LEARNING TO COLLABORATE FOR NATURAL RESOURCE MANAGEMENT:

A SUMMARY OF KEY FINDINGS

October 2001

HDRU Series No. 01-11

Tania M. Schusler and Daniel J. Decker
Human Dimensions Research Unit
Department of Natural Resources
Cornell University
Ithaca, NY 14853-3001

EXECUTIVE SUMMARY

A cooperative effort with the New York State Department of Environmental Conservation (NYSDEC), this research investigated how an agency can encourage collaborative resource management through a deliberative planning process fostering learning among participants. The research occurred in conjunction with the Lake Ontario Islands Search Conference – a participatory process that engaged diverse stakeholders from local communities in planning for the Lake Ontario Islands Wildlife Management Area (LOIWMA) located in New York's Eastern Lake Ontario Basin. The results of this inquiry can aid natural resource managers in designing stakeholder involvement processes that are conducive to fostering collaboration with communities affected by resource management.

Management of the LOIWMA, breeding grounds for hundreds of thousands of colonial-nesting waterbirds, affects local communities along Lake Ontario's Eastern Basin shoreline, where tourism-based economies are dependent on natural resources, in particular the sport fishery. Planning for the LOIWMA occurred amidst controversy over the impact of double-crested cormorants (*Phalacrocorax auritus*) on the sport fishery and alternatives for cormorant management. Against this backdrop of controversy, NYSDEC sponsored the Lake Ontario Islands Search Conference to explore the potential for local communities to benefit from management of the islands, which many stakeholders considered a liability.

Utilizing a variety of qualitative methods (e.g., observation, interviews, and evaluation instruments), we addressed five objectives in this research:

1) Identify characteristics of deliberative processes that enable social learning.
2) Assess the nature and extent to which social learning occurs among participants in a deliberative planning event (i.e., search conference).
3) Examine how social learning contributes to identification of common purpose.
4) Examine how social learning contributes to development of collaborative relationships.
5) Begin assessing the feasibility of co-management between NYSDEC and local communities along the Eastern Lake Ontario Basin.

The results suggested that social learning occurred among participants in the Lake Ontario Islands Search Conference. Nearly all participants reported learning about: facts; concerns of other participants; areas in which they agreed or disagreed with others; problems and opportunities related to natural resource management and community development; and actions that might address problems or capitalize on opportunities. About half of participants reported that the search conference experience altered their *own* concerns related to natural resource management in the Eastern Basin. In most cases, it expanded the types of concerns that participants considered in their views toward management beyond their own primary interests.

Nearly all participants agreed that the search conference contributed to identification of common purpose. Participants' descriptions of this purpose emphasized protecting natural resources whether for environmental, recreational, or economic benefits; fostering greater cooperation among communities in the region; and considering diverse interests in natural

resource management. Participants also reported that they developed collaborative relationships with other participants by strengthening existing, healthy relationships and creating new relationships. In one case, the process helped improve an adversarial relationship.

Analysis of our observation data from the search conference and participants' reflections upon it indicated that learning was enabled by the following characteristics of the process:

- communication that emphasized mutual respect, listening, and open-mindedness;
- participation by people with diverse interests in the community and natural resources;
- thinking "outside the box";
- acknowledging conflict while focusing on areas of common ground;
- a structured process in which participants determined the direction of discussion;
- recognizing the knowledge contributed by each participant;
- opportunity for participants to engage with one another informally as well as formally; and
- facilitation by a neutral entity.

By incorporating these characteristics in the design of deliberative processes, natural resource managers can create valuable opportunities for social learning among stakeholders and between stakeholders and agency staff.

By integrating empirical evidence and pertinent literature, we developed a theoretical framework relating social learning and co-management. Social learning can enhance the information, both biological and social, available for management. More importantly, it plays an essential role in determining the purpose of management, which guides management decisions and actions. Social learning also involves participants learning about one another, new ways of interacting, and possibilities for working together. Thus, deliberative processes that enable social learning, resulting in identification of common purpose and development of collaborative relationships, help create an environment conducive to community-based co-management.

Over three-fourths of participants stated that they intended to remain involved in actions identified during the search conference. Participants' motivations for continued involvement stemmed from their professional positions, roles as community leaders, and personal ties to the region. Social learning that occurred during the search conference built upon participants' existing commitment to their communities and generated enthusiasm about the possibilities for working together.

Participants' demonstrated their intent to remain involved in actions identified during the search conference by attending a follow-up meeting held in May, 2001 in Chaumont, New York. A weakness of the search conference design that became clear during the follow-up meeting was the failure to identify a local change agent, aside from NYSDEC, in the earliest stages of designing the process. As a result, no one has yet taken the lead for further actions on community-based initiatives identified during the search conference.

Observation of the follow-up meeting emphasized that social learning is essential but not sufficient for collaborative resource management. Building upon the Lake Ontario Islands Search Conference to develop further collaboration among NYSDEC, other agencies, and local

communities would require the design of processes that foster continual learning and involve additional stakeholders. Sustaining these processes requires organizational support either through existing institutions or the formation of new structures, such as an Eastern Basin Working Group. Identifying appropriate local institutions or developing new ones that could facilitate ongoing processes for communication, decision-making, coordination of activities, and learning requires leadership and a commitment of human and financial resources. At the time of the follow-up meeting in May 2001, despite participants' enthusiasm to continue working together, it is unclear what entity in the Eastern Basin region might provide the organizational capacity to facilitate further collaborative efforts. This is, perhaps, the single most important impediment jeopardizing the chances for community action and effective co-management.

Below, we outline immediate action steps that could advance co-management. The first recommendation would be most appropriately undertaken by NYSDEC; the second by NYSDEC with assistance from Cornell University's Human Dimensions Research Unit (HDRU); and the final two by any entity interested in fostering continued collaboration among participants in the search conference.

1) Develop a strategy for periodic communication with search conference participants about progress in adoption and implementation of the LOIWMA plan.
2) Identify a local entity willing to provide organizational assistance for continued coordination among the search group, particularly with respect to community-based initiatives.
3) Form an Eastern Basin Working Group to facilitate collaboration among partners in community planning, ecosystem management, education, recreational resource use, and sustainable resource-based tourism.
4) Design additional research to assess agency and community capacity to participate in co-management, inform the development of local institutions, and examine how social learning can occur among the broader community.

ACKNOWLEDGMENTS

We are grateful to each of the participants in the Lake Ontario Islands Search Conference. We also thank the following individuals for their contributions to this research: Jim Farquhar, Dennis Faulkham, Steve Litwhiler, John Major, George Mattfeld, Russ McCullough, Gary Parsons, and Albert Schiavone of the New York State Department of Environmental Conservation and Tom Brown, Nancy Connelly, Karlene Smith, and Margie Peech of Cornell University's Human Dimensions Research Unit. We also appreciate the facilitation skills of search managers, Robert Rich and Scott Sears from Cornell's Program on Employment and Workplace Systems.

Funding for this work was provided by the New York State Department of Environmental Conservation through Federal Aid Grant WE-173-G and the Cornell University Agricultural Experiment Station through Hatch Project NYC147403.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LEARNING TO COLLABORATE FOR NATURAL RESOURCE MANAGEMENT: A SUMMARY OF KEY FINDINGS

> "A compelling approach to environmental issues demands . . . the capacity to facilitate and engage in social learning in an ecological context. Environmental issues feature high degrees of uncertainty and complexity, which are magnified as ecological systems interact with social, economic, and political systems. Thus we need institutions and discourses which are capable of learning." – John S. Dryzek, *The Politics of the Earth* (1997:198)

INTRODUCTION

This research, a cooperative effort with the New York State Department of Environmental Conservation (NYSDEC), investigated how an agency can encourage collaborative resource management through a deliberative planning process fostering learning among participants. The research occurred in conjunction with the Lake Ontario Islands Search Conference – a participatory process that engaged diverse stakeholders from local communities in planning for the Lake Ontario Islands Wildlife Management Area (LOIWMA) located in the Eastern Lake Ontario Basin (Figure 1). Results of this inquiry provide insight into what works in public participation and deliberative processes. Furthermore, they enhance understanding of the role that social learning plays in development of community-based co-management. The results can aid natural resource managers in designing stakeholder involvement processes that are conducive to fostering collaboration with communities affected by resource management.

Co-management – also called collaborative, cooperative, participatory, joint, or multi-stakeholder management – has been applied in the management of fisheries, parks and protected areas, forests, wildlife, rangelands, and water resources (Conley and Moote 2001). This study focused on community-based co-management, which refers to *a partnership in which governmental agencies and local communities (including resource users, local governments, non-governmental organizations, and other stakeholders) negotiate and share, as appropriate, the responsibility for management of a specific area or set of resources* (adapted from IUCN 1997). Although collaborative management holds promise for better resource management than centralized, top-down approaches (Pinkerton 1989, Borrini-Feyerabend 1996, Wondolleck and Yaffee 2000), it is neither appropriate nor feasible in all situations (Kenney 2000).

In the case of the Eastern Lake Ontario Basin, community-based co-management may be a desirable alternative because the Eastern Basin is a complex ecological, social, economic, and political system with multiple issues involving multiple stakeholder groups. Natural resource management in the region occurs under the jurisdiction of several agencies, including the New York State Department of Environmental Conservation; New York State Office of Parks, Recreation and Historic Preservation; county and municipal governments. Management must consider multiple and varied issues, such as water levels, exotic species, and water quality. A shared history created during the Lake Ontario Islands Search Conference also emphasized the

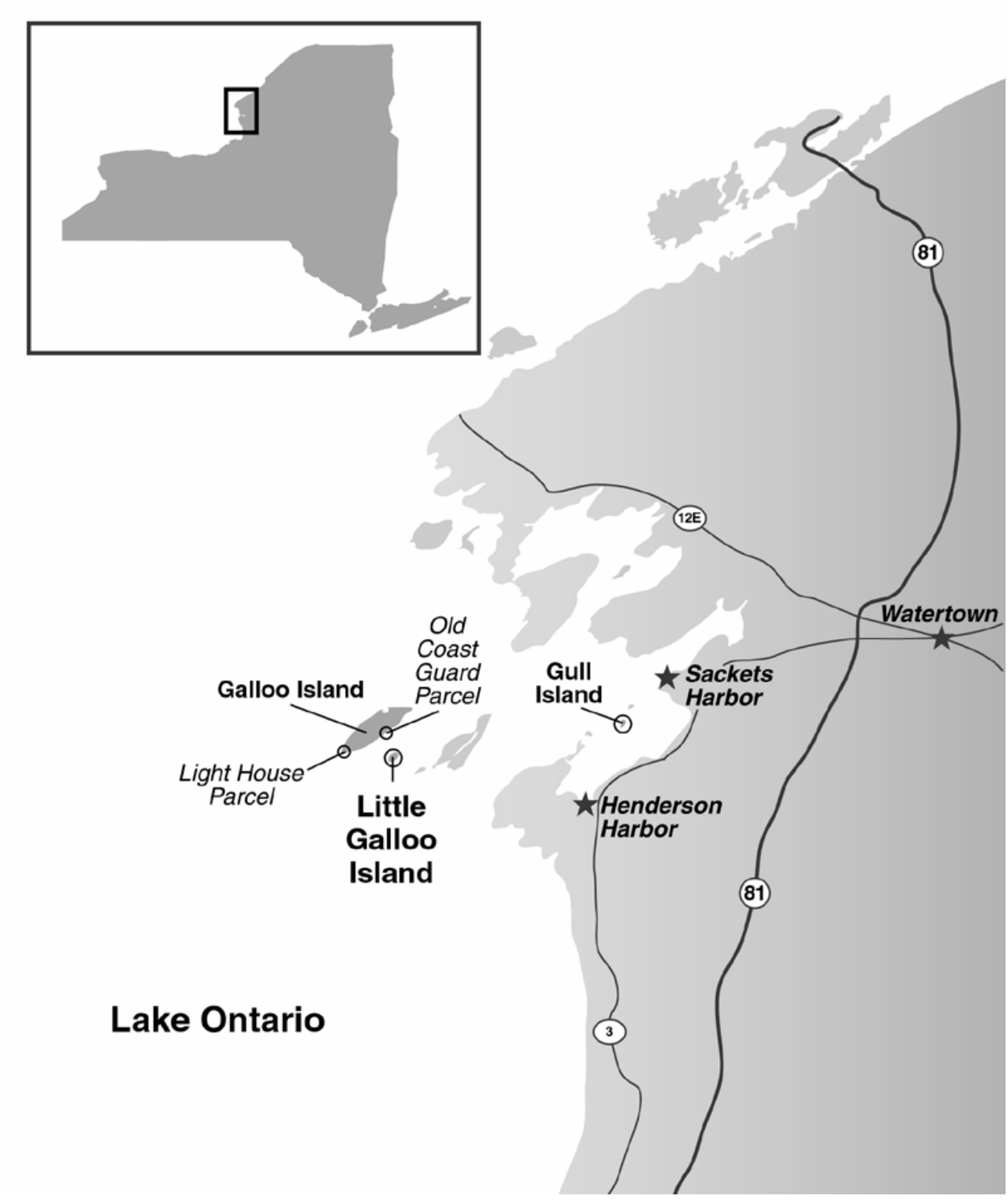

Figure 1. Location of the Lake Ontario Islands Wildlife Management Area (LOIWMA) in New York's Eastern Lake Ontario Basin.

intricate connections between natural, cultural, and historical resources and their importance to local recreation and tourism-based economies. This suggests that not only is collaboration among resource management agencies important, but that collaboration involving other stakeholders – including resource users, community leaders, educators, business owners, and community development and tourism professionals – could produce benefits by integrating environmental, cultural, and economic goals for local communities. Although collaboration can occur at many levels because fish and wildlife are public resources and the Eastern Basin extends beyond international boundaries, we limited the focus of this inquiry to co-management between NYSDEC and local communities.

Several authors emphasize the need for learning to occur to develop collaborative resource management. In reference to fisheries co-management, Pinkerton (1994:2374) claims, "Success is more likely if a social learning process occurs among different stakeholders." Borrini-Feyerabend and colleagues (2000:12) assert that interactive learning, which they define as "enhancing common knowledge, awareness and skills by thinking, discussing and acting together," is "crucial for co-management initiatives." Wondolleck and Yaffee (2000:132) state that a key step in collaborative initiatives is "committing to a process of mutual learning in which participants agree that they individually do not have all the answers." Despite much emphasis on the importance of social learning to collaborative resource management, a widely shared understanding of the concept of social learning in this context is lacking. For the purpose of this research, we defined social learning as *learning that occurs when people engage one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action.* This inquiry sought to elucidate the phenomenon of social learning and to understand its role in developing community-based co-management.

RESEARCH PURPOSE AND OBJECTIVES

We analyzed the nature and extent to which social learning occurred among 32 stakeholders participating in the Lake Ontario Islands Search Conference. We also sought to understand how social learning might contribute to development of co-management. To this end, we gathered evidence through qualitative inquiry to support or refute the following hypotheses:

a) Deliberation that enables social learning contributes to the identification of common purpose, a requisite for co-management.

b) Deliberation that enables social learning contributes to the development of collaborative relationships, a requisite for co-management.

Specifically, this research addressed five objectives:

1) Identify characteristics of deliberative processes that enable social learning.

2) Assess the nature and extent to which social learning occurs among participants in a deliberative planning event (i.e., search conference).

3) Examine how social learning contributes to the identification of common purpose.

4) Examine how social learning contributes to the development of collaborative relationships.

5) Begin assessing the feasibility of co-management between NYSDEC and local communities along the Eastern Lake Ontario Basin.

CONTEXT

The eastern Lake Ontario islands and adjacent shoals comprise an unique ecosystem that provides important habitat for warmwater fishes, colonial waterbirds, waterfowl, and shorebirds. Four parcels owned by NYSDEC constitute the Lake Ontario Islands Wildlife Management Area (LOIWMA) (Figure 1): 43-acre Little Galloo Island, two parcels totaling 20 acres on neighboring Galloo Island, and one-acre Gull Island. The WMA program is part of a long-term effort to establish permanent access to lands in New York State for the protection and promotion of its fish and wildlife resources (NYSDEC Division of Fish, Wildlife, and Marine Resources 2001).

Management planning for the LOIWMA provided an appropriate context to explore a deliberative process for social learning. Management of the islands, which are used as breeding grounds by hundreds of thousands of colonial-nesting waterbirds, affects local communities along the Eastern Basin shoreline with tourism-based economies that are dependent on natural resources, in particular the sport fishery. The planning occurred amidst an ongoing controversy over the impact of double-crested cormorants (*Phalacrocorax auritus*) on the sport fishery and alternatives for cormorant management. The situation involved complex, value-laden judgements and conflict about the adequacy of scientific knowledge for decision-making and about basic goals and values of various stakeholders (Schusler and Decker 2000). These characteristics called for effective dialogue between technical experts and interested and affected citizens (NRC 1996). Against this backdrop of controversy, NYSDEC sponsored the Lake Ontario Islands Search Conference to explore the potential for local communities to benefit from management of the islands, which many stakeholders considered a liability (Schusler and Decker 2000).

This inquiry involved participants from several shoreline communities in Jefferson County, New York, as well as the urban center of Watertown. In particular, we focused on the waterfront communities of closest geographic proximity to the LOIWMA: Henderson Harbor and Sackets Harbor (Figure 1). Henderson Harbor is a waterfront community located in the Town of Henderson (population 1,377) that relies heavily on the economic contribution of warm season recreational fishing. The harbor is also popular for sailing. A bedroom community for Watertown, the Village of Sackets Harbor (population 1,386), located in the Town of Hounsfield (population 3,323) is a thriving tourist community that promotes its historical background and natural beauty (Jefferson County 2001).

METHODS

This research utilized a variety of methods in two phases (Table 1). The inquiry began with a preliminary situation analysis (Schusler and Decker 2000). The second phase of inquiry revolved around the design, implementation, and evaluation of a deliberative planning event, the Lake Ontario Islands Search Conference, attended by 32 participants on November 8-10, 2000 in Henderson Harbor, New York. A search conference is a participatory event that enables participants to collectively create a plan and encourages participants themselves to implement it. A search conference typically lasts about 2½ days, ideally includes 25-75 participants, and involves a complex interplay between plenary sessions and small group work that creates valuable arenas for dialogue (Emery and Purser 1996, Greenwood and Levin 1998, Martin and Rich 1998).

To gather evidence to support or refute our hypotheses about the role of social learning in development of community-based co-management, we employed multiple qualitative inquiry techniques (Table 1). A team of four researchers observed (Adler and Adler 1994) interactions among participants during the search conference. An observation guide focused researchers' attention on evidence of learning as well as process attributes and group dynamics. The team of four researchers enabled one observer to be present in every small group activity and provided multiple perspectives in observation of large group work. Additional data were collected through a mid-conference evaluation instrument (N=25) and an evaluation instrument (N=22) completed by participants at the conclusion of the conference.

To confirm or refute researchers' interpretations and to gain participants' own interpretations of the search conference experience, we conducted structured telephone interviews with participants between December 11 and 22, 2001, approximately one month following the event. We interviewed 29 of the 32 participants. Three participants were unavailable due to travel and employment obligations during the interview period. However, our conversations with those individuals during and after the search event suggested that their perspectives on the search conference were not dramatically different from those of participants we interviewed. We utilized Folio Views 4 software to organize interview data for analysis (Open Market, Inc. 1998).

Table 1. Data collection methods.

Phase I – Preliminary Situation Analysis ➢ Document review ➢ Open-ended interviews with 8 agency and extension staff ➢ Semi-structured, open-ended interviews with 21 additional stakeholders
Phase II – Exploring Social Learning in Development of Collaborative Management through the Lake Ontario Islands Search Conference ➢ Observation of 3 steering committee meetings ➢ Observation of search conference (by 4 observers) ➢ Mid-conference evaluation instrument (N=25) ➢ End-of-conference evaluation instrument (N=22) ➢ Structured telephone interviews with participants one month after conference (N=29)

RESULTS

Evidence of learning

Participants reported learning about facts; concerns of other participants; areas in which they agreed or disagreed with others; problems and opportunities related to natural resource management and community development; and actions that might address problems or capitalize on opportunities (Table 2). Participants gained a better understanding of issues associated with the islands' management, including learning about the fish and wildlife resources as well as potential community benefits, such as developing safe harbor or diversifying tourism promotion around bird-watching, lighthouse viewing, and paddling sports. Most importantly, all 29 individuals interviewed by telephone following the event reported that they learned about the concerns of other participants. The following statements illustrate:

> "I was surprised at how many different entities had concerns, with totally different connections to the water." – charter guide

> "It opened my eyes to see where other people are coming from, different points of view." – biology teacher

> "Hearing first hand the concerns of the fishing guides … it became more real and human than reading about the issue in the news." – extension agent

> "My horizons expanded in the area of concerns. Things that I had little or no knowledge of are now concerns." – business executive

> "I gained an increased understanding of their issues and hope that they got an increased understanding of mine." – environmentalist

About half of participants (15) reported that the search conference experience altered their *own* concerns related to natural resource management in the Eastern Basin. In most cases, it expanded the types of concerns that participants considered in their views toward management beyond their own primary interests.

Table 2. Number of search conference participants who reported learning to a moderate or great extent.[a]

N=29	Moderate or Great Extent
To what extent did you learn new factual information?	26
To what extent did you learn about the concerns of other participants?	29
To what extent did participating alter your own concerns related to natural resource management in the Eastern Basin?	15
To what extent did participating help you see areas in which you agree or disagree with others?	23
To what extent were problems or opportunities identified that you were not previously aware of?	22
To what extent were actions identified to address problems or capitalize on opportunities?	25
To what extent did you become aware of the presence or lack of resources available to your community?	12

[a] Post-search conference interviews with participants included several questions to solicit the extent to which participants were affected via their involvement in the event. Response options to these questions were: "great extent," "moderate extent," "slight extent," or "not at all." In this table we present the combined frequency of "moderate" and "great" responses.

Common purpose

Most participants (27) agreed that the search conference contributed to the identification of common purpose. When asked to describe that purpose, participants' generally stated one or more of the following themes:

- protection of natural resources whether for environmental, recreational, or economic benefits;
- greater community cooperation, regional planning, and collective management of the Eastern Basin;
- resource management that meets diverse interests; and
- working together to address these issues.

Collaborative relationships

The development of collaborative relationships can occur in three ways: strengthening existing healthy relationships, transforming adversarial relationships, and creating new relationships. Most participants reported that their existing relationships with others did not change as a result of participating in the search conference (Table 3). Those who did experience changes (9 participants) described re-establishing relationships, strengthening relationships between public and private sectors, and generally getting to know others better through discussion and time spent together. In one case, the process helped improve an adversarial relationship. No existing relationships were weakened as a result of participating in the event.

Several participants (17) created new relationships (Table 3). For some this merely involved exchanging business cards or meeting face-to-face with someone with whom they had spoken previously by telephone. For others it involved gaining greater familiarity with one another, working together in small group sessions, exchanging opinions, and learning about others' points of views. Collaborative relationships require trust. Twenty-four participants reported that through the search conference they gained trust in others (Table 3). A few participants responded that they had established "trust" relationships with others prior to this experience.

Table 3. Number of search conference participants who reported building relationships with others.

N=29	Yes
Did your existing relationships with other participants change?	9
	Moderate or Great Extent
To what extent did you form new relationships with other participants?	17
To what extent did you gain trust in other participants?	24

Process elements that contributed to learning

The above evidence indicates that social learning occurred among participants in the Lake Ontario Islands Search Conference. We further sought to understand *how* social learning occurred in this deliberative planning event. What specific attributes of the process contributed to learning among participants? Analysis of our observations and participants' reflections indicated that learning was enabled through open communication, diverse participation, unrestrained thinking, constructive conflict, democratic structure, multiple sources of knowledge, extended engagement, and facilitation. By incorporating these characteristics in the design of deliberative processes, natural resource managers can create valuable opportunities for social learning among stakeholders and between stakeholders and agency staff.

Open communication

"Learning occurs when an individual enters a process of reconciling newly communicated ideas with the presuppositions of prior learning" (Cranton 1994:27). Communication that fosters learning requires dialogue – as opposed to monologue – that is free from domination and distortion (Habermas in Yankelovich 1991). Working together in small groups provided the best opportunity for dialogue among participants at the search conference. A community development professional who participated explained that small group work was "the best way to get to know people and what they think." An environmentalist observed, "[The groups were] small enough that you felt comfortable talking. People weren't allowed … to meter or filter what others were saying. … People felt free to disagree." Participants emphasized mutual respect, listening, and open-mindedness as essential to developing collaborative working relationships and enhancing trust.

Diverse participation

"Deliberation … brings into consideration knowledge and judgments coming from various perspectives so that participants develop understandings that are informed by other views. At its best, deliberation becomes an interactive learning process for those involved" (NRC 1996:74). Although the search group lacked diversity with respect to some demographic traits (for example, the group included only 5 women and no one below the age of 30), participants reflected a broad and varied range of interests in natural resource management (Table 4). This breadth was achieved through the purposeful selection of participants using a "community reference system," a process that is similar in concept to snowball sampling. A tourism specialist reflected, "[I was] amazed at the diversity of people there and the diversity of opinions."

Table 4. Diversity of stakes reflected among participants at the Lake Ontario Islands Search Conference.

➢ Birders	➢ Extension agents
➢ Business owners	➢ Kayakers/paddling enthusiasts
➢ Charter boat captains	➢ Local government officials
➢ Community development professionals	➢ NYSDEC staff
➢ County planners	➢ Recreational anglers
➢ Educators	➢ State parks staff
➢ Environmentalists	➢ Tourism professionals

This diversity enhanced learning by exposing participants to other points of view. Learning about the variety of interests in the Eastern Basin's natural resources led participants to recognize the legitimacy of views other than their own. An economic development professional learned that "the interests were multiple and varied, and how dedicated each was to their cause." A business executive explained that the building of trust occurred through, "[The] sense that others … were able to establish their position – one that I felt didn't exist before. They were well-informed, able to intelligently and professionally project their opinions."

Unrestrained thinking

Often, resource managers request stakeholder input into a specific issue, such as cormorant management, or a specific objective, such as the desired size of the local deer population. In contrast, during the search conference, participants considered the system of focus, the islands, within their broader environment, the Eastern Basin. Doing so led participants to focus on the impacts (Decker et al. In review) or ultimate goals of management, which included sustaining a healthy environment, strong economy, and vital community. NYSDEC's regional director recognized participants' efforts:

> [You've] covered much ground, everything from community planning to ecosystem management. People look at those things as very separate and distinct planning efforts but actually they're very integrated. This is probably the best

effort I've ever seen to begin to integrate those things such that the community can benefit and we can benefit in protecting the resources.

Creating a shared history laid the groundwork for creative, unrestrained thinking. Participants depicted along a chronological timeline major events and forces that had influenced the region. Asking participants to step back before going forward and to look broadly before focusing narrowly deliberately distracted them from their own narrowness of focus and enabled them to learn in ways that may otherwise have been prevented (Forester 1999). A retailer explained how the identification of common purpose came about: "It seemed to be there from almost the beginning … the timeline showed them all how they got where they are, both by seeing mistakes from the past and realizing what they still had that they didn't want to lose." The shared history also revealed intricate links between the region's natural, historical, and cultural resources and a tourism-based economy. It further became evident that everyone in the room had relevant knowledge to contribute in its creation. Finally, discussing the shared history also began surfacing areas of agreement and disagreement.

Constructive conflict

"Rather than striving for consensus, a Search Conference focuses on identifying common ground … [The] process seeks to differentiate the points where participants agree – the area of common ground (which is normally much larger than expected) – from the points that evoke clear disagreement or irreconcilable difference" (Emery and Purser 1996:39). This approach enabled participants in the search conference who held opposing views on cormorant management to progress in areas of common ground, such as education and tourism. A marina owner: "People who I've seen flare up before, might have raised their voices, but it never got out of hand. I saw people talking with each other who I didn't think talked." A sportswoman: "[We were] able to talk about areas of fundamental disagreement. Although [we] continued to disagree, [we] gained a lot of respect for one another." An education specialist: "[My] concerns were lessened about how the conference might end up being just a cormorant/anti-cormorant debate. … [I] found that people were more broad-minded. … There was a willingness to see other options for tourism, recreation, and economic growth in the area."

Democratic structure

The search conference followed a structured sequence of activities (Figure 2). However, within each of these activities, participants themselves guided the direction of the process by determining the content of discussion and deciding upon priorities to be addressed in action planning. Such a process of "structured unpredictability" (Forester 1999) required the agency to recognize that it did not know a priori everything that would be relevant to citizens nor what options would be discovered in the process of listening and responding to each other. Some public meetings are so structured, predictable, and predetermined that little if any learning occurs. In contrast, the democratic structure of the search conference allowed for surprise – an essential element of learning (Forester 1999) – and the exploration of new possibilities for working together.

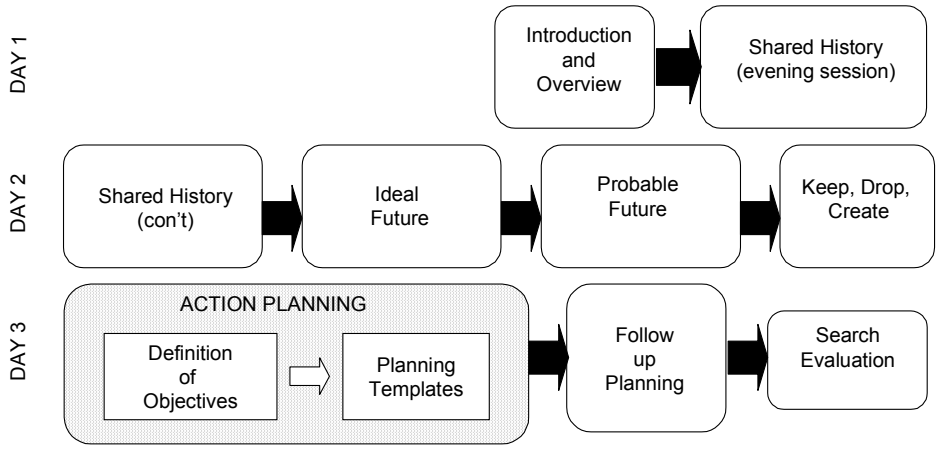

Figure 2. Stages of the Lake Ontario Islands Search Conference. (Adapted from Martin and Rich 1998).

Multiple sources of knowledge

"Social learning … relies on a process that, by combining two kinds of knowledge – personal and theoretical or 'processed' knowledge – yields an understanding greater than either could have produced by itself" (Friedmann 1984:192). In the search conference, "each participant attends because of their potential for contributing knowledge and expertise about some piece of the overall puzzle" (Emery and Purser 1996:35). Fish and wildlife managers from NYSDEC did not serve as technical experts but rather were full participants in the same vein as all others. This was important for two reasons. First, fish and wildlife managers provided valuable information about the Eastern Basin's natural resources, while other participants shared equally relevant knowledge from their own experiences about the region's natural resources, history, culture, and local economies. Second, identifying common purpose required agreeing upon shared ideals (Emery and Purser 1996), which could not be evaluated using technical and scientific knowledge alone.

Extended engagement and informal interactions

Working together over the course of 2½ days offered participants the opportunity to engage in greater depth than permitted in meetings of shorter duration. Several participants attributed the development of collaborative relationships and building of trust to the "… format where we stayed working with people all day long through work sessions, [both] large group [and] small group." A NYSDEC participant explained, "[I] knew what stakeholder group they were from to start with and had dealt with them before, but over 2½ days, especially in the small groups, [I] got a much better understanding of their true feelings."

Participants also learned about one another on a more personal level during informal interactions over meals and breaks. Such informal encounters "… enable participants to develop more familiar relationships or to learn about one another before solving the problems they face" (Forester 1999:131). An environmentalist described, "A biologist, fisherman, tourism [specialist], and tree hugger like myself all sat around the table together at dinner talking." An extension agent reflected, "The whole format was useful. The time taken to build rapport and trust where there was some suspicion resulted in a community that will accomplish something."

Facilitation

Search conference participants also confirmed the value of good facilitation. Professional facilitators from Cornell University's School of Industrial and Labor Relations managed the search conference. A local government official: "[The] facilitators were excellent." The involvement of a neutral entity in this role lent credibility to the process. Participants themselves facilitated small group work with guidance from the search managers.

These characteristics of the deliberative process – open communication, diverse participation, unrestrained thinking, constructive conflict, democratic structure, multiple sources of knowledge, extended engagement, and facilitation – created an atmosphere conducive to participants sharing diverse views and opinions, respectfully questioning each other, and exploring complex and challenging issues with sensitivity and humor.

"Mistaken learning"

Not all learning is positive. On occasion, participants learned incorrect information or developed negative perceptions of others. Mistaken learning of this sort could impede collaborative relationships. NYSDEC participants sometimes observed others sharing incorrect information about fish and wildlife resources; however, the process did not always provide appropriate opportunities for agency staff to correct inaccuracies. This observation emphasizes the need for social learning as a continually evolving process involving iterative deliberative opportunities in which participants can correct misinformation and misunderstandings as well as adapt management goals and collaborative initiatives as they gather new information and learn from experience.

Deliberation also has the potential to impede the development of community-based co-management when interactions produce or confirm negative perceptions of other stakeholders. We found this on rare occasion in participants' comments during telephone interviews following the search conference. An education specialist "gained first hand knowledge of the hate and misinformation concerning cormorants." A charter guide stated, "I found the … bird people to be very touchy and not open to discussion on the cormorant issue. They seemed closed to open discussion about physically doing something about the birds. Most of us in favor of control are willing to listen more." Despite these negative impressions, both participants anticipated being further involved in actions identified during the search conference.

Does learning yield action?

Twenty-four participants stated that they intended to remain involved in actions identified during the search conference. Those who did not intend to stay involved either cited a lack of time or viewed themselves as a resource to others but not as a primary participant in implementation of actions.

Participants' motivations for continued involvement stemmed from their professional positions, roles as community leaders, and personal ties to the region. A tourism planner: "It's my job." A charter guide: "It's my neighborhood and livelihood." Social learning that occurred during the search conference built upon participants' existing commitment to their communities to generate enthusiasm about the possibilities for working together. An educator: "[Participating in the search conference] strengthened my concern to do something." The tourism planner above added that "seeing others enthusiastic about helping and willing to work" contributed to his own willingness to be further involved in actions identified during the search conference.

Participants' demonstrated their intent to remain involved in actions identified during the search conference by attending a follow-up meeting held in May, 2001 in Chaumont, New York. Nineteen of 32 participants attended. Nearly all of the 13 participants who were unable to attend the follow-up meeting expressed interest in remaining informed and involved in ongoing efforts. Several actions identified during the search conference were incorporated by NYSDEC into a draft management plan for the Lake Ontario Islands Wildlife Management Area. In addition, some participants had begun implementing short-term actions or gathering information for long-term goals in the areas of education and tourism. However, at the meeting's conclusion, it remained unclear how the group would continue working together.

A weakness of the search conference design that became clear during the follow-up meeting was the failure to identify a local change agent, aside from NYSDEC, in the earliest stages of designing the process. As a result, no one has yet stepped up to lead further actions on community-based initiatives identified during the search conference.

Observation of the follow-up meeting emphasized that social learning is essential but not sufficient for collaborative resource management. Appropriate structures and processes are needed to sustain learning and enable joint action. Identifying appropriate local institutions to fulfill these roles or developing new ones for these purposes will require leadership and a commitment of human and financial resources. At this point, despite participants' enthusiasm to continue working together, it is unclear what entity in the Eastern Basin region might provide the organizational capacity to facilitate further collaborative efforts. This is, perhaps, the single most important impediment jeopardizing the chances for community action and effective co-management.

SOCIAL LEARNING CONTRIBUTES TO CO-MANAGEMENT: A CONCEPTUAL FRAMEWORK

By integrating the empirical evidence reported above with pertinent literature, we developed a theoretical framework relating social learning and co-management (Figure 3). Social learning can enhance the information, both biological and social, available for management. More importantly, it plays an essential role in determining the purpose of management, which guides management decisions and actions. Social learning also involves participants learning about one another, new ways of interacting, and possibilities for working together. Thus, deliberative processes that enable social learning help create an environment conducive to community-based co-management through the identification of common purpose and development of collaborative relationships. Next, we explain this framework.

Deliberation describes one of several genres of general processes, such as communication or education, through which agencies can interface with the public. Deliberation includes any formal or informal process to communicate, raise and collectively consider issues, increase understanding, and arrive at substantive decisions (NRC 1996). Deliberation can refer to a variety of processes, from public hearings to alternative dispute resolution techniques. Deliberative processes can succeed or fail, empower action or fuel resignation, enhance public learning and democratic practices or rationalize decisions already made (Forester 1999). This inquiry identified eight characteristics of deliberation that enable social learning. These are: open communication, diverse participation, unrestrained thinking, constructive conflict, democratic structure, multiple sources of knowledge, extended engagement, and facilitation.

When deliberation enables social learning, individuals and/or groups evolve in their understanding of issues, relevant facts, problems and opportunities, areas of agreement and disagreement, and – perhaps most importantly – their own values and those of others (Yankelovich 1991, Mathews 1994, NRC 1996). Thus, social learning enhances the knowledge available for community-based co-management. Scientific knowledge is essential to sound natural resource management. However, scientific knowledge alone is not sufficient, especially given the increasing diversity of stakeholder interests in resource management (Wondolleck and Yaffee 2000). Determining management goals in terms of desired impacts requires knowledge that reflects public values (Decker et al. In review), providing purpose and guidance for co-management initiatives.

Social learning also facilitates co-management through development of collaborative relationships by creating new relationships, building upon cooperative relationships, and transforming adversarial ones. This occurs as people learn about the character and trustworthiness of others and create new networks and norms of interaction that can enhance their capacity for joint action (Greenwood and Levin 1998, Forester 1999). Social learning involves what Forester (1999) terms "diplomatic recognition" – recognizing that others' interests are as legitimate as one's own. Mathews (1994:235) explains, "… *deliberation doesn't necessarily change personal positions, but it does change attitudes about opposing points of view* (emphasis in original)." This change in attitudes may lead people to see new possibilities for working together that are absent when issues are debated from polarized positions.

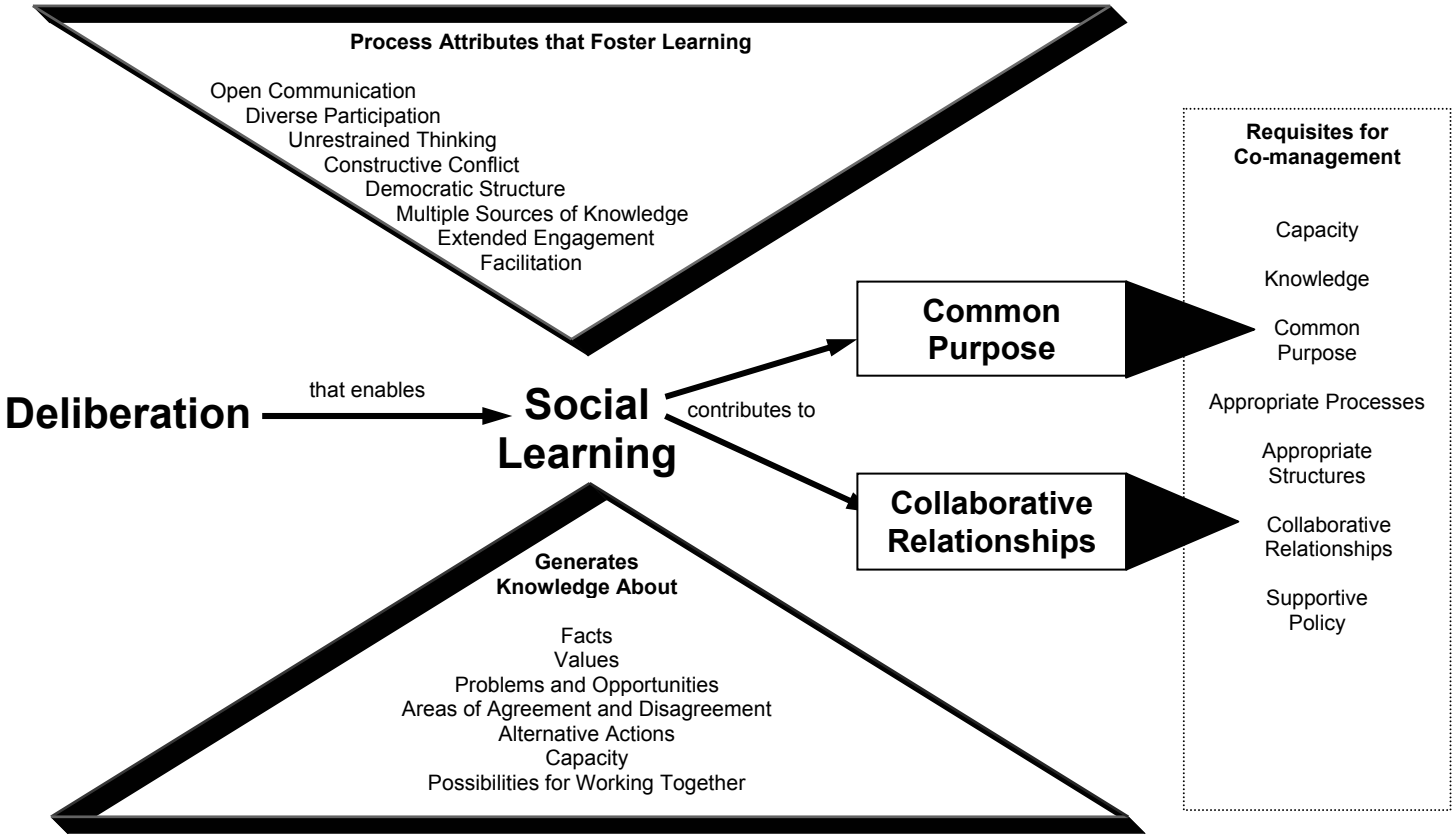

Figure 3. Deliberation that enables social learning contributes to development of community-based co-management through identification of common purpose and building of collaborative relationships.

CO-MANAGEMENT FEASIBILITY ASSESSMENT

A review of scholars' analyses of "successful" co-management arrangements suggested at least seven requisites for community-based co-management (Figure 4): common purpose, collaborative relationships and trust, appropriate processes, appropriate structures, capacity, knowledge and information, and supportive policy. In this section, we draw upon data collected through qualitative inquiry (i.e., document review, open-ended interviews with stakeholders, observation of search conference, and structured telephone interviews with participants following search conference), to assess the presence or absence of each of these requisites for co-management in the Eastern Basin region. Where data are inadequate to assess the feasibility of co-management, we identify questions for additional research.

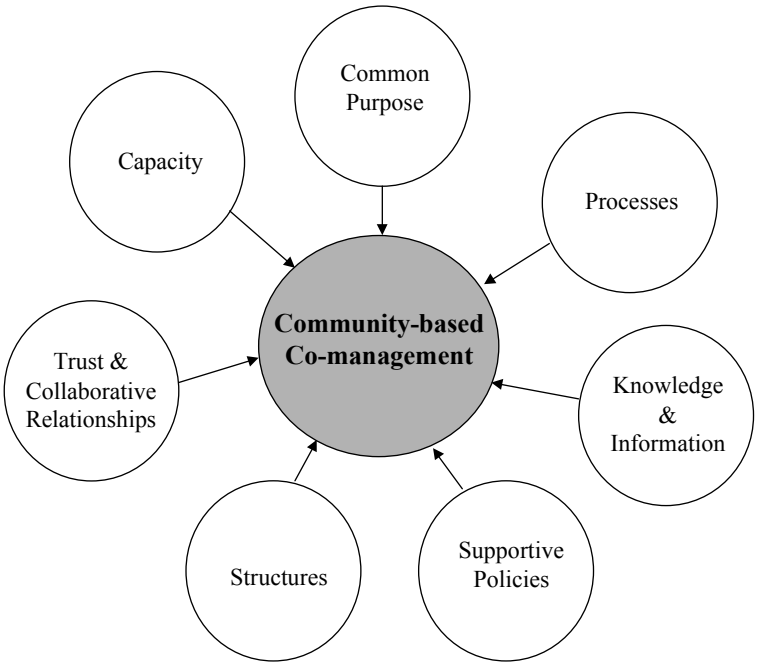

Figure 4. Requisites for community-based co-management.

Common purpose: <u>present</u> in Eastern Lake Ontario Basin

Collaboration can occur when stakeholders express interest in or share fears about the same issues (Cordova 1997). "Successful partnerships … highlight common interests or find ways to bridge compatible yet disparate interests" (Wondolleck and Yaffee 2000:73). Participants in the Lake Ontario Islands Search Conference identified common purpose that could help guide co-management efforts. Participants' descriptions of that common purpose emphasized:

- protection of natural resources whether for environmental, recreational, or economic benefit;

- greater community cooperation, regional planning, and collective management of the Eastern Basin;
- resource management that meets diverse interests; and
- working together to address these issues.

Collaborative relationships and trust: <u>present</u> in Eastern Lake Ontario Basin

Pinkerton (1989:29) proposes that "the successful operation of co-management ultimately rests on the relationships among human actors." Wondolleck and Yaffee (2000:162) concur, "Collaboration ultimately takes the form of interpersonal relationships." The Lake Ontario Islands Search Conference contributed to collaborative relationships. For some participants, the search conference strengthened existing relationships. Many more participants reported forming new relationships and gaining trust in other stakeholders. Maintaining this trust, especially stakeholders' trust in NYSDEC, will require follow through on commitments made during the search conference. The agency's implementation of some short-term actions identified during the search conference, such as the installation of buoys marking safe harbor, is a positive step for building and maintaining trust. Periodically communicating progress of this sort with search conference participants would enhance legitimacy of the LOIWMA planning process and trust in the agency.

Processes: <u>needed</u> in Eastern Lake Ontario Basin

Social learning through deliberation is a continual, iterative process that requires reconsidering past assumptions, conclusions, and decisions on the basis of new data and changes in the decision situation (NRC 1996). Reunion of search conference participants in May, 2001 provided an opportunity for continued coordination and communication. Participants' interest in re-convening at approximately six-month intervals confirms their intent to remain involved with actions identified during the search conference. However, the sustainability of collaborative processes over time is limited by a lack of supportive institutional structures and clear leadership. In addition to a process for continued engagement of search conference participants, processes are also needed to diffuse learning in the broader community.

Structures: <u>needed</u> in Eastern Lake Ontario Basin

Social learning around natural resource management involves not only a transformation of people but also of institutions and policies (Röling and Wagemakers 1998). Participants reported that the search conference increased their understanding of one another's concerns and helped build collaborative relationships. Maintaining these relationships requires an appropriate structure that enables participants to continue working together on common goals. Wondolleck and Yaffee explain (2000:115):

> Successful efforts at collaboration not only establish meaningful and effective processes of interaction, they find ways to make them endure over time. They institutionalize collaboration by creating structures and generating funding that will continue beyond initial partnership efforts. … Ultimately, they are self-

sustaining because a structure is provided that facilitates productive interaction, and the partners continue to benefit from it.

Possibly the most powerful recommendation that emerged from the search conference was to form an Eastern Basin Working Group that would facilitate continued coordination and communication among those involved in community planning, ecosystem management, education, recreational resource use, and sustainable resource-based tourism. Further efforts are needed to develop a local structure that can sustain collaboration. Doing so will require human and financial resources.

Capacity: <u>some present, more needed</u> in Eastern Lake Ontario Basin

Collaborative management requires that partners possess the capacity to participate (Cordova 1997). Working together in co-management initiatives can help build capacity (Wondolleck and Yaffee 2000) as partners identify creative possibilities that could not be realized by any single stakeholder group. "Co-management can, therefore, be a product of as well as a project in social integration and community vitalization" (Jentoft et al. 1998).

A more systematic assessment of community and agency capacity is necessary to assess the feasibility of co-management in the Eastern Basin. Observation of the search conference and interviews with participants suggested that local communities possess social capital (Putnam 1993), including thick social networks and shared norms (Gardner and Stern 1996), that could facilitate collaboration if channeled toward bridging (Putnam 2000) diverse stakeholder groups. However, some participants in the search conference felt that communities pull together less today than in the past and as a result often miss opportunities.

As important or possibly more important than community capacity is the capacity of agencies to participate in co-management. In the Eastern Basin, NYSDEC filled a valuable leadership role by sponsoring the search conference. However, it is unclear who might continue to spearhead collaborative efforts. While it makes sense for NYSDEC to continue leading actions in the area of ecosystem management and, to some extent, recreational resource use, others are needed to lead community-based initiatives in community planning and cooperation, education, and sustainable resource-based tourism. Enthusiasm has been apparent among participants; however, a lack of leadership by persons supported by the organizational capacity to facilitate ongoing efforts may limit the potential for collaboration.

Knowledge and information: <u>some present, more needed</u> in Eastern Lake Ontario Basin

Collaborative management requires information, and information needs are constantly evolving (Cordova 1997). Collaboration can help build understanding through information sharing, learning from the public, educating the public, and joint research and fact-finding (Wondolleck and Yaffee 2000). Indeed, a strength of the search conference was the integration of community and scientific knowledge. But participants identified additional information needs during the search conference, including dissemination of results of fish and wildlife resource inventories and research to support development of a tourism diversity plan.

Ideally, research would be designed in cooperation with stakeholders to ensure that results are relevant to the information needs of any co-management initiative. Mattfeld and colleagues (1998:253) describe a vision for developing research agendas interactively with stakeholders:

> Most of the critical [human dimensions] and biological research agenda can, and we hope soon will, be established routinely and in collaborative ways with stakeholders. We believe stakeholders can and should participate in the priority and cost-benefit analyses needed to define the most relevant and critical research agenda. Risk and cost are elements of decision making found in virtually all issues. Citizens and stakeholders weigh them every day. In our case, we can help put wildlife management with social and biological consequences in the context of their deliberations.

Supportive policies: <u>some present, more needed</u> in Eastern Lake Ontario Basin

Collaborative management requires supportive policies (Cordova 1997). In some arrangements, decentralization of government authority and responsibility to local level institutions is appropriate (Pomeroy and Berkes 1997, Zanetell 2000). However, as Wondolleck and Yaffee (2000:103) note in the United States, "Agencies cannot delegate their statutory authority to collaborative groups, and decision making that affects public resources must be subjected to broader public involvement." Decentralization of authority would not be appropriate for fish and wildlife management in the Eastern Basin because these are public resources managed for the citizens of New York State. However, policies are needed that are conducive to meaningful stakeholder involvement in the management process.

Co-management may also require that an agency commit to long-term involvement in community development by fulfilling a facilitation role when natural resources are a focal point of the local economy and culture. For many natural resource agencies, this represents a fundamental change in their approach to management and may require changes in organizational policy, as well as legislative changes that enable agencies to effectively participate in partnerships with local communities.

An overall assessment

This inquiry found that common purpose and collaborative relationships developed among participants in the Lake Ontario Islands Search Conference. Common purpose guides co-management initiatives and collaborative relationships are central to the success of such initiatives. Building upon this foundation to develop further collaboration among NYSDEC, other agencies, and local communities in the Eastern Basin region will require the design of appropriate processes that foster continual learning and involve additional stakeholders. Sustaining these processes will require appropriate structures, such as an Eastern Basin Working Group. Developing such local institutions requires both agency and community capacity. A weakness in the design of the Lake Ontario Islands Search Conference was the failure to identify early in the process a local change agent, aside from NYSDEC, who could maintain the momentum of interest following the search conference. As a result, the sustainability of energy

and activity generated during the search conference is made more difficult by a lack of local leadership. In addition, co-management requires information and supportive policies, both of which are present to some extent but could be increased in the Eastern Basin.

Below, we outline immediate action steps that could advance co-management. The first recommendation would be most appropriately undertaken by NYSDEC; the second by NYSDEC with assistance from Cornell University's Human Dimensions Research Unit (HDRU); and the final two by any entity interested in fostering continued collaboration among participants in the search conference.

1) Develop a strategy for periodic communication with search conference participants about progress in adoption and implementation of the LOIWMA plan.
2) Identify a local entity willing to provide organizational assistance for continued coordination among the search group, particularly with respect to community-based initiatives.
3) Form an Eastern Basin Working Group to facilitate collaboration among partners in community planning, ecosystem management, education, recreational resource use, and sustainable resource-based tourism.
4) Design additional research to assess agency and community capacity to participate in co-management, inform the development of local institutions, and examine how social learning can occur among the broader community.

As Wondolleck and Yaffee (2000:224) state, "An agency's long-term capacity for collaboration requires ongoing experimentation and an explicit process of learning from the experiments." The Lake Ontario Islands Search Conference provided an initial step in learning about the potential for collaboration between NYSDEC and local communities in the Eastern Basin of Lake Ontario. We hope it serves as a foundation for ongoing efforts among participants to learn further about one another, the place they share, and possibilities for working together toward a desirable common future.

LITERATURE CITED

Adler, P. A. and P. Adler. 1994. Observational techniques. Pages 377-392 *in* N. K. Denzin and Y. S. Lincoln, editors. Handbook of qualitative research. Sage Publications, Inc., Thousands Oaks, California.

Borrini-Feyerabend, G. 1996. Collaborative management of protected areas: tailoring the approach to the context. Issues in Social Policy, IUCN, Gland, Switzerland.

Borrini-Feyerabend, G., M. T. Farvar, J. C. Nguinguiri, and V. A. Ndangang. 2000. Co-management of natural resources: organising, negotiating and learning-by-doing. GTZ and IUCN, Kasparek Verlag, Heidelberg, Germany.

Conley, A. and A. Moote. 2001. Collaborative conservation in theory and practice: a literature review. Udall Center for Studies in Public Policy, University of Arizona, Tuscon, Arizona.

Cordova, A. 1997. Collaborative natural resource and land-use planning in the Copper Canyon Region, Chihuahua, Mexico: prerequisites, incentives and challenges. Thesis, Cornell University, Ithaca, New York.

Cranton, P. 1994. Understanding and promoting transformative learning: a guide for educators of adults. Jossey-Bass, Inc., San Francisco, California.

Decker, D. J., S. J. Riley, L. H. Carpenter, G. F. Mattfeld, G. Parsons, J. F. Organ, and W. F. Siemer. In review. The essence of wildlife management. Wildlife Society Bulletin.

Dryzek, J. S. 1997. The politics of the Earth: environmental discourses. Oxford University Press, Cambridge, United Kingdom.

Emery, M. and R. E. Purser. 1996. The search conference: a powerful method for planning organizational change and community action. Jossey-Bass Publishers, San Francisco, California.

Forester, John. 1999. The deliberative practitioner. MIT Press, Cambridge, Massachusetts.

Friedmann, J. 1984. Planning as social learning. Chapter 19 *in* D. C. Korten and R. Klauss, editors. People centered development: contributions toward theory and planning frameworks. Kumarian Press, West Hartford, Connecticut.

Gardner, G. T. and P. C. Stern. 1996. Community management of the commons. Chapter 6 *in* Environmental Problems and Human Behavior. Allyn and Bacon, Boston, Massachusetts.

Greenwood, D. J. and M. Levin. 1998. Introduction to action research: social research for social change. Sage Publications, Inc, Thousand Oaks, California.

IUCN - The World Conservation Union. 1997. Resolutions and recommendations: World Conservation Congress. 12-23 October 1996, Montreal, Canada.

Jefferson County. 2001. Jefferson County selected 2000 census information. Retrieved July 16, 2001 from the World Wide Web: http://www.sunyjefferson.edu/JC/Facts_Figures/home.html.

Jentoft, S., B. J. McCay, and D. C. Wilson. 1998. Social theory and fisheries co-management. Marine Policy 22(4-5):423-436.

Kenney, D. S. 2000. Arguing about consensus: examining the case against Western watershed initiatives and other collaborative groups active in natural resources management. Natural Resources Law Center, University of Colorado School of Law, Boulder, Colorado.

Martin, A. and R. Rich. 1998. Searching and search conferences. Unpublished report. Program on Employment and Workplace Systems, School of Industrial and Labor Relations, Cornell University, Ithaca, New York.

Mathews, D. 1994. Politics for people: finding a responsible public voice. Second edition. University of Illinois Press, Urbana and Chicago, Illinois.

Mattfeld, G. F., G. R. Parsons, T. L. Brown, and D. J. Decker. 1998. Integrating human dimensions in wildlife management: experiences and outlooks of an enduring partnership. Transactions of the 63rd North American Wildlife and Natural Resources Conference 63:244-256.

National Research Council. 1996. Understanding risk: informing decisions in a democratic society. P. C. Stern and H. V. Fineberg, editors. National Academy Press, Washington, D.C.

New York State Department of Environmental Conservation Division of Fish, Wildlife, and Marine Resources. 2001. Wildlife Management Areas program background. Retrieved February 7, 2001 from the World Wide Web: http://www.dec.state.ny.us/website/dfwmr/wma/wmaprog.htm.

Open Market, Inc. 1998. Folio Views 4: getting started. Provo, Utah.

Pinkerton, E. editor. 1989. Cooperative management of local fisheries: new directions for improved management and community development. University of British Columbia Press, Vancouver, Canada.

Pinkerton, E. 1994. Local fisheries co-management: a review of international experiences and their implications for salmon management in British Columbia. Canadian Journal of Fisheries and Aquatic Sciences 51:2363-2378.

Pomeroy, R. S. and F. Berkes. 1997. Two to tango: the role of government in fisheries co-management. Marine Policy 21(5):465-480.

Putnam, R. D. 1993. Making democracy work: civic traditions in modern Italy. Princeton University Press, Princeton, New Jersey.

Putnam, R. D. 2000. Bowing alone: the collapse and revival of American community. Simon and Schuster, New York, New York.

Röling, N. G. and M. A. E. Wagemakers. 1998. Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty. Cambridge University Press, Cambridge, United Kingdom.

Schusler, T. M. and D. J. Decker. 2000. Lake Ontario Islands Wildlife Management Area preliminary situation analysis. Human Dimensions Research Unit Publication 00-02. Department of Natural Resources, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, New York.

Wondolleck, J. M. and S. L. Yaffee. 2000. Making collaboration work: lessons from innovation in natural resource management. Island Press, Washington, D.C.

Yankelovich, Daniel. 1991. Coming to public judgment: making democracy work in a complex world. Syracuse University Press, Syracuse, New York.

Zanetell, B. A. 2000. Assessing the feasibility of community-based management of a rural Venzuelan fishery. Thesis. Cornell University, Ithaca, New York.