS**

Workshops are the core activity in adaptive management projects (Holling 1978, Ewing et al. 2000). Participants may be research scientists, resource managers, policy analysts, decision makers, or industry and community representatives (Holling 1978, Walters 1986, Walkerden and Gilmour 1996). Decisions about who participates play a key role in shaping outcomes (McLain and Lee 1996, Skogen 2003). If stakeholders with strong interests or considerable influence are not included, a dispute cannot be settled and a conflict cannot be resolved. Problem scoping will also be weaker, because it is not informed by their experience.

Workshops provide opportunities to explore problems and debate options. The explicit workshop tasks cover three major systems analysis phases: (1) Scoping the problem area; (2) Exploring the structure, or patterns of cause and effect that shape outcomes in the problem area; and (3) Exploring views of the dynamics of the system's behavior, usually using a simulation model designed by the workshop participants, as they explore scope, structure, and dynamics (Holling 1978, Walters 1986, Gilmour et al. 1999, Walters et al. 2000).

General questions about the shape of management problems guide scoping. They include: (1) What are the management problems that need to be addressed; (2) What horizons in space and time, and in the range of issues considered, should we use; (3) What actions might deal effectively with the problems; and (4) What indicators could we use to measure success and failure? Brainstorming is the basis of scoping. It can reduce the risk of excluding important issues, when they do not fit within professional or organizational mindsets. These sessions are typically documented with lists, tables, and tree diagrams.

Discussion of structure focuses on patterns of cause and effect. This phase of a workshop series develops a conceptual model. The central questions asked are: (1) What are the major processes that shape system dynamics; (2) How are they connected to each other; and (3) How does each process behave, specifically: how are its outputs derived from its inputs? Conceptual models are usually represented by diagrams or matrices. Descriptions of processes are a combination of logical relationships and equations. Where it is helpful, adaptive

management simulation models incorporate competing descriptions of relationships and parameter values so that critical assumptions can be identified.

By developing a conceptual model, and describing rules for deriving inputs from outputs, the workshop teams design a quantitative simulation model. Typically, these software models are the central documentation of the participants' analyses of the management issues. These models provide graphs, and often maps, that show what the workshop participants' assumptions about cause and effect imply. The final workshop phase involves exploring dynamics and uncertainties using the model and discussing policy alternatives. In contrast with many simulation models, a model built in this way is sharply focused on the participating managers' and policy analysts' current questions; participants relate to it as their model.

What do these planning processes deliver? The projects that I have been involved in (Gilmour and Walkerden 1993, Gilmour and Walkerden 1994, Walkerden and Gilmour 1996, Gilmour et al. 1999) have brought: (1) a better qualitative understanding of how different management approaches could affect outcomes; (2) surprising insights into flaws in favored policy positions; (3) the discovery of new opportunities, including opportunities to improve learning from management; (4) a much better mutual understanding amongst participants; (5) movement towards a consensus; and insights into how, in the midst of the uncertainties, the system could be managed to sustain resilience and support learning. Clearly, adaptive management planning is helping to engage in conflicts and has distinctive strengths. How can this practice evolve through crossings with negotiation practices?

## **PRINCIPLED NEGOTIATION**

Positional bargaining is a common approach to negotiation: each party states what they want, and then as they negotiate they make compromises, as long as they believe it is in their best interests to do so. Bargaining in this way is unimaginative. Parameters are set by the initial positions taken, and the outcomes are strongly dependent upon the relative power of the parties. Fisher and Ury (1981) outlined a model of principled negotiation that is a significant improvement upon positional bargaining. Four stances are at the heart of principled

negotiation. How well do adaptive management planning processes support them?

### **Separate the people from the problem**

Intense emotions often surface during conflicts. Negotiation processes need ways to work with these and with other factors that hinder effective communication. This is an area in which the adaptive management tradition is weak. Walters (1986) underlines the need for facilitators to listen well and acknowledge their mistakes. However, adaptive management's writings do not direct readers to resources that they could use to build their communication skills. To facilitate well, one needs to know how to listen, how to assert, and how to incorporate intense emotions into dialogue, without damaging group processes. In this area, adaptive management facilitators sink or swim, based on the skills they have acquired elsewhere.

Nonetheless, adaptive management workshops commonly include practices that lower the risk that personal conflict will disrupt analysis and negotiation. Workshop facilitators model listening carefully and open-mindedly, and this influences how the participants confront each other. Emotionally charged conflict can be addressed effectively by a natural extension of this approach. Thus, skillful handling of personal conflict certainly can occur within adaptive management workshops. The only noteworthy constraint is that the workshops themselves may be an awkward setting to resolve interpersonal conflicts, because there are many onlookers. It is often easier to deal with these matters privately.

Therefore, we can strengthen adaptive management planning processes by:

- explicitly approaching them as facilitated negotiations, requiring facilitators to be skilled in conflict resolution processes; and
- explicitly setting them up in a way that allows the facilitators to engage in shuttle diplomacy or informal mediation at times when these are helpful.

### **Focus on interests, not positions**

By participating in a conflict with assertions of our own interests, and with questions that probe others' interests, we shift the tacit rules of negotiation away from compromise and toward joint exploration. Interests often have a legitimacy that others can recognize, notably, when they embody basic needs that we all share. On the other hand, positions express apparently nonnegotiable commitments about how the position-taking party will behave, and/or prescriptions for the behavior of other parties. By focusing on interests, rather than positions, we open up the dialogue. We explore the underlying structure of conflicts: actual and perceived contradictions between the interests and needs of the parties. We can find better ways forward.

The ability of adaptive management workshops to direct the attention of the stakeholders away from positions and toward interests is one of their great strengths. When a project is being scoped, participants are invited to express their positions by talking about the actions that they think should be implemented or considered. However, they are also invited to signal their interests by talking about those indicators of system states on which to focus to evaluate management alternatives. The indicators selected reflect the participants' integration of what can be usefully measured and their underlying values and concerns.

Actions and indicators then provide the framework for an examination of the underlying structure and dynamics of the socioeconomic and ecological system that the stakeholders are collectively attempting to manage. Grappling with the fundamentals of structure and dynamics leads people to reconsider what they want for their organizations or groups. They become aware of constraints, complications, and uncertainties that were not integrated into their positions. As they digest these, they fall back on their underlying interests as their guide to what they should seek from management. This process catalyzes creative reconsideration of policy alternatives.

However, there is room to strengthen the adaptive management planning process, because its focus on interests is implicit. We could:

- add an explicit step to the scoping process, after brainstorming indicators of success or failure, where we ask what interests underlie the choice of indicators, and whether our analysis to date of problems, boundaries, actions, and indicators has covered everything to allow us to explore the impact of alternative management approaches on stakeholders' interests
- expect facilitators to stay attuned to the differences between interests and positions throughout, and to intentionally ask questions to bring out underlying interests when stakeholders present position statements as their account of what is at stake for them.

Walkerden (2005a) provides an example of how systems analysis and principled negotiation methods can be woven together in the form of a catchment audit protocol, which helps practitioners orient themselves for negotiations as they think into water-cycle management issues.

### **Invent options for mutual gain**

After addressing personal upsets that impede negotiation, and evoking a problem-solving ethos by shifting attention to interests, Fisher and Ury (1981) recommend that principled negotiators work hard to invent options for mutual gain. Many of the techniques that they recommend for inventing options are integral to adaptive management workshops: brainstorming; focusing in on specifics, then out on context, then in again; listening to the perspectives of different experts; and helping people to see each other's point of view (Fisher and Ury 1981:157–158). Seeking options for mutual gain comes to the fore in adaptive management workshops via the subtle shift in perspective from competition over policy alternatives to joint problem solving in the face of unappreciated complexity and uncertainty. This shift is grounded in the recognition that ecological outcomes, and their social consequences, are a collective product: stakeholders are interdependent in nontrivial ways.

Nonetheless, the emphasis on inventing options is a great deal more explicit in the principled negotiation tradition than it is in the adaptive management planning tradition. When management actions are brainstormed during the scoping phase,

the options mentioned are likely to be those that people have already considered in some way. The adaptive management tradition could be strengthened by:

- reviewing key interests as scope, structure, and dynamics are being discussed; and explicitly asking: are there some more creative ways in which we could look after each of the stakeholders' interests, including the "interests" of organisms located in places at risk of ecological harm?

To support this, it would be helpful if we made it easier to change the scope of an adaptive management planning process as it proceeds. The point of greatest tension occurs when dynamics are being explored, usually using a simulation model. At this point, it is usually very difficult to add a quite new kind of policy intervention to the simulation model that may advance the stakeholders' interests better. Two ways in which this weakness can be addressed are:

- giving the conceptual model a prominent role throughout the process, and specifically giving it a prominent role when system dynamics are being explored in "gaming" workshops, because a conceptual model can be altered easily to support fresh thinking; and
- adopting an "agile programming" approach (Beck and Fowler 2001, Highsmith 2002), i. e., not relying heavily on upfront analysis of scope and structure to provide the design of a quantitative model, rather, building the model in small chunks, each defined so it adds something of interest to the negotiating stakeholders to the model, working to an evolving specification.

Allowing a simulation model's design to evolve incrementally is possible using a family of design and programming techniques developed in response to the failure of many massive projects. These include the use of objects, patterns, and refactoring (see Beck and Fowler 2001 and Highsmith 2002 for explanations of these terms).

## Insist on objective criteria

Fisher and Ury articulate three basic stances for using objective criteria in negotiations (Fisher and Ury 1981:91): (1) "Frame each issue as a joint search for objective criteria;" (2) "Reason and be open to reason as to which standards are most appropriate and how they should be applied;" and (3) "Never yield to pressure, only to principle." Adaptive management workshops adhere closely to these principles. Options are evaluated in light of the indicators that reflect what participating stakeholders value. The core of an adaptive management project is exploring how alternative management regimes might affect each of these indicators. Workshops provide a context in which stakeholders debate about the indicators that should guide decision making, and how outcomes of multiple dimensions should be integrated to reach a decision. Because workshops are set up as joint explorations, their ground rules include a commitment to reasoned arguments as the basis for decisions. As with any other ground rule, this principle is reinforced by the facilitators' comments when necessary.

Because a simulation model plays a central role in most adaptive management projects, one weakness in "the search for objective criteria" is that facilitators tend to bias the evaluation of policy options toward quantified or quantifiable criteria. A way for adaptive management facilitators to address this is to:

- run the adaptive management planning process as a "negotiation," first keeping the focus first on the negotiation, and only secondarily on the conceptual and quantitative models, i.e., the models can be positioned very explicitly simply as tools to support negotiations.

At one level, this is simply sensible. A model is never more than a support for negotiations. However, emphasizing a model has two advantages. Firstly, it confronts people with a principled obligation to think through the quantitative implications of their assumptions. Often these are not what they had expected in some significant respects. So shifting the character of the process to weaken this tacit obligation could come at a significant cost. Secondly, a model brings into focus the "interests" of the biota, as such, at least to an extent. Some of their fortunes are in focus in a

simulation of ecological dynamics in a way that they are not when human stakeholders are simply negotiating to get their own interests met. Therefore, a way of running the process that is sensitive to the way in which the dialogue is fundamentally a negotiation, and is sensitive to the diverse ways in which a model can be used to support this, is needed.

When we cross the adaptive management planning tradition with the principled negotiation tradition, it is clear that we can design stronger adaptive management planning processes. Although the converse is also true, I have not developed the point here. However, we can take the principled negotiation procedures and strengthen them. For example, by emphasizing consideration of uncertainties in the "focus on interests, not positions," "invent options for mutual gain," or "insist on objective criteria" we could bring out unexpected interests, options, and principles, respectively.

## SEQUENCED NEGOTIATION

Sequenced negotiation is described in detail by Lawrence Susskind (1994). According to Susskind (1994:9), it involves a "prescribed schedule" of negotiations whose basic steps are: (1) Level 1 treaties "spell out principles, definitions, timetables, contingent targets and responsibilities." Negotiation of a Level 1 treaty is an exploration of the scope of a possible agreement and the principles that would guide it. Signing a Level 1 treaty is basically a commitment to enter into serious negotiations about changes in behavior; (2) Level 2 treaties "require commitments to minimal levels of performance in exchange for explicit sets of benefits;" and (3) Level 3 treaties "offer maximum benefits for maximum effort and are based on what can be learned from shared efforts to monitor performance and compliance." He articulates this as a model for global negotiations. However, it applies *mutatis mutandis* to regional and local negotiations, each of which involves multiple stakeholders, and may involve high levels of distrust and risk.

In adaptive management planning processes, the commitment to negotiating is much less explicit than it is in sequenced negotiation. Reflecting on three projects they facilitated, Gilmour et al. (1999) commented: "Getting follow-through on adaptive management workshop projects presents large challenges. We relied on the client to provide the

ongoing structure and processes. With hindsight, we would place a much stronger emphasis on getting commitment, at the start of the process, that a key outcome will be that stakeholders will sign off on an implementation strategy, if something approaching consensus can be reached. We would put more emphasis on the role of adaptive management workshops as forums for negotiation.”

If we bring Susskind’s model into play, then we can recommend:

- that adaptive management planning processes begin with an explicit agreement amongst the stakeholders, and if a consensus is reached, or there is widespread agreement, the last stage of the project will be to negotiate a Memorandum of Understanding, or a Statement of Joint Intent, or some other formal agreement that embodies the stakeholder’s understanding of how they can together achieve better socioecological outcomes, and their commitments to each other.

This recommendation places the standard adaptive management process within a more formal negotiation frame. Standard adaptive management procedures become, explicitly, the vehicle through which a negotiated agreement is reached.

This shift in process design intensifies the importance of workshop participants who are acting as representatives. They need to manage their relations with their groups in such a way that their groups are prepared to sign on to what is agreed upon.

This recommendation does not have to be a hard and fast rule. Stakeholders could choose to sign onto a process that is simply exploratory. The adaptive management procedures still benefit from this crossing: explicit up-front agreement about the aim of the process is fairer to the organizations that are being asked to commit their time.

The sequenced negotiation model’s commitment to carrying negotiations forward in stages is another strength. This commitment aligns well with good management practices, e.g., the ISO 14001 environmental management system standard for organizations, and is very much in the spirit of adaptive management. Thus, we recommend:

- that such an agreement, signed at the end of an adaptive management planning process, be identified as a stage toward the development of a further agreement that will derive from a review of further progress.

This recommendation is a way of formalizing the adaptive management tradition’s commitment to evolving management practices.

## TESTING THE DESIGN

The recommendations derived from these crossings with negotiation practices give us revised practice instructions for adaptive management planning projects (Table 1).

Julia Wondolleck and Steven Yaffee (2000) provide us with a way to test our process design to see if it supports collaborative decision making well. In reviews of a large number of natural resource management case studies, they found four factors that were highly correlated with success, i.e., with stakeholders committing jointly to what they believe is a good way forward, under all the circumstances.

### Early, often, and ongoing involvement

Wondolleck and Yaffee remark (2000:103): “One simple message from many of the successful collaborative initiatives we examined is that involving the public early and often throughout a decision-making process is more likely to result in more effective decisions and produce satisfied stakeholders.” Our planning process involves stakeholders intensively: (1) stakeholders are invited to join the process as soon as the general scope of the project has been defined, (2) they are actively involved in analysis and decision making, and (3) they are involved in implementation and review.

### Real, substantive involvement

This is the one characteristic that all the successful collaborative decision-making processes that they reviewed shared (Wondolleck and Yaffee 2000:101). It is fundamental. In principle, our design addresses this requirement well: (1)

**Table 1.** Revised practice instructions for adaptive management planning projects.

Standard Procedure	Revised Procedure
<p><i>Project Establishment</i></p> <p>(1) Establish the process as an adaptive management planning project, leaving lead agencies and other stakeholders' commitments to implementing consensus decisions relatively vague.</p> <p>(2) Identify facilitators who are capable of facilitating dialogue amongst stakeholders, and specifically facilitating multiparty, multidisciplinary analysis of socioecological systems.</p> <p>(3) Rough out the general scope of the project. This occurs in conversations between the lead agency and the facilitators.</p> <p>(4) Identify and invite stakeholder representatives and experts to participate in adaptive management workshops.</p>	<p><i>Project Establishment</i></p> <p>(1) Establish the process as a negotiation leading to a formal agreement that is to be conducted using adaptive management procedures to provide analytical rigor to the consideration of options.</p> <p>(2) Identify facilitators capable of facilitating negotiations amongst stakeholders in ways that will help them explore their underlying interests, using multiparty, multidisciplinary analysis of socioecological systems as a vehicle for this.</p> <p>(3) Rough out the general scope of the project. This occurs in conversations between the lead agency and the facilitators.</p> <p>(4) Identify and invite stakeholder representatives and experts to participate in adaptive management workshops, and in shuttle diplomacy, or informal mediation if that proves helpful.</p>
<p><i>Scoping Workshop Sessions</i></p> <p>(5) Why are we here? An exploration of the participant's sense of the intent of the project.</p> <p>(6) What are the management problems that need to be addressed?</p> <p>(7) What boundaries in space and time, and in the range of issues considered, are appropriate?</p> <p>(8) What <b>actions</b> might effectively deal with the problems?</p> <p>(9) What <b>indicators</b> would measure success or failure in solving the problems?</p>	<p><i>Scoping Workshop Sessions</i></p> <p>(5) Why are we here? An exploration of the participant's sense of the intent of the project.</p> <p>(6) What are the management problems that need to be addressed?</p> <p>(7) What boundaries in space and time, and in the range of issues considered, are appropriate?</p> <p>(8) What <b>actions</b> might effectively deal with the problems?</p> <p>(9) What <b>indicators</b> would measure success or failure in solving the problems?</p> <p>(10) What <b>interests</b> underlie the choice of indicators?</p>

(con'd)

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(11) Review: Do we need to add to the lists of problems, actions, and indicators, or review the boundaries to explore possible impacts on stakeholders' interests?

*Structure Workshop Sessions*

(10) Identify major subsystems.

(11) Describe interfaces between them, e.g., with a high-level flow diagram or interaction matrix.

(12) Describe the structure of each subsystem, e.g., with a flow diagram or a more detailed interaction matrix.

(13) If a quantitative model is being built, describe processes quantitatively using equations that describe how outputs are derived from inputs.

(14) Build a quantitative model, if this is required, using these equations as the specification.

*Dynamics Workshop Sessions*

(15) Explore dynamics, and specifically the effects of alternative assumptions and alternative management choices, in a "scenario gaming" environment.

(16) Negotiate a path ahead, using "gaming" as a catalyst for, and point of reference in, negotiations.

*Structure Workshop Sessions*

(12) Identify major subsystems.

(13) Describe interfaces between them, e.g., with a high-level flow diagram or interaction matrix.

(14) Describe the structure of each subsystem, e.g., with a flow diagram or a more detailed interaction matrix.

(15) Review subsystem descriptions in light of stakeholders' interests, and ask: Are there other creative ways in which we could look after stakeholders' interests, including the interests of other kinds of organisms that should be included?

(16) If a quantitative model is being built, describe processes quantitatively using equations that describe how outputs are derived from inputs.

(17) If a quantitative model is being built, build it incrementally, dialoguing frequently with stakeholders about what will add the most value to their investigations and negotiations. The structure and dynamics phases of the process can be interleaved helpfully. (see Beck and Fowler 2001, Highsmith 2002 for overviews of how this can be done).

*Dynamics Workshop Sessions*

(18) Explore dynamics, and specifically the effects of alternative assumptions and alternative management choices, in a "scenario gaming" environment. Emphasize the conceptual model alongside the quantitative model so that left field suggestions can be explored more easily by varying the conceptual model.

(19) Negotiate a path ahead, using "gaming" as a catalyst for, and point of reference in, negotiations.

(20) If a consensus is reached or there is widespread agreement, stakeholders formalize their commitments to each other in a Memorandum of Understanding, or a Statement of Joint Intent, or a similar agreement.

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*Implementation*

(17) Lead agency and other stakeholders follow through on their commitments.

*Implementation*

(21) Lead agency and other stakeholders follow through on their commitments.

(22) Formal review of implementation of the initial agreement, and negotiation of a further agreement that carries ecosystem management forward.

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stakeholders are actively involved in analysis, indeed, the process is designed on the assumption that the participation of a wide range of stakeholders is essential to analyzing well; (2) decisions are made together, and are intended, from the start, to be embodied in a formal agreement; and (3) all of the stakeholders are to be included in the formal reviews of progress.

However, delivering on these commitments, in practice, is challenging. Wondolleck and Yaffee offer helpful models for practitioners. Notably, Wondolleck and Yaffee (2000:103) state: “agencies cannot delegate their statutory authority to collaborative groups, and decision making that affects public resources must be subjected to broader public involvement. However agencies should ... commit to implementing them if they meet statutory guidelines and pass muster in subsequent public review. By making that commitment, agencies create a sense of meaning and legitimacy associated with these processes that is sorely lacking in many traditional [public participation] approaches.”

### **Consensus decision making**

Decisions were reached by consensus in most of the successful processes that they evaluated (Wondolleck and Yaffee 2000:101). The strength of the consensus process, according to Wondolleck and Yaffee (2000:105) is: “The consensus process assures each group that its interests are going to be taken seriously since each can veto a proposal. It also forces members to work harder to craft solutions that span the interests of the different

groups.” Our adaptive management planning process, as redesigned, aims at consensus, but is willing to settle for widespread agreement. Given their findings, we should usually require a consensus in adaptive management planning processes.

### **Inclusive and representative**

Wondolleck and Yaffee remark (2000:106): “While open access to a collaborative effort is often important symbolically, making sure that key decision makers, interests, and opinion leaders are represented is critical.” Adaptive management planning processes facilitate discussion amongst representatives and experts. Therefore, they provide for the kind of participation that Wondolleck and Yaffee conclude is critical. However, they depend upon intensive discussion amongst a relatively small number of people, i.e., 30 or 40 people at the most, and that entails some limitations. If many more people need to be involved, other negotiation processes can be used (e.g., Forester 1994), and adaptive management planning can play a supporting role. It can be the task of an adjunct group, and can provide intensive, scientifically informed exploration of assumptions, constraints, and opportunities to support the main process.

When we use Wondolleck and Yaffee's four criteria as a benchmark, it is clear that our revised planning process is a strong medium for collaborative decision making.

## CONCLUSIONS

Holling (1995), Gunderson et al. (1995), and Gunderson and Holling (2002) describe a four-phase adaptive cycle in the dynamics of complex systems: from “brittle conservatism,” “creative destruction,” “rapid movement of the system to some reorganization options,” to “another exploitative phase” (Gunderson et al. 1995:492). This model emerged from reflection on ecological dynamics, and they have been exploring its applications to institutions and societies, as they function in large-scale ecosystems.

The adaptive management planning practices described here are practices to support transitions from the collapse of an old way of doing things to new, beneficial reorganizations. Gunderson et al. (1995:505) have identified three social roles that make critical contributions to these transitions: in their terms, “the outside visionary” who “is capable of transforming myths among a wide group of people,” “the loyal heretic” who prepares bureaucracies for change, and “the wise integrator” who is honest, respected, and who “connect[s] knowledge to power in spite of countervailing political winds” (Gunderson et al. 1995:505). The practices described here are designed to empower practitioners when they are playing the “wise integrator” role.

Wisdom embodies more than technical competence of course. Donald Schon remarks (1987:13): “outstanding practitioners are not said to have more professional knowledge than others but more ‘wisdom’, ‘talent’, ‘intuition’, or ‘artistry’.” To use a good process design well, wise integrators need a skillful feel for situations; this guides their use of processes (Schon 1987, Walkerden 2005b). However, strong designs are empowering: using them supports the development of wisdom.

Lee (1993) views adaptive management and bounded conflict, i.e., controversy with negotiation, as compliments to each other: a compass and a gyroscope. Social learning occurs when what we discover through adaptive management is carried forward into political and institutional life via negotiation processes. However at certain points the one process needs to be both effective adaptive management and effective conflict resolution. The process design offered here is one way to enable this when we are negotiating agreements on adaptive management strategies.

Responses to this article can be read online at:  
<http://www.ecologyandsociety.org/vol11/iss1/art48/responses/>

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