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CORNELL AGRICULTURAL ECONOMICS STAFF PAPER

BREAKING THE INCREMENTALIST TRAP

ACHIEVING UNIFIED MANAGEMENT OF THE GREAT LAKES ECOSYSTEM

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BREAKING THE INCREMENTALIST TRAP
ACHIEVING UNIFIED MANAGEMENT OF THE GREAT LAKES ECOSYSTEM

David J. Allee,[1] Leonard B. Dworsky[2]

ABSTRACT: Policy evolution was characterized by Charles Lindblom three decades ago as "fragmented, disjointed incrementalism." He argued incrementalism made the best use of very limited theory and data upon which to base decisions. This was a major intellectual challenge to the advocates of comprehensive planning based upon scientific principles and analysis. The result has been further research on how to achieve effective strategic policy innovations. Of special relevance to the Great Lakes has been recent research stimulated by the prospect of global climate change. We combine it with the results of a seminar that has simulated the application of ecosystem planning to the Great Lakes, and use the synthesis to illustrate that the prerequisites for non-incremental decision making are slowly being achieved. Suggestions are made to speed that process.
KEY TERMS: Environmental Management, Great Lakes, Policy Development, Comprehensive Planning, Intergovernmental Relations.

INTRODUCTION

In normal times only small changes in policy can find agreement. Large changes generate too much uncertainty and objection to be adopted. But what is normally more than an incremental policy change can become incremental under crisis. The greater the sense of crisis the more we can expect support to act and to ignore at least some objections that would become road blocks in normal times. Such policy change windows can be created by Great Lakes related events such as fish consumption bans or extreme water levels. Or a window may open by political needs stimulated by other events that call for political exchanges with those who care about Great Lakes management.

Public agencies often take the lead in being ready for policy windows, i.e., by incubating policy options. The incubation process at least involves exploring and accommodating the interest of major stakeholders. And agencies help create those policy windows through timely sharing of information to the public debate. The International Joint Commission (IJC), US Army Corps of Engineers, US Environmental Protection Agency and Environment Canada have more or less actively played that role for the Great Lakes for many years. Now the States and Provinces are becoming more effective in incubating policy options. Many of these

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applications of the incubator approach to policy development by the other agencies have been achieved by their participation in the activities of the IJC.

Several possibilities exist to improve the chances for non-incremental policy development. These may be required to apply the principles of ecosystem management. Ecosystem management would include increased emphasis on long term effects of large development projects, the cumulative and synergistic effects of large and small projects and in particular the interactions between the major uses and values of the Great Lakes. Adopted all at once these would be very non-incremental shifts away from existing policies. Agreement is still out of reach.

To achieve ecosystem management existing policy makers that manage development by the several levels of government on both sides of the border need information about the ecosystem effects of their day to day decisions. These local, state/provincial and federal actors also need the political support to take ecosystem effects into account. Such a change in policy and management capacity would be unlikely under present circumstances and may not be attainable by normal incremental policy evolution due to the distribution of incentives and burdens that result from taking ecosystem effects into account.

Ecosystem management offers major gains to the instrumental efficiency of the inter-related lakes. These gains, both market and non-market values, provide incentives for change, but diffusion over time and space reduces the effectiveness of such incentives. Costs of taking ecosystem effects into account, on the other hand, are apt under present policies to be born by a smaller number and to be more immediate. Thus the costs seem to carry more weight than the benefits even when much smaller in total. But today such weighing of costs and benefits is rarely facilitated by accurate and available information. Also inter-governmental cooperation is required and calls for a special kind of policy evolution that differs from the politics of either project allocation or public regulation, the politics common to the major agencies involved.

Elements of management such as functional issues, activities, implementation and organizational options have been explored in the literature and by a graduate seminar at Cornell University, whose results we have reported in previous AWRA proceedings and elsewhere (Dworsky,1986; Dworsky and Allee 1988). They are a place to start, but the politics required here is less a matter of the working out of those elements and more a question of the initially symbolic moves of leaders and elites. Once we say we are following an ecosystem approach it is easier to make it become functional in the interagency setting, to respond to support and to take actions that will impact on the capacity to manage, particularly the provision of information on stakes.

Note that no basin-wide institution uses all of its system management powers (Milbreath, 1988; other articles in the same volume). The demand for policy outputs is not sufficient to stress those powers. There is a latent, unmet demand. This demand could be drawn out by the availability of better information on stakes and options.

Thus more information for decision makers that will lead to better identification of the stake that individuals and groups have in ecosystem effects is advocated in this paper through a new entity that might be called an Ecosystems Study Board. The concept should be familiar to most readers and is eloquently argued in the above Milbreath citation. An Ecosystems Study Board (ESB) would join the existing lake level boards and the Water Quality Board that now operate under the IJC. The work of this board, the ESB, would be supported by a staff unit that might function as a center for investigations much like that proposed by several recent IJC studies. Governments would refer developments of particular types for review and the new Board would carry out activities in areas of critical concern to strengthen understanding of cumulative and synergistic effects and interactions between uses and values of the Great Lakes.

REQUIREMENTS FOR NON-INCREMENTAL CHANGE

In what should become a seminal paper in the water resources field, Deyle, Meo and Wilson (1989) bring together the literature on achieving non-incremental policy changes and apply the resulting synthesis to the likely response to global climate change. They argue that the non-incremental nature of the effects of global climate change will work to force the breaking of the incrementalist trap. Intergovernmental cooperation at the state and substate levels of government is seen as promoting "... the coordination and interplay of expertise, perspective and legal authority essential for devising strategic policy innovations to contend with non-incremental climate change." Even without the prospect of non-incremental climate change we believe that the non-incremental nature of policy issues on the Great Lakes will provide for the basis of non-incremental policy changes needed to implement the ecosystem management approach. This is a result of the excellent communication on environmental issues that exists over the Canadian/United States border and the inherently lumpy or delayed character of their treatment through international negotiations which in these cases are relatively adroitly facilitated by the long standing IJC processes.

But what is incremental policy change? And why might it not lead to ecosystem based management? And is an integrated ecosystem basis for management technically possible? Or are they correct who say we don't know enough to be comprehensive? Or is that the wrong question since it is by trying to be comprehensive that we learn how? Perhaps more to the point is to find out how to insert this learning process into the two already functioning national federal systems.

Incremental policy changes consist of remedial and serial responses to public problems that challenge existing programs and ways that they operate (Lindblom, 1959; Rabe, 1986). They appear in every annual budget document, taking advantage of recent experience and insights from program results, recent reorganizations and evaluations of other previous incremental adjustments to existing programs and policies. They lead to adjustments in policy more through agreement that they should be tried than because they fit an over arching analysis that operationalizes goals, lists options and evaluates

consequences. Indeed in its extreme forms incrementalism is the antithesis of rational analytic models of decision making and most appeals to those who do not trust science but do trust the political process (Jones 1984:85).

By stressing agreement at the expense of analysis several crucial attributes develop that are the crux of the matter for the management of large complex interactive systems like the Great Lakes. First, policy shifts tend to take place only within the authority and traditions for types of actions and use of technology of the existing agencies. Thus, for example, flood plane zoning is not seen as a major policy product of construction agencies. Second, the agency is only expected to take into account external effects of its actions for which it will be held politically accountable. Thus, for example, the long struggle by the fish and game agencies to perfect mitigation measures by construction agencies and the potential long term turn around for the problem as the construction agencies become more aware of the opportunity for wetland and other habitat creation construction projects. The result of these attributes, to only work within existing authority and to only consider consequences which the individual agency traditionally corrects, means that effects of developmental activities in response to growing population and income will not be part of the automatic correction system. These take non-incremental policy changes.

Deyle et al point out that delay is a result of the reactive nature of incremental policy change, delay in addressing the real nature of the problem, with the attendant avoidable losses to society. Thus they anticipate that agencies will be inclined to put events that are really changes in long run trends into the category of normal extreme events. The result is a loss of the gains that would be possible from more timely confrontation of the true nature of the problem.

Many separate agencies and subagencies, and many different levels of government all practicing incremental policy processes overload the coordinative powers of government, indeed the most effective coordinators of State/Provincial and Federal agencies may be the often ignored or maligned local governments. They sometimes have the information and incentive needed to focus the attention of the other levels of government on their particular problem. Obviously smaller local governments may lack this capacity. This has served as a justification for more effective support for rural areas by higher levels of government.

It is particularly in such inter-agency inter-governmental coordination that information is power. Thus freely available information about the known unintended consequences of development actions and a process to identify the questions that are not readily answered is important. The growing application of the concept of the environmental impact statement is one response. The widespread use of various review and permitting processes is an other. But these responses tend to work best at the local level where the inter-interest bargaining is easier and are progressively more difficult to create and operate as the intergovernmental setting becomes more complex. Stakeholder representatives are harder to get into one room to bargain out a result. Obviously the Great Lakes system is at the complex end of the scale.

Policy innovations of the non-incremental kind most often occur in response to a crisis. Events that lead to crisis issues can be flooding and erosion due to high water levels or the need to placate a neighbor concerned about reactions to changes in trade policy. Whether of the direct or indirect causes, acute policy innovations can happen quickly with little consideration of options or consequences and with little participation in the definition of the problem. The action is apt to be symbolic such as to call for an other study when it is clear that the unpalatable answer from the last several studies won't change. But symbolic action may be to create a more permanent review and information gathering process, or a new form of cost sharing, regulation or action organization that could lead to the evolution of effective actions or programs. But acute policy is still a hit or miss process that is all too familiar. It still depends upon what is essentially only a variation of the incrementalist approach.

More to the point is the concept applied by Deyle, et al of incubated policy innovation (Polsby, 1984). They point out that it results from long term processes that create both the demand for policy innovation as well as the proposals that can deliver the changes called for. These long term processes would have to include review and reaction by the interests affected by the proposals and in effect represent testing them out politically before a crisis emerges that legitimizes their general adoption. In addition to wider participation than in acute innovations the incubation approach is characterized by a search process that identifies many options and their long and short term consequences. An interplay of interests in the search process should help achieve this. Such interplay should be facilitated by the fact that without a current crisis there is no realistic prospect of adoption, in other words the planning is done in a hypothetical context.

Obviously this process is better suited to specialists inside and outside of the decision making institutions than the decision makers themselves. Experts can participate in the definition of the problems and in the marshalling of data to test the alternative formulations. Policy entrepreneurs can communicate with interest groups and help them educate decision makers on the efficacy of the solutions being considered. Then when a policy window appears it justifies ignoring other claims on decision makers for at least a short period and allows the decision makers to take non-incremental steps. Those benefited are already sensitized to the need, indeed have been lobbying for the changes, and the losers can be said to have had their chance to be heard and propose a better solution. Such a "due process" character, we suspect, may be an important element of incubated policy innovations, since some degree of conflict is inevitable and the ability of an injured group to say that they were not consulted is at least an important element in delay. And delay may mean an other policy window has to open. Luckily a well incubated policy innovation should not need as urgent a crisis to obtain standing on the policy agenda and move a solution to adoption.

As we shall detail for the Great Lakes, there is a long history of comprehensive planning in water resources. Why hasn't it served the incubation process better. We can only speculate at this point, but it

may have to do with the failure of traditional planning to pay enough attention to the interest accommodation process rather than too much. Technical standards for decisions such as maximization of national net benefits, or flood protection at the standard project flood level, or risk assessment and conservative worst case safety levels may not promote sufficient ownership and support unless they are used in a dispute resolution rather than a planning framework (Shabman et al, 1989).

The classic principles of dispute resolution should continue to be adapted and adopted to the water resource planning process. Perhaps the principle difference is, as much as possible to avoid the plan-announce-defend syndrome. Development of wide understanding and acceptance of principles for choice should help. Separating issues from the people involved. Stressing stake over position. Encouraging the exploration of alternatives that address the attainment of the different interests concerned. Encouraging events that help groups understand each others positions. These are principles long at work in various other fields but needing more development in the water arena.

Deyle et al suggest that it is important to move the concept of an incubated policy model from a description of how the process might work to a normative role, ie., use it as a statement of good practice for the well run agency. They suggest the term "strategic policy innovation" to describe this standard against which water management agencies should test themselves. Given their staffing with regular access to outside experts and greater stability and longevity compared to other actors in the policy process such agencies as Environment Canada or the New York State Department of Environmental Conservation should accept this role. But strategic policy innovation as a standard requires that the agencies be proactive <u>both</u> on a technical level (define the cause and effects relations, judge technical feasibility of options) <u>and</u> be proactive on a political level (helping stakeholders understand each others positions including conflicts in values). Providing technical support for policy entrepreneurs among citizen groups, academics and the legislature in addition to their executive branch is a part of this process. But it is also in an agency like the IJC where the link between technical and political can be made effectively. This has been made more likely by the shift away from appointing members with a technical background to the appointment of individuals with a political background.

Effective scanning of the social environment is an important part of achieving policy innovations. It helps in the process of coalition building and consensus where that is possible to broaden the sense of ownership of the results. But it is also well established that innovations usually originate outside of an organization not within it. Thus it is important to have arenas where representatives of different agencies come into regular contact with each other and with the groups that are apt to feel the need for policy innovation early in the process. In the water field this need for "exchanges of influence and control with other organizations to achieve innovation," to borrow the words of Deyle et al, is heightened by the divisions between agencies and levels of government. Thus the common use of regional management agencies and the use of inter-organizational coordination (Allee, 1988; Dworsky et al, 1989). They can provide a vehicle to scan the political and social environment and for coalition building.

It is well worth emphasizing an important aspect of basin management in case it hasn't been made clear so far in our discussion. This is the importance of information generation and dissemination. Any systemwide institution can only garner and wield power enough to manage the system by rallying the reactions of many other policy players. Thus Milbraeth (1988) cogently argues that what the management of the Great Lakes needs next is an arrangement that allows major developments to come under the review of a respected multidisciplinary panel that is able to marshall the best of current information to evaluate the consequences of that development, to identify the answerable unanswered questions and lobby for the research needed.

Such capacity to help the social system learn the consequences of its actions may well be authority enough. Those projects directly reviewed often will be directly impacted for the better. And the consequences that result from those that proceed will be more closely examined and better understood. The institutions that regulate them will be strengthened over time if not immediately. Many lesser projects that do not come under review will be developed more judiciously on the threat of being escalated to the review level. With large projects being reviewed, examination and support of local review process should be easier unless the need for the whole process is not widely accepted. This can be enhanced by a process of meeting with local leaders and interests, perhaps in areas of special environmental concern, and reviewing the likely cumulative effects of small developments on the larger system. And with such enhanced understanding policy changes are more likely to be non-incremental when needed.

Deyle et al conclude that "Water management institutions that integrate the spatial dimensions of water supply and demand with land use and management of water quality will be in the best position to identify and implement effective strategic policy innovations to contend with climate change." The same can be said about the problems of the Great Lakes even without climate change. This becomes more apparent when we review the likely sources of future crises that will provide policy windows.

SOURCES OF CRISIS

A definition of the Great Lakes as an ecosystem and the application of that definition suggests the basis for the development of more policy windows as well as the current need for issue resolution. Nongovernmental organizations will play an important role but so will the states and provinces.

Following Odum's "Fundamentals of Ecology," we suggest that the concept of an ecosystem should be broad in its application including obligatory relationships and interdependence, and causal relationships. Components are coupled to form functional units and can be conceived of and studied in various sizes. In addition to the management of particular species or resources the totality of air and water cycles, productivity, food chains, global pollution, systems analysis and the control and management of man as well as nature is implied. As we will

see the IJC has gone a long way toward advocating and some of the way to applying such a definition. As an exercise to test the feasibility of applying this concept to the Great Lakes our seminar simulated such a study. In 1985 it produced a 200 page report and identified and discussed the principal issues of a Great Lakes integrated ecosystem in a reasonably workable form suitable to support policy development at a general level. Issue areas identified included:

--For water quality (15 issue area interrelationships), nutrient control, point and nonpoint sources, toxic substance control, remedial works in areas of concern, inadequate information, science policy, funding scheduling, allocation of research resources, recommitment to an ecosystem approach.

--For fisheries (10 issue area interrelationships), rehabilitation of habitat, toxic substances and bioaccumulation, carcinogenic effects in fish and man.

--For wetlands, preservation including restoration and creation.

--For endangered species, preservation of habitat.

--For waterway transportation (4 issue area interrelationships), planning data, dredging, navigation season, intermodality, intersystems, locks and canals, ports, relation to other national waterway needs.

--For energy (8 issue area interrelationships), environmental effects of hydropower, stack emissions, facility construction lead time, facility deferrals, shortage strategies, Lake Erie natural gas, growth information, alternative sources and conservation, coordinated energy planning.

--For land and shorelines (15 issue area interrelationships), pressure for recreational land, institutions to relate water use to land use, effects on land of water use/economic development/preservation.

--For lake levels and flows (13 issue area interrelationships), effects on land use, energy development, navigation and diversions.

These are listed here precisely because we don't expect anyone to be surprised at the list - in one form or an other these are repeated in most comprehensive water resource planning settings. These issues provide a working definition of the Great Lakes ecosystem. This working definition can be made more meaningful as a basis for the overview of the system and indepth intergovernmental discussions. This was done by the seminar by identifying the interrelationships between these issue categories that were documented in the literature. The number of documented interrelationships are in the parentheses in the above list. In addition recreation showed ten and air pollution six interrelationships. Sufficient information was provided to conclude that an improved integrated ecosystem definition was feasible and, with time and resources, could be detailed as required to provide a working basis for discussions between the several governments on future management options.

Note that in every issue area studied there is in each country a well articulated and growing set of policies. Additions come from both incremental and non-incremental policy changes. But there is a growing perception that these changes do not adequately reflect binational system values. The seminar report detailed these policies and for a number of them a much more thorough review has recently been prepared for the IJC Phase One Lake Levels Reference Study (Shabman et al, 1989).

The point is that if policy has evolved within the nations on these issues and they are part of the interdependency aspects of the Great Lakes system, then they have the potential to provide crises or policy windows at the international level, the level most likely to have success in achieving fully integrated ecosystem management in the case of this system.

RECENT HISTORY FITS THE ANALYSIS

Since before the Great Lakes Water Quality Agreement was signed in 1972 there has been an accelerating process that we believe is slowly moving toward the conditions for the non-incremental style of decision making required to implement management of the Great Lakes on an integrated ecosystem basis.

Prior to the Great Lakes Water Quality Agreement being signed in 1972 - which coincided with significant reenforcement of water quality management programs in both nations - there had been other signs of interest in a broader role for the IJC. In 1965 a report "Canada and the United States - Principles for Partnership" examined the wisdom of some expansion of the Commission's functions. Republican members of the House of Representatives proposed that the IJC be given a leading role in fulfilling the "obvious need for comprehensive advance planning in the development of water resources." Remember that the Water Resources Planning Act of 1965 was passed in the U.S. to provide the opportunity for commissions to be formed to do river basin planning - and eventually a commission under this authority was formed to prepare such plans for the U.S. side of the basin.

In 1971-72 the First Canada/United States Interuniversity Seminar was held. Faculty members from sixteen universities after meeting with observers from the major water management agencies of both nations recommended "The governments ... should initiate, on a joint basis, a comprehensive examination of the problems associated with multiple purpose management of the Great Lakes." Seminar proposals should be used "...as a basis for initiating discussion... on modernization..." Fifteen management issues were identified of which eight were primarily of binational importance.

The evolution of the 1972 Water Quality Agreement has been the most significant part of the history although there are other important developments, too. From the start it provided important system wide focus for national actions. In its revised form, signed in 1978, the governments included the ecosystem concept formally as part of the Agreement. In 1975 a Canadian Parliamentary Report proposed, first, that the IJC be given authority to make, on its own initiative, assessments of boundary pollution problems which could lead to a reference, and second, that the IJC should have powers to publicize all its recommendations. The Research Advisory Board, part of the apparatus set up to administer the Agreement, had played an important role in extending technical information and had called for replacing "water quality" as an objective with "ecosystem quality" (1977) and called for the addition of a full ecosystem approach (1978) as was then adopted. A second Interuniversity Seminar in 1978 had also recommended further broadening to include nonwater quality issues in the management concept.

In 1979 and subsequent reports of the renamed Science Advisory Board a host of interdependancies were identified and pressed as a focus for the management of the system - air borne pollutants, short and long term economic costs, energy conservation and demand reduction, groundwater contamination, social and economic aspects of water management and development decisions, etc. These built upon a workshop in 1979 on

"Anticipatory Planning for the Great Lakes" which called for a Great Lakes Perspective and a Standing Board on Information Acquisition and Analysis. Its role would be to improve the capability of the IJC to advise governments on needed programs and policies. They argued that problem linkages through the lake system and program linkages in the international governance system needed a better fit. And that better fit between problem and programs called for integrated ecosystem management.

Rarely has the IJC offered advice to the governments unless specifically asked to do so. But in January 1985 under a 1977 Reference on Great Lakes Diversions and Consumptive Uses it reacted to the limited success that can be expected from dealing with problems in isolation and said "...it seems desirable to consider a wider range of issues within the spirit and intent of the reference. These include ... the legal framework ...longer-term climatic variations and structural economic change ... the need to consider the interrelationships of Great Lakes water quantity and water quality in the context of an ecosystem..." "...legislation in the two countries has paid greater attention to water quality...and for twelve years the Commission (has carried out) major responsibilities with regard to the Great Lakes Water Quality Agreements ... positive results of coordinated federal-state and federal provincial efforts... similarly advantageous results might accrue to the two countries through co-operative efforts in the field of water quantity management." These points and recommendations have been reenforced in commentary in subsequent biennial reports under the Water Quality Agreement, in regular annual reports to the governments and in the most recent progress report on the Lake Levels Reference.

Clearly the Commission has concluded and found it useful to urge the adoption of an integrated ecosystem approach and this has been followed up in a variety of opportunities. Policy entrepreneurship as well as policy incubation has been carried out. In response to the report on Great Lakes Diversions and Consumptive Uses an agreement was reached that has led to a Board that provides important recognition to the role of the states and provinces and has led to further communication and agreement at that level. Recognizing that the allocation of water between uses is not only a federal function in either country, the states and provinces have been major actors in the subsequent management measures. Indeed they were significant actors in the studies that led to the agreements. The agreements insure that withdrawals will be monitored and reported to all. Major withdraws and diversions can only proceed after review by the group of governments. Note that the new board is made up of state and provincial water managers as well as supporting activity from the key federal agencies. Also note that solidarity among the states and provinces was enhanced and legitimacy gained by regular illusions to the potential for diversions out of the region by way of the Mississippi River. Press reports of a drought affecting that river added to the creditability and the needed actions on the part of some of the states such as New York to enact reporting requirements.

This history would not be complete unless it commented upon the growth of formal and informal public participation that has characterized IJC activities. Not only do they provide a forum for water management

agencies to exchange information and support between water management agencies, but they have given a platform for various nongovernmental organizations, both organized interests or stake holders and citizen groups oriented to general interests. Participation by representatives of such groups in various official meetings and workshops has been unprecedented.

HISTORY AND ANALYSIS SUGGEST TWO SETS OF NEXT STEPS

We can see two incubation opportunities that provide new and non-incremental opportunities to meet the challenge of devising means to manage the Great Lakes as an integrated ecosystem. The challenge has now been presented to the two governments in at least three different ways. First, by the IJC Science Advisory Board report "Anticipatory Planning for the Great Lakes; second, in the Advisory set out by the IJC in Part Two of its report "Diversions and Consumptive Use;" and third, in the current Phase One of the water levels study. The first incubator is structured around the current wide ranging effort of the IJC and the carrying out of its responsibilities of the Great Lakes Water Levels Reference. The second incubation opportunity would have the creation of an Ecosystem Study Board be the outgrowth of a new study to gain a Great Lakes ecosystem perspective, per se, not tied to any issue but the need for such a perspective. The second approach could precede independently of the first, but would be particularly important if funding and action were frustrated by a declining interest in the lake levels issue. It would require strong support from non-governmental organizations and the States and Provinces where support for such approaches may be stronger than at either federal level.

The recently released Phase I of the IJC study of the lake levels problem is consistent with the analysis of requirements for non-incremental policy development and recent history of IJC activities. Hopefully Phase II will provide the basis, that is the incubator, for the next set of changes needed.

The most recent product of the IJC study processes, Phase I of The Water Levels Reference Study, continues the incubation process. With working teams that drew on various water management and policy specialists and agencies, and managed for the IJC by the U.S. Army Corps of Engineers and Environment Canada, again increasing the basis for expanding capacity for integrated ecosystem management. Several annexes were devoted to the technical aspects of such a perspective and the interrelations of the measures that might be taken to alleviate the negative effects of fluctuating water levels. Phase II promises to continue the incubation process by aiming "...at four collective objectives:

* a set of binational principles as guides for decision making;
* an overall strategy and general plan of action;
* improvements in governance;
* refinements in understanding of critical aspects of the system (IJC,1989a).

In a workshop called by the IJC to prepare an outline for Phase II

these objectives were fleshed out in some very meaningful ways (IJC,1989b). Exploration of a management system that identified the interdependencies and cumulative effects of fluctuating water levels and actions taken to adjust to them plus improvements in governance were stressed. A management center would be designed and operationalized in the study effort. It would have available management modeling tools and an evolving data archive. Technical assistance and outreach would be tested by simulation including the assistance of multi-jurisdictional management capacity and governance arrangements. Multi-jurisdictional governance options, including examples, would be evaluated. Innovations in governance focussing on function, structure and process would be recommended. Goals for such governance options would include basin-wide water quality issues, improved processes of fact-finding, communication, decision-making and program implementation, cross boundary coordination, facilitating the participation of representatives of the various interests, organized and unorganized, and stimulation of local management capacity building to reflect ecosystem impacts of local actions.

Even more ambitious is the extension of the notion of seeking agreement on principles for basin management. First a process for identifying such principles is designed. Then a draft of a binational agreement is called for to implement the principles. This would include the management and governance arrangements suggested for study. Examples given of the kinds of principles to be explored are consistent with the movement toward an integrated ecosystem approach. Environmental sustainability as a restraint on economic development and human settlement is included as well as open decision making and taking into account negative effects on other values.

The plan for the organization of the study makes full use of the relevant federal agencies and places representatives of the state and provincial water management agencies in key oversight and study management positions.

These proposals for Phase II go beyond many positions taken by past groups in terms of spelling out the need and features of reforms to attain an integrated ecosystem approach to management of the Great Lakes Basin. They may go well beyond what decision makers will find acceptable in the next policy window. But at least there would be a rich menu for selection and for consensus seeking by policy entrepreneurs. We urge the debate of such suggestions, support for their adoption, and participation in the generation of the needed policy windows. But in particular we urge the leadership of the water management agencies at federal, and state/provincial levels to join in with the nongovernmental organizations to adopt a commitment to facilitating non-incremental policy innovation.

The opportunity provided by the second incubator build, as we have said, on the strengths already in place or developing for managing a Great Lakes Integrated Ecosystem, including those described above for the Water Levels Reference Study. Recapping, some of the strengths are:

-- experience under the Great Lakes Water Quality Agreement;
-- commitment to the ecosystem approach;

-- perceptions and philosophies expressed by the IJC on the need for a broader Ecosystem approach, and the likelihood of governments adopting these views for early action;
-- the wide ranging reports compiled by IJC task forces established by formal References on matters other than water quality identifying linkages to other issues;
-- the accumulation of national and international arrangements under quasi-formal or informal agreements among governments and non-governmental entities;
-- the capacity of modern computational equipment to model complex multi-objective and multi-functional problems.

Proposed Actions:
1. Complete a study of the Great Lakes to gain a Great Lakes perspective, (for which essentially all needed information is separately available) on a national basis, as proposed in the Lake Levels Reference Report, Phase One. Bringing together available information to get an ecosystem perspective of the Great Lakes; to identify issues; to define issue relationships, and to establish priorities can be accomplished. The governments will not be risking much if they authorize, by Reference, the IJC to pursue such a task, or by some other vehicle that can combine the efforts of the two governments.

2. Non-governmental organizations and the States and Provinces should use such information to advance the underlying goal of designing institutional improvements in the management arrangements for a Great Lakes integrated ecosystem. Ultimately the public needs new understanding; institutional forms and policies need to change. What may be most useful now is not new authority and regulation, but a form of leadership that can provide competent and acceptable guidance to the existing systems in a continuing manner and at a rate commensurate with public and official acceptability.

We suggest the two governments authorize the IJC to establish such a leadership institution in the form of an Ecosystem Study Board through the usual reference process to study what needs to be done to further the implementation of an integrated ecosystem approach for the long-term management of the Great Lakes. The Board should be thought of as a continuing study and advisory body to the IJC and, through them, to the governments. What is needed is objective advice with a wide horizon to stimulate and support the Federal Systems of the two governments to further the integrated ecosystem approach to Great Lakes management. The Board will consult with governments, the IJC, other Boards, and others in the development of a realistic agenda. The governments can terminate the Board at will, depending on a periodic assessment of its value and use in furthering its basic objective. Board composition should encompass the interests that define the Great Lakes integrated ecosystem. Workshops, conferences and Board Committees will provide means to seek the knowledge needed to advance ecosystem thought and implementing action in future years. The experience of the Ecosystem Committee of the Science Advisory Board may be useful to review.

3. By providing guidance for implementation the governments can facilitate the integrated ecosystem approach without recourse to new authority or law. Governments can authorize IJC, using the Ecosystem

Study Board as a resource, to provide guidance through the provision of information on matters such as problem definition, solutions to problems using expert panels and the provision of standard models. Models might apply to matters such as land use management to avoid high water level damage; wetlands definition and conservation methods; coordination of some types of fishery policies such as that related to public health dangers; techniques for erosion control; land use guidance relative to energy development; and matters pertaining to recreation. The models can, in addition, direct the information to the appropriate level of government. Benefits stem from the IJC, a neutral agent, making recommendations for the good of the entire Great Lakes. We believe that leadership of this kind will find a favorable response among the Great Lakes communities, at relatively little cost to the governments. Staffing could start modestly, building with experience.

4. This may be regarded as a non-action Option, in that structural change in Great Lakes management institutions should be taken with care, and only when the nature of needed change becomes well defined. The guidance of an Ecosystem Study Board, will, in time help assess the need for new institutions. With improved information about issues and needs on an ecosystem basis, and with time and patience, institutional characteristics will evolve with experience.

In closing this paper we note that governments have made impressive progress in evolving steps toward the utilization of an Integrated Ecosystem Approach for the long term management of the Great Lakes. But the constraints against further utilization involving political institutions, existing laws and regulations, and financial matters are real. We ought not feel that we can ease our way past these obstacles as easily and with unlimited time as we have with past obstacles. What is needed is a definite institutional center that can provide leadership under government guidelines to pursue ways to overcome and move beyond the obstacles.

Thus, we call for taking advantage of the opportunities provided by two incubations we have identified. In either one new reference authority to the IJC and the creation of an Ecosystem Study Board (or under any other name or other specifications for operation) will be critical to allow us to explore ways to meet the future for effective Great Lakes Integrated Ecosystem Management.

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