

Research article

“Consulted to death”: Personal stress as a major barrier to environmental co-management

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ABSTRACT

Co-management is widely seen as a way of improving environmental governance and empowering communities. When successful, co-management enhances the validity and legitimacy of decision-making, while providing stakeholders with influence over processes and outcomes that directly impact them. However, our research with participants in co-management across several cases leads us to argue that many of the individuals who contribute to co-management are subject to significant personal stress arising from both the logistical and social/emotional demands of participation in these processes. We argue that the literature on co-management has touched on this only indirectly, and that personal stress is a major challenge for participants that ought to be integrated into research agendas and addressed by policy-makers. In this article, we review the contours of the personal stress issue as it has appeared in our observations of co-management events and interviews with participants. While these findings are partial and preliminary, we argue that personal stress has theoretical and practical significance to the broader literature and process design. We conclude the article with recommendations for participants, researchers and policy-makers about how to consider and respond to problems of personal stress.

1. Introduction

We argue that participation in co-management processes can expose stakeholders to significant personal stress, and that this problem is sufficiently serious to warrant greater research and policy attention. Co-management has become an important practice in environmental decision-making in many parts of the world (Carlsson and Berkes, 2005). By co-management, we mean governance arrangements involving structured, ongoing collaborations between central governments and representatives of groups or communities that have a historical or geographic connection to the natural resource or territory in question. As such, our definition of co-management is broad and encompasses related terms such as collaborative governance and co-production (Ansell and Gash, 2008; Wyborn, 2015). Generally speaking, co-management systems are intended to connect state and local

institutions, capacities, and knowledges in an effort to enhance the efficiency, accuracy, and legitimacy of environmental governance and decision-making (Schultz et al., 2011). They also imply a devolution or sharing of authority over territories, ecosystems, and/or resources, thus connecting the coercive and technical powers of central governments with the normative and relational powers of groups and communities (Plummer and FitzGibbon, 2004). These are potentially transformative ideas that are rarely fully realized in practice (Plummer et al., 2012). Nevertheless, co-management schemas are important attempts to bridge a number of gaps in traditional environmental governance, between distant governments and local communities, and between the knowledges held in formal organizations and those embedded in lived practices and experiences (Young, in press).

Co-management has been celebrated and criticized, both as theory and practice. Proponents of co-management argue that these processes

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foster invaluable “learning and linking” vertically (across scales) and horizontally (across groups), creating a foundation for trust-building, knowledge-sharing, and empowerment of actors who have been hitherto left out of decision-making (Jentoft, 2005; Berkes, 2009). Co-management is also promoted as a means of building a more comprehensive understanding of social-ecological systems, and of rapidly responding to environmental changes in ways that are perceived to be legitimate by multiple actors (hence the term “adaptive co-management” that is often seen in this literature; Olsson et al., 2004). In other words, co-management can be a win-win for central governments and local communities, leveraging the strengths of each in the interests of ecological integrity and social harmony.

Critics of co-management have argued that these arrangements typically fall far short of their idealized processes and goals. Co-management is difficult to implement and maintain over time (Wilson et al., 2003). Increased contact between and among groups does not necessarily lead to trust or the defusing of conflict. Decisions about who gets to participate and to speak for whom are often made arbitrarily (Parkins and Mitchell, 2005). Perhaps the most trenchant critique of co-management to date is the notion that co-management involves an extension of government power, rather than an act of power-sharing. This argument is rooted in a long-running debate in the international development literature about the unintended consequences of participatory approaches to economic development, which were meant to replace top-down mechanisms that excluded affected people from decision-making. In 2001, Cooke and Kothari (2001) published a provocative edited volume entitled *Participation: the new tyranny?* that included essays about how this approach grafts the assumptions of influential Western academics and state-backed development agencies onto less powerful local processes and institutions that are ill equipped to receive them, in some cases causing significant harm to local relations. Other chapters in this volume addressed the limits of a formulaic approach to participation, potential for abuse and manipulation, and problems of clientelism that result from power imbalances between authorities and communities (see also Hickey and Mohan, 2004).

Nadasdy (1999, 2005; 2007) has taken up several of these themes in an influential series of articles and book chapters specifically addressing environmental co-management. In these, he argues that despite the rhetoric of empowerment, collaboration, and learning, central governments retain all of their formal and informal decision-making powers. Using ethnographic research in the Canadian Yukon, Nadasdy documents the deep discomfort felt by government agents (bureaucrats, scientists, policy experts, and politicians) when communities advance alternative knowledges, narratives, and policy priorities, and the various ways in which these are ignored, undermined, and de-legitimized within the co-management process so that authorities achieve their desired result. More than this, Nadasdy argues that participation in co-management has the unintended effect of “bureaucratizing” participants and communities themselves. Because central governments are so dominant in these processes, they structure the discursive terrain on which evidence and decisions are considered and debated (see also Parkins and Mitchell, 2005). As such, the logics of scientific/expert knowledge and bureaucratic rationality (rather than a community-based rationality) define the terms and range of subsequent discussions. While space is granted to local and traditional knowledge, communities feel the obligation to translate these into “data” to conform to the logics of sample sizes, confidence intervals, and statistical significance (see also Holm, 2003). This process of translation “leads almost automatically to the bureaucratization of the people and communities who participate in co-management” because they are unable to present their views in their proper political and epistemological context (Nadasdy, 2005: 216). The fundamental injustice at play in co-management is therefore that “to be empowered, local people must first agree to the rules of the game” that are set by, and profoundly advantage, traditional authorities, within processes that are cloaked in the rhetoric of equality and collaboration (Nadasdy, 2005: 220).

Debates on the merits and impacts of co-management are important, and should continue. However, these debates have primarily focused on the effects of co-management on groups or communities, with consequently little attention paid to the individuals who participate in such processes. We argue that the individuals who participate in co-management, particularly community-level stakeholders, are exposed to another type of problem that has not attracted much attention to date: the problem of personal stress. Individual-level effects are rarely investigated in the co-management literature, be they positive or negative. Some studies mention feelings of empowerment as a positive effect of participation, particularly when stakeholders see that their knowledge and preferences have a direct impact on decision making (e.g., Jentoft, 2005; Scholtens and Bavinck, 2018). Negative effects, such as strain on participants, are mentioned tangentially in a number of case studies and overviews. For example, Plummer and Arai (2005) investigate barriers to citizen involvement in co-management, and find that participants’ feelings of personal disappointment with the process are a major obstacle to successful long-term engagement. Sander (2018) describes the problem of “stakeholder fatigue” associated with co-management, and mentions that long-serving participants referred to themselves as “survivors” of arduous and taxing processes. Similarly, Loucks et al. (2017) mention the “enormous effort and time it takes” to engage in collaborative activities, and that “the required commitment of time and energy may be a limiting factor” to what such processes can achieve.

The purpose of this article is to expand on such observations and propose future research and policy responses to the problem of personal stress. Personal stress is a complex and highly variable phenomenon with physiological, cognitive, and social origins and expressions (Peterson, 2018). Given that co-management involves intellectual labor and intensive interactions with others, we draw primarily on the literature on occupational or work-related stress to conceptualize the problem. This literature defines personal stress as “a pattern of reactions that occurs when workers are presented with demands ... which challenge their ability to cope” (Jarvelin-Pasanen et al., 2018: 500). While the ability to cope is highly variable, experiences of personal stress are more likely when workplace demands and required efforts to complete tasks are high, while control over tasks and supports from others (tangible and intangible) are low (Dawson et al., 2016; Lambert et al., 2019).

Based on our research, we argue that experiences of personal stress are a major barrier to realizing the core goals of co-management. Our analysis is preliminary, based on our collective research efforts across three cases of the co-management of natural resources in the Canadian province of British Columbia. The incompleteness of the portrait we paint is due to the fact that we did not intend to study the issue of personal stress, but observed that participants made repeated reference to this challenge in our interviews and observations across the cases. Going forward, we intend to incorporate questions about personal stress into our research agenda, and encourage others to do so as well. From our data and observations, we submit that personal stress for participants in co-management comes from at least five sources: (1) the time, financial, and opportunity costs involved, particularly as they affect work and family life; (2) frustration with co-management processes or with the actions of government partners; (3) the social stresses involved in navigating conflicts and divisions that manifest within the process; (4) the burden of representing groups or interests and being a two-way intermediary for information and argumentation; and (5) the pressure of making decisions under conditions of uncertainty that may have long-term social-ecological consequences. We consider each of these in turn, and make recommendations to participants, researchers, and policy-makers to better address problems of personal stress resulting from participation in co-management processes.

2. Case research

The case research discussed in this article has been conducted in British Columbia, Canada, regarding the co-management of aquatic and terrestrial resources. Two of our cases involve the management of Pacific salmon fisheries, and the third involves a community forestry initiative. The cases were selected because each involves structured, multi-stakeholder co-management processes in sectors and/or regions that have experienced conflicts over resource access and governance (see Young and Matthews, 2007; Nguyen et al. 2016a, 2016b). British Columbia is Canada's westernmost province, with a long history of resource extraction (Marchak, 1983; Harris, 2001). For much of the twentieth century, fisheries and forestry in British Columbia were regulated in a top-down manner, with key decisions made in corporate and government offices (Barnes and Hayter, 1997). This began to change in the 1990s, as yields began to fall and environmental challenges across resource sectors became more evident (Marchak et al., 1999). The political winds also shifted during this time. First Nation (indigenous) groups won a series of court rulings asserting their rights to be consulted over resource development in their traditional territories. Environmentalism in the province coalesced around the high-profile struggle to preserve old growth forest in Clayoquot Sound on Vancouver Island, which forced the provincial government to negotiate directly with local groups and international organizations to end the protests (Hayter, 2003). Declining harvest levels created conflicts at the local level, prompting communities to demand a more direct role in resource governance (Nguyen et al., 2016a). Facing a crisis of legitimacy, the federal and provincial governments began devolving key responsibilities to local and regional actors and "re-engaging" them as partners and facilitators (Young, 2008). Co-management emerged as a key element in this strategy for defusing local conflict and re-legitimizing decision-making about resource management (Matthews and Sydneysmith, 2010). Historically, this means that British Columbia has been one of the most important sites of co-management policy experimentation in Canada and internationally, but these initiatives are being deployed under conditions of environmental and social strain.

The primary research objective in each case study was to examine how participants in co-management (including community-level stakeholders, government representatives, and scientists and experts) evaluate competing knowledge claims and management options (see Young et al., 2016a, 2016b). Our first case involves salmon fishing in the Fraser River watershed, which is the world's most productive salmon region but is challenged by warming waters and reduced returns of adult spawners (Hinch et al., 2012). The Fraser hosts a number of important fisheries, including commercial fisheries near the mouth of the Fraser, a large recreational fishery (in-river anglers) and economic and "food, social and ceremonial" First Nation fisheries that use gear such as beach seines and gill nets (Cohen, 2012). Our second case involves salmon fishing on the western coast of Vancouver Island (WCVI), which is home to a large commercial fishery, a marine sport fishery that primarily serves tourists, a small in-river recreational fishery, and First Nation fisheries. This region is challenged by declining salmon populations and problems of by-catch of threatened populations (particularly Chinook and coho populations). The third case involves a community forestry initiative in a remote region of British Columbia's central coast. This region has a tradition of large-scale corporate forestry that has been in long-term decline, and the community forest initiative is an attempt to simultaneously conserve local forest resources, encourage new uses, and direct a portion of harvest to small businesses in the region.

Co-management arrangements differ across the three cases. In the Fraser River, co-management involves the federal Department of Fisheries and Oceans (DFO), the Canada-US joint body the Pacific Salmon Commission (PSC), and a range of user groups. The PSC operates a formal co-management organization called the Fraser River Panel that was established by the Canada-US Pacific Salmon Treaty in 1999, and includes members appointed by the Canadian and US governments.

Membership typically includes government, First Nation, and stakeholder representatives. In parallel but separate processes, DFO engages bilaterally with First Nation groups, and also with sector and conservationist stakeholders. These engagements occur separately, but the groups come together for some planning, decision-making, and review efforts, such as annual Integrated Fisheries Management Planning (IFMP) processes (Cohen, 2012). DFO's co-management process in the Fraser River watershed is regular and continuous, but also fluid and often informal (Cohen, 2012: 77).

The co-management process in the WCVI region has been constructed around the presence of "Salmon Roundtables" that were initiated in 2005 by DFO and facilitated by a community group called West Coast Aquatic (West Coast Aquatic, 2019). Roundtables operate in five regions on the WCVI, organized by geographic fishing area. Membership on the Salmon Roundtables include representatives of First Nations communities, local governments, marine sport fishers, commercial fishers, conservation groups, tourism operators, river anglers, and in some cases forestry and aquaculture companies. While DFO engages bilaterally with First Nation groups (as in the Fraser River watershed), the Salmon Roundtables bring representatives of First Nations and various sectors together with DFO officials to engage in consensus-based planning around Pacific salmon fisheries management. The Salmon Roundtables generate non-binding advice to DFO on issues of policy, fisheries closures, restoration efforts, and stock assessment. The Salmon Roundtables have also served as an important vehicle for handling tensions among user groups by fostering regular contact and communication in a structured environment (West Coast Aquatic, 2019).

The community forest initiative in British Columbia grants significant autonomy over forest management to local actors, but requires extensive coordination and reporting to authorities in the provincial government. Community forests must be administered by not-for-profit agencies such as societies, must consider non-timber uses of forest spaces and resources, and must submit plans and reporting for audit by provincial authorities. Among the identified goals of the community forest program are to "provide long-term opportunities for achieving a range of community objectives, values and priorities; to diversify the use of and benefits derived from the community forest agreement area; ... to promote community involvement and participation; and to promote communication and strengthen relationships between aboriginal and non-aboriginal communities and persons" (BC Community Forestry Association, 2019). As such, they involve a high degree of vertical and horizontal collaboration.

3. Methods

Research in the Fraser River and WCVI regions has been a mix of semi-structured interviewing with co-management participants, in-depth discussion with organizers, and ethnographic observation of select co-management processes. The Fraser River research was conducted from 2013 to 2016, involving 151 interviews with government employees, sector representatives, and community leaders. The sample population was constructed from membership lists of co-management committees along the lower Fraser River (between the cities of Vancouver and Kamloops) and public lists of government employees involved in salmon management in the Fraser River. In addition to the interviews, members of the author team participated in five workshop sessions with co-management participants during this time. The workshops were held annually and attended by approximately 40–50 people each year (see Young et al., 2016a).

The research in the WCVI region began in 2017 and is ongoing. A total of 62 interviews have been conducted with organizers and participants in the Roundtables. The sample population was determined in consultation with leadership of West Coast Aquatic. In addition, five Roundtable meetings have been attended by members of the author group as observers. Research on the community forestry initiative was conducted in 2008–2009 as an exploratory pilot study. Seven semi-

structured interviews were conducted during this time with local members of the not-for-profit society administering the community forest, as well as users of forest resources. The sample population was determined in consultation with staff of the municipal government of the community administering the forest. More detail on the research methodologies employed for the three case studies is provided in a Supplementary Material file.

While our collective research experience with co-management in British Columbia is extensive, the empirical foundation for analyzing issues of personal stress is admittedly weak. As mentioned, we did not intend to investigate this problem. We therefore do not have a standardized interview question to report in this article, but rather a series of accounts and observations that provide hints of underlying themes that we submit are relevant for researchers and policy-makers. Unexpected stories and accounts frequently arise in qualitative research and pose a methodological challenge. Standard practice in semi-structured interviewing is to allow interviewees to digress from a set list of questions, with the interviewer asking improvised follow up questions until the digression is exhausted, then returning to scripted questions (Wengraf, 2001). This is the interviewing technique that we employed in all three cases. However, Klenk (2018) argues that “the stories we don’t elicit” in research interviews should not be interpreted as mere digressions. Instead, “the stories that puncture our tidy methodologies” are often highly significant because they reveal connections in people’s thinking and experiences. While researchers may want to know how a process such as co-management works, interviewees may be more interested in talking about how the process feels and how it connects to other parts of their lives. Unexpected stories are therefore critical to understanding personal and social experiences; they are only unexpected because researchers did not anticipate them (Klenk, 2018). A truly reflexive qualitative methodology demands that we pay attention to such emergent themes, even if our initial portraits are incomplete (Mauthner and Doucet, 2003). In this spirit, the findings we present below should be considered exploratory and the themes we identify tested by future research across a variety of contexts.

The issue of personal stress first came to our attention through mentions of “burnout” and related terms such as exhaustion and hardship by interview participants. Despite the absence of a specific question on the personal costs or impacts of involvement in co-management, the burdens borne by participants in co-management were mentioned by a number of participants across the cases (for example, “You get worn down, truly. The personal cost is high and I’m getting a bit tired of that, kind of worn out.” (Vancouver Island interview #8)). Following the standard method, interviewers typically took a few moments to explore the issue before returning to the interview script. In preparing this article, we searched our transcripts for these themes and re-read these discussions. Using an inductive coding process (Thomas, 2006), we coded them thematically, identifying five distinct sources of personal stress that we discuss in the following section.

4. Personal stress: Five dimensions of a complex problem

The stresses of participation in co-management were discussed in a variety of ways. This thematic diversity is reflected in Table 1, which summarizes our main findings. While we present these as discrete dimensions or sources of personal stress, we highlight that they are not necessarily so in the experiences of participants themselves.

4.1. Costs of participation

The first dimension refers to the costs of involvement. By costs, we mean valued things expended or foregone due to participation in co-management processes. In interviews, participants mentioned a range of costs, including time, financial costs, and strains on career and family life. For example, the following quotation illustrates the difficulty some participants have in paying their own expenses in order to participate in

Table 1
Dimensions of personal stress for participants in co-management.

Dimension	Description based on interviews and observations
Costs of participation, including time, financial and opportunity costs.	Feelings of unremunerated or unacknowledged demands and sacrifice; regret about costs to loved ones.
Frustrations with process, and/or with central government agencies.	Feelings of detachment or social distance from central government regulators or decision-makers; feelings of wasted time due to slow progress or unrealized goals; feelings of circularity and going through the motions.
Stresses of coping with conflicts and divisions within the co-management process.	Anxiety about interpersonal conflict or tension; impressions of becoming a focal point for broader conflicts; feeling of old wounds being opened.
Burden of representing groups or interests and being a two-way intermediary.	Apprehensions about being a go-between across different cultures and levels of government; discomfort with being called upon to justify or explain the positions of others; feelings of being viewed as “selling out.”
Pressure of making uncertain decisions that may have long-term consequences for one’s social-ecological community.	Apprehensions about fragile ecosystems; feeling the burden of future generations; reluctance to having one’s name attached to decisions; anxiety about legacy; worry about community cohesion and the well-being of others.

a voluntary process:

“We’re all volunteers, [and] it’s costly for people who are not being paid to attend [meetings]. Little things like paying for gas add up over time, right? I know some folks who pay for a babysitter every time they come to a meeting. That’s a big ask to make of folks, right?” (Community forest interview #4)

The direct costs of participation in co-management are mentioned in a number of other studies as a downside to participation (e.g., Olsson et al., 2004; Armitage et al., 2009; Acheson, 2013). However, respondents also mentioned indirect opportunity costs, such as lost opportunities to spend time with family and/or pursue income-generating activities. For example, a number of participants mentioned that participation in co-management events cost them business or work income (“When I travel to a meeting, it’s a day I’m not working, and that’s a real cost for me” – Fraser River interview # 35). The burden on family was also raised by some participants (“It’s not easy to tell [my spouse] over and over again that I have to be at another meeting, another commitment, and that I won’t be home to be with [our] kids” – Fraser River interview # 66). It is also worth noting that participants rarely participated in just one committee or process. Respondents noted that, having agreed to sit on one committee or process, they are frequently pulled into others. We heard respondents reference being “consulted to death” by a variety of government agencies at federal and provincial levels operating in multiple spheres. This cumulative pull on time and energy is an important cost that may not be evident when looking at single co-management efforts in isolation.

4.2. Frustration with process

The second source of personal stress involves frustration with the process itself, or with the actions of government agencies relative to that process. This is often linked to feelings of disillusionment or disappointment with a lack of recognition or results:

“There is sort of long term, I’m not going to call it burnout, but it’s the same thing I’m facing where you’ve been at it for a long time. The processes are slow, the results are slow to manifest themselves, and that becomes frustrating.” (Vancouver Island interview #8)

“The number one [stress] foremost is frustration ... you come out of it frustrated, you got to go home, you’ve got kids, you’ve got a wife, you’ve got a life outside of this, and you leave there feeling frustrated and like - what the hell am I doing here? You feel like - especially with the government - that it’s just falling on deaf ears. ‘Yep, yep, we’re aware of that. Yep, we’re working on that’ but nothing gets done. You know? So, that is extremely frustrating and it pours over into your personal life. You’re frustrated, driving home, you’re pissed off, you don’t sleep properly. This is our livelihoods we’re talking about.” (Vancouver Island interview # 19)

4.3. Coping with conflict

The third dimension involves the stresses of experiencing and managing conflicts that directly manifest in or result from the co-management process. In all of our cases, conflict among sectors has occasionally flared, and co-management is seen as an important means of managing and defusing inter-group tensions. However, the conflicts are themselves stressful. Numerous respondents mentioned the challenge of tackling controversial issues in the presence of others who hold fundamentally different views (see also [Stevenson and Tissot, 2013](#)). These difficulties are not just limited to meetings, however. One respondent recounted a story of how his personal views had been accidentally misrepresented in his absence by a government official to another group of stakeholders, leading him to receive angry telephone calls at home (Vancouver Island interview # 14). In another case, a respondent described how he is sometimes called upon to repair relationships with other participants after bad meetings:

“There’s a couple of people [in the meetings] that are very strong personalities. And they kind of take over the meeting sometimes, and it’s hard for the [facilitator] to wrestle back control, and they cause a lot of strife and conflict. So yeah, one individual, and we’ve had one guy here that, just for whatever reason, sometimes he goes off the rails, and he’s just constantly push, push, push for more fish. [After the meeting the other participants] all come to me and go, what was wrong with him today? ... It’s exhausting.” (Vancouver Island interview # 18)

4.4. Burden of representation

The fourth dimension of personal stress comes from the burden of representing a group or an interest within the co-management process. Given the importance of co-management outcomes to people’s livelihoods and economic standing, participants can be criticized by members of their own group for failing to achieve goals or win concessions from others. The following quotation captures this dimension:

“It’s very stressful to be at that [co-management] table. Because everybody has to go back and they have to face all these people. ... And it doesn’t matter who you are, you’re most likely gonna go back to piss off people that feel you didn’t do your job. And it happens to all the representatives, and it happens a lot. And so, you’re getting beat up at the table, beat up in the [community], it makes it so stressful being in those [meetings]. And then you go back and then you have to do all these stressful conversations with other people. And that’s because people don’t really realize what the tables are doing, all they see is that their sector didn’t get what they wanted.” (Vancouver Island interview # 22)

As shown in this quotation, co-management arrangements require participants to serve as an intermediary, whether they want this role or not. Participants are not just representing their group or sector at the co-management table, but also representing the co-management process to stakeholders who are not present. The comment that “people don’t really realize what the tables are doing” implies that the legitimacy of

the process itself sometimes requires justification to non-participants, and that it falls on the participant to explain and defend the process to other members of their sector or group. This appears to be a significant source of stress for some participants.

4.5. Social-ecological uncertainty and consequences

The fifth dimension concerns the potential social and ecological consequences of decisions made within the process. Participants in co-management care deeply about their communities – both human and environmental – and often mention this dedication as motivating their involvement. Decisions taken today have both immediate and long-term effects, including the possibility of cascading negative effects.

The themes of thresholds, tipping points, and irreversible errors were implicitly raised in the two fisheries cases as sources of stress (such themes were not observed in the community forest case). This raises an important point that we believe is underdeveloped in existing literature: while co-management means empowering local people and groups to participate in governance, it also creates a burden of responsibility for outcomes that some participants find stressful. This is particularly the case under conditions of high uncertainty that characterize management of salmon fisheries in British Columbia:

“So many of these decisions are based on forecasts, right? Well, sometimes the forecasts are spectacularly wrong. And that’s always been true, but what’s different now [is that] we own it. It’s not just the government’s fault, you know? If we’re doing some of this planning and deciding, then it’s on us, even if it’s wrong. Sometimes I feel a lot of anxiety about that, you know?” (Fraser River interview #18)

“You can’t expect everything to be exactly right. You’d be disappointed to death. You have to be OK with making a bad decision or whatever. ... There are just too many variables. When it comes to making a decision though, I don’t know, it stresses me. It’s like we’re trying to play God, I don’t know.” (Fraser River interview #12).

Some participants also expressed worry about the well-being of their communities in the context of such challenges. In the first quotation, this anxiety is abstract but connected to fears about the loss of community cohesion. In the second quotation, anxiety is tied to witnessing the emotional distress of other participants within the process:

“I worry about what happens if we don’t get this right. I worry about what will happen to my community if we can’t figure this [problem] out. I worry that people will turn on each other.” (Fraser River interview #71)

The thing that stresses me out about [the co-management process] is that I care about everything. So, if I know, even if I’m not linked to an issue, but if I know that issue is really emotional for two different groups I would feel for them ... I just wish there was a way I could help them.” (Vancouver Island interview #20)

5. Discussion and recommendations

Co-management has great potential to improve environmental governance and empower communities, and much of the academic literature focuses on the degree to which these outcomes are realized or frustrated ([Plummer et al., 2012](#)). In this article, we have argued that attention should also be granted to the direct and indirect effects of co-management on the individuals who participate in these processes. Some of these effects are undoubtedly positive. As argued by [Jentoft \(2005\)](#), participation in co-management can lead to feelings of personal empowerment and worthiness as one’s views and knowledge are integrated into meaningful decision-making. However, negative effects are also possible, and were raised by participants in our case studies with

sufficient regularity to motivate this article. As mentioned, descriptions of personal stress were “unelicited stories” in our research (Klenk, 2018). Our instruments were not designed to investigate the issue of personal stress, meaning that the findings that we have presented are preliminary. Nevertheless, we take this opportunity to advance a number of recommendations to participants, researchers, and policy-makers as starting points for understanding and addressing this problem.

5.1. Recommendations to participants

Our recommendations to participants are advanced with a dose of humility. Participants are not to blame for feelings of stress, nor should the burden of dealing with this problem fall on their shoulders alone. Recommendations about the design and implementation of co-management processes are directed at policy-makers (see Table 2). Our main recommendation to participants is that they be aware of the problem and be attentive to signs and symptoms of stress in themselves and others. Work of this nature is emotionally demanding, and we know from sociological studies of caring industries (occupations that demand empathy, negotiation, and intense interactions with others) that exhaustion and disillusionment are common outcomes (Brotheridge and Grandey, 2002; Hülsheger and Schewe, 2011). Participants should make self-care a priority when possible, including taking breaks from the process and being comfortable prioritizing demands and saying “no” to certain requests for their time and energy. Sharing the burden of

participation with others within a sector or group would help reduce demands on any single individual. Participants should also be understanding and offer help (if they are able) when they see symptoms of stress in other people. Professionals should be consulted in cases of significant or recurring stress.

5.2. Recommendations to researchers

Our recommendations to researchers are not intended as a criticism of existing scholarship, but as a call to expand the research agenda to include more rigorous and regular consideration of the problems we have identified. Our first recommendation is to consider individuals as a discrete level of analysis in research on co-management. Much of the academic literature on co-management is based on case studies (Plummer et al., 2012). There is debate about what should constitute a case - be it a resource, a community, a territory, or a social-ecological feature such as a watershed or a migration route (Nguyen et al., 2016b). However, none of these options consider individuals as a discrete level of analysis. We argue that researchers should be attentive to the particular circumstances facing individuals regardless of how they define their case. In other words, individuals should be conceptualized as embedded in, but analytically distinct from, any particular resource, territory, community or social-ecological feature. This is important because individuals often transcend a given case. For instance, our findings suggest that some people are drawn into multiple co-management processes and arrangements at the same time. This can be due to institutional and jurisdictional realities. To choose but one example, in British Columbia the federal department of fisheries administers different co-management processes than the provincial ministry of lands and forestry, but both are operating in the same communities and territories, drawing on the same pool of potential participants. These connections – and the attendant “structure of demands” – are not readily visible without focusing on individuals as a unit of analysis. Complaints about being “consulted to death” unlikely originate from just one process, but from repeated points of contact by different bureaucracies on multiple issues.

Related to this, our second recommendation to researchers is to pay more attention to the characteristics and lived experiences of participants in co-management. Social science research into co-management tends to be systems-oriented, interested in the process, structure, and outcomes of “learning and linking” and collaborative decision-making. This approach reflects the institutionalist leanings of the core social science disciplines investigating co-management (particularly sociology and political science), as well as the systems thinking prevalent in community resiliency studies inspired by ecology and conservation science (Turner, 2014). The systems approach has been undeniably fruitful for constructing models and frameworks, for identifying best practices, and for drawing lessons across diverse cases. In our view, however, researchers should make an effort to go beyond systems thinking (without rejecting it outright) and investigate the influence of individual-level variables on co-management experiences and outcomes. Co-management systems are built on the foundations of individual and group dedication to the process. This means that the personal characteristics and lived experiences of participants matter more than implied by systems thinking. Qualitative investigations of the contributions made by individuals, both tangible (knowledge and expertise, access to networks, intellectual labour) and intangible (energy and enthusiasm, collegiality, leadership, goodwill) will deepen our understanding of how co-management works, and whether such variables are associated with positive and negative experiences for participants.

Our third recommendation is that researchers pay increased attention to the role of emotion in co-management. Emotions are complex social and psychological phenomena; they can be felt privately by individuals or shared within and across groups, they can motivate or discourage action, and they can enhance or degrade social exchanges and relationships. Emotions are an awkward fit with systems thinking because of this complexity. Nevertheless, we submit that paying direct

Table 2
Recommendations to researchers and policy-makers.

Recommendation	Operationalization	Implications/Results
To Researchers:		
Consider individuals as a discrete level of analysis in research on co-management.	Begin with the participants, chart their involvement in multiple processes across institutions and scales.	Insight into the structure of co-management demands and interconnectivity of processes; connecting the dots across cases.
Pay more attention to the characteristics and lived experiences of individuals.	Use ethnographic methods and open-ended interviewing to elicit unexpected stories.	A counterweight to systems-thinking bias; greater attention to variations in individual experiences (positive and negative).
Investigate and theorize the role of emotion in co-management.	Draw on psychological, social psychological, and sociological theories and measures of emotion; use qualitative methods.	A more complete portrait of motivational, interpersonal and intergroup relations, and personal benefits and costs.
Be more attentive to time and the cumulative effects of participation.	Use longitudinal methods when possible; encourage participants to locate their co-management experiences within life histories and narratives.	A better understanding of the scale and scope of the challenge, and potential points of intervention.
To Policy-makers:		
Understand that personal stress is not exceptional, but a regular outcome of co-management processes.	Shift in thinking, from reactive to proactive planning for mitigating the problem; allowing flexibility in process.	More comprehensive supports for participants; better long-term retention.
Clearly communicate the limits of liability and responsibility to participants and the broader community.	Revise formal and informal communication strategies; issue clear statements about legal liability and moral responsibility.	Mitigation of the sense of risk and responsibility felt by participants.
Expand the notion of capacity-building to include stress management and emotional supports.	Naming the problem; training in stress management and peer support.	Identification of potential burnout and distress earlier; reduced stigma surrounding experiences of stress.

attention to emotion will enrich the study of co-management by nuancing assumptions about what it means to participate in these processes. Experiences in co-management can be satisfying and disappointing, exhilarating and exhausting, positive and negative, and a mix of each. The role of such emotions in knowledge exchange and collaborative decision-making is of significant academic interest and ought to be explicitly integrated into research agendas. We recommend that researchers draw on theories of emotion from psychology, social psychology, and sociology as starting points in this endeavor (e.g., Stets and Turner, 2014; Parkinson and Manstead, 2015).

Our final recommendation to researchers is to be more attentive to the cumulative effects of participation over time. Complaints about burnout and fatigue point to a time dimension that is rarely captured in snapshot studies of particular cases. We encourage researchers to use open-ended interview techniques and to encourage participants to locate their experiences in co-management within broader life histories and narratives. Are there identifiable points at which enthusiasm for co-management waxes and wanes? What factors are associated with individuals “retiring” or withdrawing from co-management processes? Are these associated with particular events or the grind of long-term participation? While we expect that definitive answers to these questions are elusive, a better understanding of factors such as entry and retention, enthusiasm and exit, is essential for mitigating problems of personal stress.

5.3. Recommendations to policy-makers

Turning to policy-makers, our primary recommendation is to take the problem of personal stress seriously and to see it as a regular rather than exceptional outcome of co-management processes. Accepting that personal stress is a common and normal outcome for citizen participants is a first step toward proactive planning to mitigate these impacts. Such planning should involve the provision of appropriate supports to minimize stress whenever possible. Our findings suggest that personal stress has multiple origins and dimensions. Some of these can be addressed

with better tangible supports, such as greater scheduling flexibility (when possible), allowing for the regular rotation of participants and use of alternate members when required, and improved compensation for expenses and lost work and family opportunities.

Other dimensions require indirect support. For example, our interviews revealed that co-management processes can create risk to community-level participants - to their reputations and relationships within their groups and social networks, and within the broader communities in which they and their families live. Such concerns are context-specific and may not be evident to distant policy-makers designing or implementing co-management processes. To help mitigate such stresses, efforts should be undertaken to ensure that front-line government representatives in co-management are sensitized to issues of personal stress. These representatives should take extra caution to avoid causing distress unintentionally, as in the example discussed above of an inadvertent recounting of one group’s position to another that caused significant strain among the local representatives. This will likely take an investment in training of government personnel, but with the benefit of better long-term retention among participants. To assist in sensitizing all actors involved in co-management to the issue of personal stress, we have prepared an infographic that summarizes the problem as we see it (see Fig. 1). We hope that this infographic can be a resource for learning about personal stress and potential avenues for mitigating the problem.

Our second recommendation to policy-makers is to clearly communicate the limits of liability and responsibility to people inside and outside of the co-management initiative. Our findings suggest that participants experience stress about how they are perceived by others, as well as about the long-term or unintended consequences of their decisions. Specifically, anxieties were expressed about the pressures of representing one’s group, about disappointing others not involved in the process, and about making consequential decisions under conditions of uncertainty. To mitigate these anxieties, governments should clearly communicate the mandates of co-management bodies to everyone, outlining the collaborative nature of the process and stating that participants ought not be held responsible for outcomes. To assuage

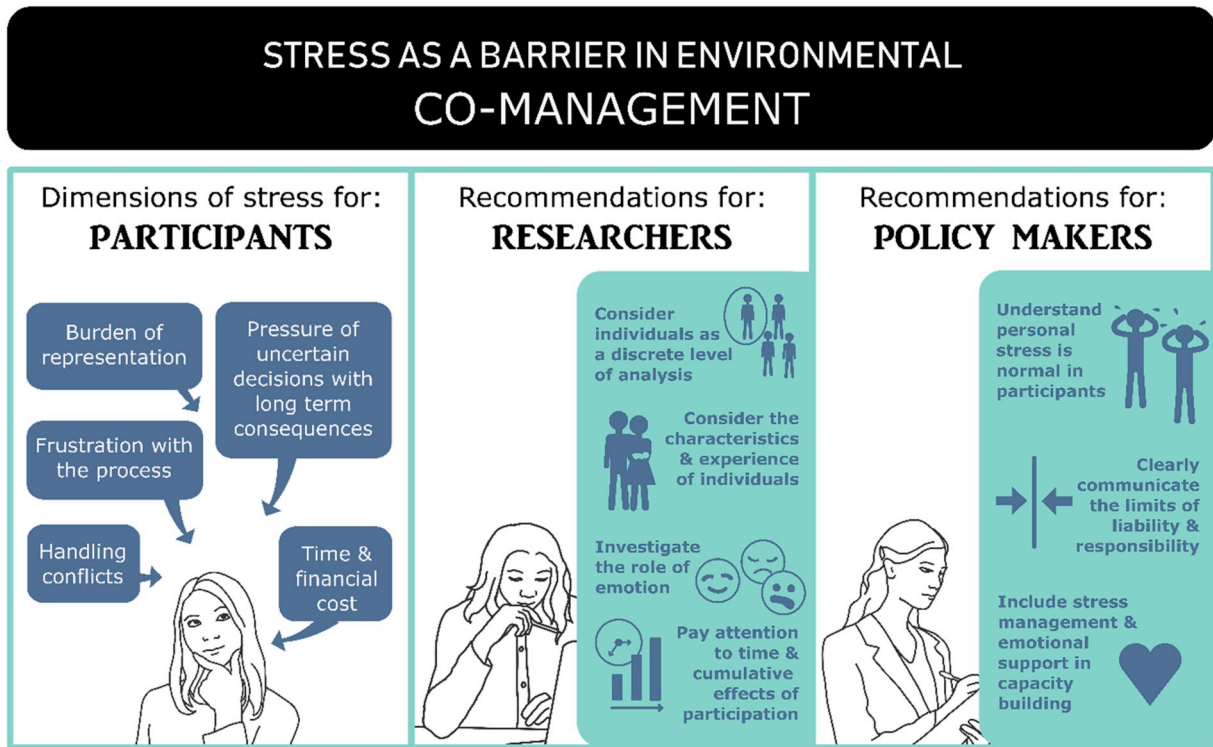


Fig. 1. Stress as a barrier in environmental co-management, an infographic. Artist: Sofia Jain (wiseart.net)

participants as much as possible, governments need to take legal and moral responsibility for all outcomes, including errors.

Our final recommendation to policy-makers is to expand the notion of capacity building. Capacity building is seen as critical to the success of co-management initiatives, but it typically refers to enhancing the ability of local participants to engage with expert knowledge, familiarizing them with bureaucratic norms and structures, and establishing ground rules for procedural decision-making (Jentoft, 2005; Young, 2016). We recommend that capacity building be expanded to encompass stress management and emotional support. Training in stress management and peer support could be included in capacity-building programs. In our view, simply naming the problem would be an important step in the right direction. Public acknowledgement of personal stress issues by government representatives would go a long way towards reducing stigma, and could encourage broader discussion amongst participants and within communities.

6. Conclusion

Much of the debate about co-management has focused on its potential as a more inclusive and flexible form of environmental governance, and the degree to which co-management arrangements temper or extend state power. In this article, we issue a call to pay more attention, in research and policy, to a different type of problem that has been implicitly acknowledged in the literature but rarely directly addressed: that participation in co-management can evoke substantial personal stress among the people it is intended to empower.

Discussions of personal stress emerged in the form of “unelicited stories” (Klenk, 2018) told to us in interviews across a number of case studies in British Columbia, Canada. As such, our findings are preliminary rather than definitive. Nevertheless, the stories we heard suggest that stress is caused by the structure and logistics of the process itself, along with unique challenges associated with participants’ embeddedness in and commitment to their social-ecological communities. Common sources of stress and anxiety include the direct and indirect costs of participation, frustration with central governments and/or process, concerns about social relationships within groups and communities, and distress about the potential long-term social-ecological consequences of decisions made under conditions of uncertainty.

With respect to research, we have argued that addressing the problem of personal stress begins with seeing individuals as a distinct level of analysis in co-management. Recognizing individuals as embedded in but analytically distinct from communities, territories and social-ecological features would give a better sense of co-management as a lived experience, including the structure of demands placed upon people by overlapping bureaucratic systems. The systems thinking that has dominated much of the research on co-management is ripe for a re-think, or at the very least a nuancing. Paying more attention to the characteristics and lived experiences of individuals would, in our view, have significant benefits for theory-building and raise new questions for empirical investigation. We hope this will guide future academic research and discussion.

As for co-management policy, we argue that acknowledging the problem is the first step in addressing it. Our findings suggest that experiences of personal stress reach across contexts, meaning it should be seen as a normal outcome of the demands placed on participants by the process itself. Planning and resources should follow this acknowledgement, including efforts at minimizing stigma, improving communication about liability and responsibility, and reforming programs to include training and resources for stress management. People are a renewable resource, but not an inexhaustible one. Acknowledgement of this reality is critical for ensuring that participation in co-management is as positive, meaningful, and effective as possible.

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Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.jenvman.2019.109820>.

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