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Research, part of a Special Feature on Balancing Ecology and Community using Cumulative Effects Models

Social Thresholds and their Translation into Social-ecological Management Practices

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ABSTRACT. The objective of this paper is to provide a preliminary discussion of how to improve our conceptualization of social thresholds using (1) a more sociological analysis of social resilience, and (2) results from research carried out in collaboration with the Champagne and Aishihik First Nations of the Yukon Territory, Canada. Our sociological analysis of the concept of resilience begins with a review of the literature followed by placement of the concept in the domain of sociological theory to gain insight into its strengths and limitations. A new notion of social thresholds is proposed and case study research discussed to support the proposition. Our findings suggest that rather than view social thresholds as breakpoints between two regimes, as thresholds are typically conceived in the resilience literature, that they be viewed in terms of collectively recognized points that signify new experiences. Some examples of thresholds identified in our case study include power in decision making, level of healing from historical events, and a preference for small-scale development over large capital intensive projects.

Key Words: *functionalism; social-ecological resilience; thresholds; Yukon Territory*

INTRODUCTION

The term resilience has become popular in everyday language and across a number of disciplines, such as public health, psychology, education, cultural geography, and ecology. In a general sense, people use the term to describe abilities to bounce back or recover from disturbance. In the context of social-ecological systems, resilience has been used to discuss adaptations to changes such as global climate change (e.g., Adger and Kelly 1999, Berkes and Jolly 2001) and resource development (e.g., Adger 2000, Varghese et al. 2006) that influence human-environment dynamics.

In the literature on this topic, a resilient social-ecological system is characterized as one with the capacity to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks (Walker et al. 2002). This approach to resilience is highly relevant for a number of places around the world where the physical environment is undergoing change and social groups demonstrate varied abilities to manage their organized responses to it (Nadasdy 2007, Leach 2008, Chapin et al. 2009, Duit et al 2010).

Resilience scholars are interested in how members of a system read signals in their environment and change management practices based on social learning (Clark et al. 2001, Gherardi 2001, Plummer and FitzGibbon 2007), or how feedbacks from collective knowledge and observations become reflected in new management efforts. For instance, the emphasis in Berkes and Folke's 1998 seminal work on linking social and ecological resilience is recognition that conventional "command and control" resource management not only erodes ecological resilience but social resilience in that outsider control reduces the cultivation and use of local knowledge of resource management. Adaptive management on the other hand, is the strategy extolled by proponents of resilience because of its emphasis on flexibility and learning from experience (Nadasdy 2007); learning is promoted by way of viewing natural resource management policies as experiments (Lee 1993, 1999, Berkes 2004).

The objective of this paper is to describe a novel approach, one that builds on historical turning points in a community to understand how community members might read signals in their social and physical environment to develop thresholds that may be used to inform social-ecological management. First, we provide a theoretical background that informs our approach to understanding thresholds.

Understanding thresholds

An emerging component of management in resilient systems is the study of thresholds. By and large, thresholds have been examined in the discipline of ecology to show that certain ecological functions may cease to occur below a critical level of some ecological attribute. For instance, Andrén (1994) showed that beyond a certain level of change to habitat configuration, a bird or mammal species may experience negative effects.

Others have more recently examined ecological thresholds in terms of social standards; Salmo Consulting Inc. (*unpublished manuscript*) defines thresholds as "technically and socially based standards that identify the point at which an indicator changes from an acceptable to an unacceptable condition." The diagram in Figure 1 illustrates the response of an indicator, otherwise known as a characteristic that represents a value, to a changing chemical concentration, in this case, increased phosphorous concentration in a lake; the threshold being the point between the acceptable and unacceptable condition.

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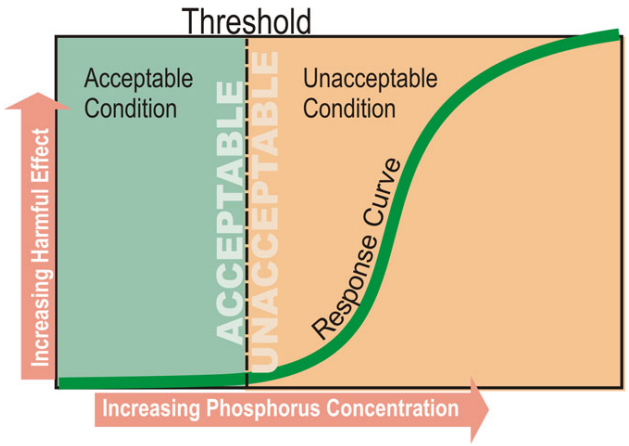
Fig. 1. Threshold illustration.



In the resilience literature thresholds are used to describe "breakpoints" between two regimes or alternate stable states in a system (Walker and Meyers 2004). In theory, when a threshold level is passed, a regime shift occurs, and as a result, the nature and extent of feedback in the system changes (Walker and Meyers 2004). Building on the previous example, a shift from clear to turbid or eutrophic conditions in a lake illustrates a regime shift, and phosphorus concentration is an example of a corresponding threshold.

Understanding threshold dynamics not only furthers our knowledge of how social-ecological systems function, but can have profound implications for management of those systems as awareness is created regarding the implications of crossing thresholds into alternate regimes. Thresholds are increasingly brought into the discussion of cumulative effects, for example, as the slow-down or stopping point for certain kinds of human activities where breakpoints are assumed to be reasonable limits beyond which recovery would be significantly more difficult. Although informative, studying thresholds in terms of breakpoints becomes problematic when the focus is placed on the societal dimension of resilience (Hornborg 2009, Davidson 2010).

Thresholds and how they interact to cascade into regime shifts can be difficult to discern compared with identifying thresholds in ecosystems (Westley et al. 2002); whereas a nonhuman species can get by with some known quantity of suitable habitat, the level of tolerance and socio-cultural adaptation under certain kinds of environmental change can vary widely for social groups (Kinzig et al. 2006). Although certain socio-cultural regime shifts are obvious, such as social movements that accompany a paradigm shift, e.g., the civil rights movement, there are other regime shifts that may be less discernible, like the erosion of trust in a comanagement system, partly because some people are better off and others are not (Walker et al. 2006).

An added challenge for identifying social thresholds versus ecological thresholds is that a system that is functional is not the same as one that is thriving. As Walker et al. (2006) point out, a harsh dictatorship in desertified regions of the Sahel may be highly resilient but also undesirable.

As suggested by Yorque et al. (2002) and summarized by Walker et al. (2006), social-ecological systems have multiple interacting thresholds that are triggered by slow and fast variables. Slow variables, such as the flow of capital that supports a fair system of resource distribution, or the pace of incremental ancillary resource development, may be particularly important for how well resource management systems can change over time. For example, although a forest comanagement board may be functioning well, other land uses, e.g., oil and gas development, and social challenges, e. g., high rates of substance abuse, in the region may obviate adaptive changes within the comanagement system, overwhelming the ability of the overall ecosystem to withstand the cumulative activity.

If the aim of threshold science is to improve the resilience of linked social-ecological systems, we argue in this paper that a new approach to studying thresholds in the social dimension is required. Thus, we provide a preliminary discussion on how to improve our conceptualization of social thresholds using (1) a more sociological analysis of social resilience, and (2) results from research on the cumulative social effects of change with the Champagne and Aishihik First Nations of the Yukon Territory, Canada. "First Nations" is used as a collective term to refer to Canadian aboriginal peoples, except for the Métis and Inuit; "indigenous peoples" refers to aboriginal peoples in a global context.

FURTHER DEFINING SOCIAL RESILIENCE VIS-À-VIS SOCIAL THEORY

The study of resilience started out with an emphasis on ecosystems and how to manage them (e.g., Holling 1973), but has since evolved to include unique contributions on social processes that contribute to resilience including:

> *social learning and social memory, mental models and knowledge-system integration, visioning and scenario building, leadership, agents and actor groups, social networks, institutional and organizational inertia and change, adaptive capacity, transformability and systems of adaptive governance that allow for management of essential ecosystem services* (Folke 2006:263).

To draw further attention to the societal component of resilience, some authors have ventured forth stand-alone definitions of social resilience, like Adger (2000:347), who defines it as "the ability of groups or communities to cope with

external stresses and disturbances as a result of social, political, and environmental change." Marshall et al. (2007:360) take a more pluralistic approach to social resilience in their study and define it as "individual resilience and the flexibility with which resource users can cope and adapt to changes in resource policy."

Others such as Nadasdy (2007) question legitimacy of the resilience concept because of its failure to address how one's position within the social-ecological system influences how they evaluate resilience or the current configuration of the system. Because of political and social marginalization within current capitalist systems, he asserts, many indigenous peoples have few reasons to maintain the resilience of these systems. Nadasdy points out that although comanagement from the inside may appear stable and reflective of group values and interests, comanagement in the broader community context may hold weak legitimacy as a process for indigenous peoples' efforts to manage resources in a culturally honorable way.

With the exception of contributions like these, much of the focus in the resilience literature remains on ecosystems and how they can be adaptively managed, without much attention given to how particular system configurations affect those in the immediate context who validate the systems' existence but may not be directly involved in its decisions. Those who address these broader contextual factors are often in disciplines such as sociology (Molotch et al. 2000, Varghese et al. 2006), political science (Adkin 2009, Gaventa and Barrett 2010), anthropology (Nuttal 2010, Stevenson and Natcher 2010), and human geography (Howitt 2001, Neumann 2009), and may not be linking to the resilience literature per se.

Resilience and functionalism

At first glance, most sociologists would likely wonder if social-ecological resilience theory is simply a repeat of functionalism, the theory that society is made up of a series of interdependent parts. In simplified form, Talcott Parson's (1937) theory of functionalism focuses on the following:

1. the influence of systems at the expense of individual actors: "the very definition of an organic whole is one within which the relations determine the properties of its parts. The properties of the whole are not simply a resultant of the latter" (1937:32);
2. consensus, stability, and order in the system rather than conflict and power, as demonstrated in his model of integration among the personality (individual actor), culture (symbols and meanings), and social system (interaction among actors) levels of analysis;
3. the idea that modern societies developed as the result of a determined progression.

Most of the work on resilience is different from functionalist theory because of the emphasis on reorganization and transformation; equilibrium is not considered the norm of systems. Moreover, "progress" is not a priori determined by theory; it is more about trial and error, as demonstrated by the adaptive management paradigm.

Despite these differences, there are still some elements that remain consistent with functionalism including that conflict and relations of power at multiple levels are not explicitly recognized in social systems. Another consistency is that the role of system-level phenomena, such as flexible and adaptive management practices, is emphasized over power dynamics and influential decisions within managed systems. Consistent with criticisms leveled at functionalism, one could argue the resilience literature also emphasizes function of organizations over decisive individual or small group action inside and outside the doors of organizations that influence the way management systems perform and are perceived.

In sociology, rational actor theorist Coleman, among others, argued that studying the action of individuals is required to explain function, or system-level phenomena (Holmwood 2005). More specifically, he argued it was important to observe specific cases of how trust is sustained or breached rather than assume that trust is a requisite of social order; trust is susceptible to individuals breaking it and contains reinforced relationships to maintain stable systems (Holmwood 2005). Empirical research on individuals' motives, calculations, values, and opinions were considered fundamental to the establishment of any social theory.

One might study social resilience in the context of social-ecological systems then by asking questions that garner insight into the subtleties of action that play an influential part in the overall function of a system. For example, natural resource managers may be able to design more resilient management institutions that are publicly legitimate if there was deeper awareness of: the historical role of decision making processes for participants in the system (Nadasdy 2007), the perceived use and abuse of power within institutions (Horborg 2009), and other signals observed by members of a system that influence their notions as to which management practices are socially desirable (Christensen and Krogman 2010).

A new vision for social thresholds

As discussed earlier, there are problems inherent in viewing social thresholds as breakpoints at which a new or revised management effort is forged. Rather than study social thresholds as breakpoints, it is suggested here that they be viewed as collectively recognized points that signify new experiences. These points on new experiences reflect larger social processes underway, which once understood can inform organizational decisions. This view takes a variety of individuals, for example, managers and residents, as experts on the myriad feedbacks in their communities and environments and recognizes that they learn important lessons about the system and where it should be headed as they live within its constructs over time (Fischer 2000).

One of the strengths in seeing social thresholds as points on new experiences that can help transform management

practices into ones that are more desirable is that there is recognition, by default, that although humans might be able to adapt to a variety of system configurations, they do, in fact, hold preferences for some over others. The significance in asking people to reflect on these experiences and preferences is that there is a great deal of social value in doing so. Bent Flyvbjerg's (2001) elaborate discussion of the epistemological relationship between the social and natural sciences helps to illustrate this point.

Flyvbjerg builds on Aristotle, who argued that the natural and social sciences should be viewed as completely separate endeavors. Similarly, Flyvbjerg argues the natural and social sciences cannot be viewed under the same microscope because of their divergent ontologies. That is, the natural sciences are strong on cumulative, explanatory, and predictive theory, whereas the strength of social science theory lies in the reflexive analysis and discussion of experiences, values, and interests, "which is the prerequisite for an enlightened political, economic, and cultural development in any society" (Flyvbjerg 201:3).

Thus, a threshold framework that considers reflexive discussion of experiences, interests, and values in association with system configurations suitably serves the domain and strength of the social sciences. Research carried out in collaboration with the Champagne and Aishihik First Nations is discussed in terms of (1) what social thresholds might look like on a local level, and (2) techniques one might utilize to gather information on social thresholds.

METHODS

The premise of this research was to explore local perceptions of landscape and social change in the Champagne and Aishihik Traditional Territory, Yukon, Canada, with improvement of the study of cumulative social effects in mind. The Canadian North, within which the Champagne and Aishihik Traditional Territory is situated, is perhaps one of the most critical places to undertake work on cumulative social effects because of the variety of important changes taking place, including industrial development, spread of pollution and contaminants, international trade, efforts toward sustainable development, and climate change (Nuttall 2005). In addition, the governance landscape is a dynamic one as more and more aboriginal peoples acquire treaty recognition of ownership to their traditional lands (Usher 2010).

Both contemporary and historical aspects of change were considered focal in this research so that linkages could be made between how local First Nations and non-First Nations people experience impacts, the learning they undergo, and the visions they have for the future of the system. Understanding community members as both recipients and agents of change in this way was an important part of the research design, and germane to understanding social thresholds in the given framework.

From January to May 2007 qualitative data on local historical changes, learning, and visions for the future were collected through 28 semistructured interviews carried out by the first author and Shelia Quock, the Champagne and Aishihik First Nations community liaison. After consultation with members of the Champagne and Aishihik Research Review Committee, established prior to the research in the interest of ensuring the work would be carried out in a culturally appropriate manner and utilize ethical research methods, a range of significant changes were selected as starting points for discussions in the interviews. Selected changes included resource development activities in the region, i.e., forestry, mining, an old gas pipeline, and a hydro-electric dam, an extensive Spruce Bark Beetle outbreak, and land claims, all of which span several decades of time and represent diverse engines of social-ecological change considered by the Review Committee to be collectively recognized as such. In addition to these, interview participants had the freedom to highlight other important changes in the local history. A timeline showing these changes was used as a visual tool during interviews to assist participants with event recall, make associations among events, and identify how they experienced impacts. A reconstruction of this timeline is shown in Table 1.

Table 1. Local historical change in southwest Yukon. CAFN = Champagne and Aishihik First Nations.

1890-1900	Klondike Gold Rush
1900-1910	Residential schools (north Yukon)
1910-1920	World War I
	Fur trapping regulations applied to First Nations Peoples in the Yukon
1920-1930	Residential and public schools (southwest Yukon)
	Gold discovery on Squaw Creek
1940-1950	World War II
	Construction of the Alaska Highway
	Creation of the Kluane Wildlife Sanctuary
	Construction of the Haines Highway
	Aishihik road and airport built
1950-1960	Construction of Haines to Fairbanks pipeline
1960-1970	Fuel spill on Dezadeash Lake
1970-1980	Pipeline closure
	Creation of Kluane National Park
	Aishihik Dam
1980-1990	Mine at Windy Craggy Mountain proposed
1990-2000	Spruce Bark Beetle outbreak
	CAFN Land Claims and Self Government
	Creation of Tatshenshini-Alsek Park
	First Nations Sawmill
2000-2010	Shutdown of First Nations' Sawmill
	Radioactive water discovered at Champagne

In addition to selecting the changes to discuss, choosing individuals to interview formed a crucial part of the research design. Local people, both First Nations and non-First Nations,

with long-term experiential knowledge of the social-ecological system were interviewed, after two pilot interviews were carried out. One interview was with a Champagne and Aishihik First Nations person whereas the other was with a non-First Nations land resource manager with extensive experience working in a variety of Yukon communities. Experiential knowledge is that derived from the process of daily life learning, which infers that knowledge is produced from being continuously derived and tested out in experiences of the learner (Kolb 1984).

Natural resource managers, health and social workers, and First Nations and non-First Nations residents who had first-hand experience with the focal changes, and by extension, many other changes in the region, participated in research interviews. Of the 28 persons interviewed 21 had lived in the area for at least 30 years. Twelve women and 16 men were interviewed, and 13 of the participants were First Nations, 15 non-First Nations. Interviews lasted between 1 and 3.5 hours, and were carried out until saturation in the answers was achieved (Marshall 1996). This combination of participants resulted in a rich assemblage of knowledge on the kinds of experiences to which people pay attention in their communities. Criteria for recruiting participants consisted of the following:

4. all participants were recruited based on recommendations by key Champagne and Aishihik First Nations people, including the hired liaison and the Alsek Renewable Resource Council (the local resource management body created after the signing of the First Nations' land claim);
5. for residents, long-term residency was a requirement so that responses would reflect as much local context as possible;
6. for health and social workers and natural resource managers, only those with key informant knowledge, living, working for or with the Champagne and Aishihik people were included.

Views on desirable management practices for the future, and lessons learned, were elicited from participants through a variety of positively and negatively framed questions that were asked after historical experiences with social and environmental change in the system had been discussed. The types of questions that were asked on desirable system configurations, which may be translated into management practices, are listed in Table 2.

The approach of grounded theory guided data analysis, by way of the constant comparative method. Statements of relationships and concepts in the data were inductively proposed using this method, followed by verification of what was derived through comparison of incident with incident (Strauss and Corbin 1990). This allowed similar data to be grouped according to categories, and is a technique commonly used across qualitative research (Merriam 1998). Data analysis eventually resulted in the distillation of events that seemed to be collectively recognized points that signify new experiences.

Table 2. Questions on desirable systems.

1. In your opinion, what are the best things about living in this community?
2. What about the biggest challenges you face here? Worries for the future?
3. When you think about the future of the land, soils, water, fish, plants, and animals here, what do you hope for?
4. If more natural resource development were to happen here, would there be certain limits you would want to see in place?
5. How about certain benefits you would hope to see?
6. What about negative outcomes you would like to avoid?

To share findings and verify interpretations of the data, a workshop was held in November 2007 to check participants' constructions of social and landscape change with research participants. During the verification portion of the workshop, attendees generally agreed with the interview findings as presented; there were a few clarifications around the nature, i.e., positive and/or negative, of some of the impacts associated with changes discussed and these points were incorporated into an iterative process of threshold identification that also took place during the workshop. This verification was fundamental to establishing research credibility as well as to our collaborative research approach, which took several forms including development of a legally binding research agreement that outlined ownership, control, access, and possession principles (NAHO 2007) conducive to the conduct of ethical research and protection of First Nations' values.

RESULTS AND DISCUSSION

Examples of social thresholds and desirable management practices from the Champagne-Aishihik study

The basic foundation for understanding desirable management practices in this case was knowledge of social thresholds, or the observable presence of a collective good or process to enable the social-ecological system to thrive. After decades of observation of cumulative effects of external community influences, individuals identified social thresholds from the feedbacks in their communities and environments. Three examples of social thresholds from our data are shared here. All of these examples show how actions on the ground of the system send signals to people as to whether or not their communities and environments are in desirable states, and how management practices can be informed by these.

First, the Champagne and Aishihik First Nations' strong desire for a voice in the management of contemporary and retrospective issues is grounded in historical events that

individuals associate with loss of voice, which is inextricably linked with culture. Respectively, the gold rush of 1898, residential school, and creation of the Kluane Game Sanctuary and National Park brought an influx of outsiders to the region who introduced individualistic values, a national agenda of "civilizing" Indians so that they eschewed their own traditions and culture and embraced European ones, and the enactment of policies that restricted First Nations' entitlement to resources within homeland areas.

All of these changes had effects on the ways that Champagne and Aishihik First Nations people used the land, and the ways in which their culture evolved. In this way, having a strong voice in management is desirable, and may be considered a key indicator of a healthy culture and landscape. The social threshold in this case is power in decision making, in which level of local access and influence over decisions is central to effective and desirable land management and cultural integrity.

Second, local people voiced a strong desire to overcome some of the substance abuse problems in their communities that have occurred in conjunction with many resource development activities in the region and have roots, for First Nations, extending back to the time of relocation of Indian people to highway settlement communities and residential school. Substance abuse was recently exacerbated by the First Nations' sawmill development project because, as one interview participant described, "when they started that sawmill up, they hired a lot of locals who had problems with drugs and alcohol. When the first payday came, they didn't show up for work, and that's because they're still suffering from alcoholism or drug addiction." In addition, when the sawmill shut down much earlier than expected, many of those who were trained for the work were left unemployed and thus disappointed in the end. In fact, even though the mill shut down more than six years ago, people still express their embitterment toward it as a failed enterprise.

This situation evoked a strong desire for social healing to occur alongside any future development. Therefore in this case, working toward reducing substance abuse is a desirable management practice that can help communities in improving their collective level of well-being because of its overall influence on a well-functioning, engaged community. Level of healing from historical events may be considered the social threshold because it provides the basis for capacity to act, hope, and build on collective commitment to take care of each other.

The third example of management practices that are preferential is that many people prefer small-scale development for any economic development effort in the Champagne and Aishihik Traditional Territory. Despite there being comparatively little development within the traditional territory's boundaries, its residents have made acute observations of large-scale mining, oil and gas, and forestry projects in the Yukon and elsewhere. Participants even mentioned specific places as undesirable outcomes, such as the Klondike gold fields near Dawson City, Yukon; the Anvil Mine in Faro, Yukon; Fort Nelson, British Columbia; the oil sands of northern Alberta; and Fairbanks, Alaska. Concern about the overconsumption of resources, financial and racial inequalities, social pathologies, government abilities to manage large-scale development, and contradiction with community values, all social thresholds indicative of community and environmental well-being, were some of the reasons people named when asked about why these particular outcomes were significant to them.

Many of these social thresholds, such as territorial and First Nation government management abilities, are also based on events in the local history. With respect to existing development in the traditional territory, one Champagne and Aishihik First Nations employee said their government was not able to address concerns they had with a small-scale mine in the area because of a lack of human resources to tend to the issue. In the face of potential projects like the Alaska Highway Gas Pipeline, a proposed pipeline that would begin at Prudhoe Bay, Alaska, parallel the oil pipeline to Fairbanks, follow the Alaska Highway through the Yukon, northeast British Columbia, and into Alberta, a few participants questioned the abilities of both the First Nations Government and the Yukon Territorial Government to successfully manage such large-scale development.

All of these examples show how actions on the ground of the system send signals to people as to whether or not their communities and environments are in desirable states, and how management practices can be informed by these. They also demonstrate that resilience is not always about institutions per se; it has a lot to do with a combination of different experiences within the social landscape to which individuals pay attention on a daily basis, such as whether or not people feel they are able to influence decision making processes and if social healing from historical events is underway. If management systems are to gain greater legitimacy by the people they intend to serve, there will likely need to be greater consideration of social thresholds such as those described here.

CONCLUSION

This paper has outlined some of the challenges with the existing threshold framework in the resilience literature, such as that when social thresholds are interpreted as breakpoints at which a new or revised management effort is derived, the focus remains on reproducing systems that merely function rather than those that thrive in the eyes of those who must behold them. The source of some of these challenges, we argue, is in the societal dimension of resilience, in which the existence of adaptive management institutions, i.e., function, is commonly emphasized over larger scale system processes and factors related to action.

Social thresholds, in the revised sense we propose, play a pivotal role in helping to explain the nuanced dynamics of culture, environment, and society by promoting greater understanding of their large-scale manifestations that people pay attention to and see as critical to the overall ability of social-ecological systems to adapt and thrive in the face of future change. Moreover, in using the language of "thresholds," human arguments regarding society-culture-environment relationships may hold greater power and legitimacy when represented in cumulative effects assessments. As Foucault (1980), Habermas (1984), and Fairclough (1992) have exposed in their critical treatments of language and power, the standardized, socio-technical way in which companies, governments, and communities use terms such as "thresholds" can have substantial implications for the reinforcement of existing power relationships.

One of the ways suggested here for approaching social thresholds is to promote understanding of experiences within the larger social system that individuals who validate management systems pay attention to and feel are important to the system's ability to adapt to future perturbations, and how these experiences may inform organizational decisions. For example, knowing that comanagement arrangements exist in the Champagne and Aishihik First Nations' Traditional Territory may not be as important to people as the feeling that Champagne and Aishihik First Nations people have a strong and effective voice in management, which may be indicated by the social threshold of power dynamics in decision making processes. The topic of power can be an especially vexing issue to articulate in conventional cumulative and social impact assessments.

Seeing thresholds in this way emphasizes the epistemological vantage point of sociology that recognizes how community residents interpret social and ecological challenges with a social memory in place, one that both emboldens and weakens different kinds of human and social capital in the community to adapt to change (Bourdieu 1989, Flyvbjerg 2001). By addressing thresholds as locally derived collective goods and processes that are understood as fundamental to the capacity to adapt, the power differential between outsiders and the community is diminished. In our particular case study, the community can more readily identify requirements around power in decision making, integration of healing processes alongside new developments, and limits on the size and scale of resource developments as new developments and land use policies are proposed, with the use of the language of thresholds to convey the importance of these collective goods and processes.

In terms of future research, it would be valuable to incorporate broader segments of the informed and committed public in a discussion on community experiences and desirable management practices. Youth, for example, have their own set of experiences and values that are important for consideration as the community imagines reproducing their local community and the organizations within it. This would have the added benefit of promoting social learning, an important component of resilience in that continuous dialogue and deliberation among community members and managers fosters open exploration of problems and their solutions.

Responses to this article can be read online at:
http://www.ecologyandsociety.org/vol17/iss1/art5/responses/

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