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Listening to the Salmon People: Coastal First Nations' Objectives Regarding Salmon Aquaculture in British Columbia

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The growth of salmon aquaculture on British Columbia's Pacific Coast is a source of substantial public controversy. Coastal indigenous people (First Nations), who have derived their culture and livelihood from wild salmon fisheries for thousands of years, have much at stake regarding salmon farm development in their traditional territories. This article considers the values of First Nations people regarding salmon aquaculture. It uses value-focused thinking*, a problem-structure method from applied decision analysis, to characterize First Nations values about salmon aquaculture sites and facilities. It draws on interviews with First Nations people in four coastal communities, each of which has a different level of involvement in salmon aquaculture. The results can be used to create more attractive alternatives and to define information requirements for aquaculture decisions. The findings are an attempt to identify the criteria that should matter from the views of Coastal First Nations when making decisions about aquaculture development.*

Keywords decision analysis, indigenous people, salmon aquaculture, value-focused thinking

"You can't bring something strange into our place without something strange happening." (Hereditary chief from the Namgis Nation)

The search for resources and profit, enabled by new markets and new technologies, has propelled the transformation of indigenous cultures around the world (Diamond 1999). On land, these transformations took place over long periods, as hunter-gatherer cultures were replaced by agriculture and by new migrants. On the sea, these changes have occurred much more recently and quickly. Converting common marine

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resources to private use, such as for commercial fisheries and aquaculture, places tremendous pressures on the values of coastal Indigenous people. Innovative approaches are needed to clarify and interpret such values when making decisions about marine resource extraction and development.

While common property marine harvests have declined worldwide in recent years, aquaculture based on private use of selected coastal sites has grown steadily (FAO 2003). Salmon aquaculture has become important as a major source of protein and a new driving force of environmental, economic, and social change in virtually all countries with suitable cold-water temperatures and sheltered coastlines (including Norway, Scotland, Canada, Chile, and New Zealand). Global farmed salmon production is dominated by a small number of integrated multinational corporations. These firms make investments of technology, capital, and trained people, and obtain licenses to use publicly owned or publicly regulated sites in coastal locations with good attributes for salmon farming. Their farms produce protein and can create employment opportunities in locations where other conventional alternatives are scarce (British Columbia Ministry of Environment 1997). Yet salmon aquaculture raises substantial ecological and social concerns in many locations (Naylor et al. 2003).

In British Columbia (BC), where the majority of Canadian salmon aquaculture production occurs, nongovernmental organizations, coastal communities, and indigenous groups (First Nations) have raised concerns about the ecological, local environmental, and social impacts of salmon aquaculture. Of these groups, Coastal First Nations have perhaps the most at stake in decisions about the development of the salmon aquaculture industry. Virtually all salmon farming operations in coastal British Columbia fall within their traditional territories. Their villages, shellfish beds, salmon streams, and marine "pantries" could be adversely affected by the growth of the aquaculture industry. Conversely, salmon farms have the potential to provide revenues directly to First Nations through joint ventures or licensing agreements with aquaculture corporations.

First Nations communities have a range of opinions about the promise of finfish aquaculture. Local indigenous governments in Port Hardy, Ahousaht, or Kitasoo for example, are in favor of finfish farming and are actively engaged in the activity (British Columbia Salmon Farmers Association 2002). They promote the industry in exchange for the employment that it creates in a time of collapse of traditional economic sectors (such as forestry and mining). In contrast, public positions from communities such as Bella Bella or Alert Bay are fundamentally opposed to finfish aquaculture in their fishing grounds. For these communities, finfish aquaculture directly conflicts with traditional and commercial livelihoods and has generated only marginal local employment opportunities. The growth of salmon aquaculture within all of these communities is divisive, insofar as it cuts across a range of social, economic, and ecological values held by community members.

First Nations governments also hold substantial rights to participate in planning and resource management decisions. Federal and provincial government commitments, consultative obligations, and intentions for treaty settlements have increased the need to integrate First Nations' values into all resource management decisions, including those regarding salmon aquaculture (*Delgamuukw v. British Columbia* [1997] 3 S.C.R. 1010). Advances in treaty negotiations and precedent-setting court cases have led to a slight shift in power relations between federal, provincial, and First Nations governments. Currently, the BC salmon aquaculture industry is

subject to a diversity of existing regulatory and policy requirements, and jurisdiction over salmon farming is primarily shared by the provincial and federal governments (British Columbia Ministry of Environment 1997). However, First Nations have strong interests in, and some degree of local control over, the siting of salmon aquaculture facilities within their traditional territories. Ongoing regional land use planning processes in BC increasingly require First Nations to be present at their planning tables. For example, in the case of the Central Coast Land and Coastal Resource Management Plan, First Nations opted to observe and/or participate but they abstained from decision making in consideration of government-to-government discussions on the final recommendations (British Columbia Ministry of Sustainable Resource Management 2004). Furthermore, the provincial government and resource-based industries now have a fiduciary obligation to consult with First Nations about land use decisions in their traditional territories (*Haida Nation v. British Columbia Minister of Forests and Weyerhaeuser* [2002] B.C.C.A. 462). Indigenous knowledge and newly defined legal rights are being integrated into Western structures of decision making. First Nations' values are clearly a component of planning and policy processes, while legal rights also influence property systems and governance.

In order to provide insight to interested parties, including governments, businesses, and civil society, First Nations' values regarding salmon aquaculture need to be articulated in a way that can help structure and inform resource management decisions. This article employs an approach drawn from applied decision analysis practice to structure and characterise the values of a sample of First Nations people from four communities that are all affected by salmon aquaculture development in their traditional territories. The next section outlines concepts of *value-focused thinking* (Keeney 1992) as an approach to structuring and clarifying First Nations' values regarding salmon aquaculture. The third section outlines the methods, including those interviewed and the structure and format of the interviews. The fourth section then discusses the results of the interviews in qualitative terms, stressing the variety and nature of the value expressions in the interviews. The fifth section provides our interpretations of the value statements, cast in terms of a set of multiple objectives important to First Nations in government decisions about siting new salmon farms. This section also defines some preliminary performance measures and means/ends relationships for those objectives. The sixth section provides discussion on how these objectives could be used to improve First Nations input into regulatory decisions about salmon aquaculture and offers suggestions for further research.

Value Focused Thinking as an Approach to Characterizing First Nations' Values Regarding Salmon Aquaculture

The term "values" is one of the most widely used in social sciences, and could be addressed with a vast range of conceptual bases and methods. Value-focused thinking (Keeney 1992) is one such approach, drawn from decision sciences as a basis for clarifying values for broadening and structuring decision making. In simple terms, it involves characterizing "what matters" from the viewpoint of an individual or group for a given decision context through interviews in which participants are asked to state their interests and concerns for the stated decision. An analyst then structures and refines the results into a set of objectives and performance measures, with feedback from those interviewed. The value information can then be used in several ways

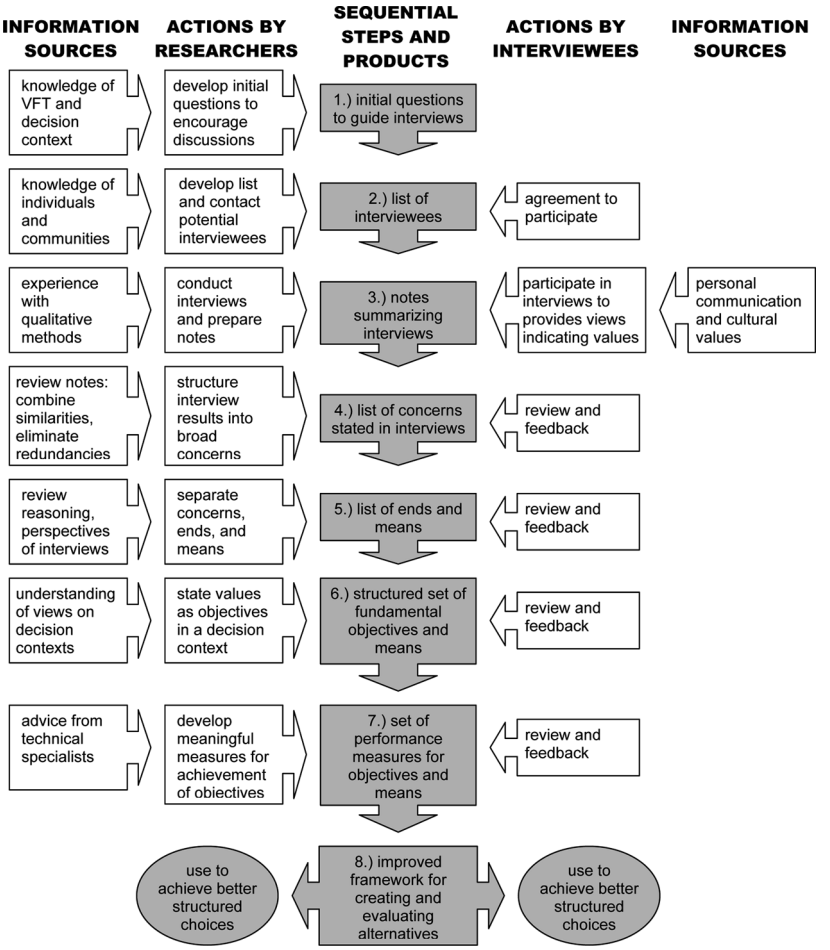

Figure 1. Sequential steps in the value-focused thinking process.

to create a workable, complete, participatory decision process (McDaniels, Gregory, and Fields 1999). Figure 1 is an overview of a generic process for conducting value focused thinking for a group or public policy context, The specific methods for the research in this article, following this model, are discussed in the next section.

Value-focused thinking has been applied in an array of environmental and technology contexts (Keeney 1992). Some of the applications range over corporate planning (Keeney and McDaniels 1999), organizational design (Merrick et al. 2005), research and development planning (Keeney 1992), fostering adaptive management (McDaniels and Gregory 2004), and structuring citizen involvement processes for complex environmental decisions (Gregory, Arvai, and McDaniels 2001; McDaniels, Gregory, and Fields 1999). The approach has been employed with rural and indigenous people, including rural development planning (McDaniels and Trousdale 1999), and in characterizing resource losses due to energy development on the lands of Indigenous people (McDaniels and Trousdale 2005).

Values of First Nations can be used as a basis for characterizing objectives for planning and decision making processes of governments, firms, and the First

Nations. Objectives based on First Nations' values articulate which consequences are desirable and which should be avoided. They can be used in four important ways that aid better decision making with regard to aquaculture development. First, value-focused objectives can be used to develop performance measures that provide insight into what information is necessary to understand the consequences for different alternatives in the industry. Second, these objectives can help to create more attractive, widely supported alternatives. Third, performance measures derived from objectives aid in analyzing trade-offs among alternatives currently under review in the provincial and federal governments. Finally, specifying objectives that are grounded in peoples' values often reveals additional or different kinds of decision opportunities that can provide outcomes that are more desirable to more people (Keeney 1992). This article focuses on the first two of these applications, while providing a basis for other research intended to identify and compare alternatives.

Using the values of First Nations communities (in combination with values from provincial and federal governments, the salmon aquaculture industry, environmental groups, and others) to derive objectives and to structure decisions in a constructive way can provide a workable framework for discussions that might otherwise be adversarial. First Nations have used similar approaches to express their values in environmental assessments and management of other natural resource sectors (Dalle and Potvin 2004; Hopwood 2001; Kristensen and Lykke 2003; Wolfley 1998; Waterfall et al. 2001). The framework for value-focused thinking is designed to help redress power imbalances by encouraging honest, participatory processes (Keeney and Gregory 1994, 1036). The approach offers First Nations an avenue to express their preferences for development in their traditional territories.

Methods

From October to December 2002, in-depth interviews were conducted with 18 individuals (6 women and 12 men) from four remote First Nations communities on the BC coast: Ahousaht, Alert Bay, Bella Bella, and Fort Rupert (Figure 2). These communities were selected because they are located at or near existing salmon aquaculture sites and they are representative of First Nations communities along BC's coastline where salmon aquaculture is most prevalent. The Ahousaht Nation is a current member of the Pacific Salmon Farmers Association, while the remaining bands have members employed in the salmon aquaculture industry and have active salmon aquaculture sites in their traditional territories (British Columbia Salmon Farmers Association 2002). The political contexts in these communities range from signed agreements-in-principle between the Ahousaht Nation and Pacific National Aquaculture to proceed with new sites in fall 2002 to active protests by the Heiltsuk Nation at Ocean Falls on January 15, 2003 (Turtle Island Native Network 2003; Sierra Legal Defense Fund 2003).

The basic purpose was to explore First Nations' views on what matters and what should be considered when making decisions about salmon aquaculture in their territories. Interviewees were composed of elected and hereditary Band Council members as well as lay community members. Each one had some involvement with the salmon aquaculture industry, either as a decision maker, an employee, or a relative of an employee. They were selected based on their position in their communities, availability, and willingness to participate. In most cases, the interviews were semistructured, face-to-face conversations lasting about 1 hour, although three

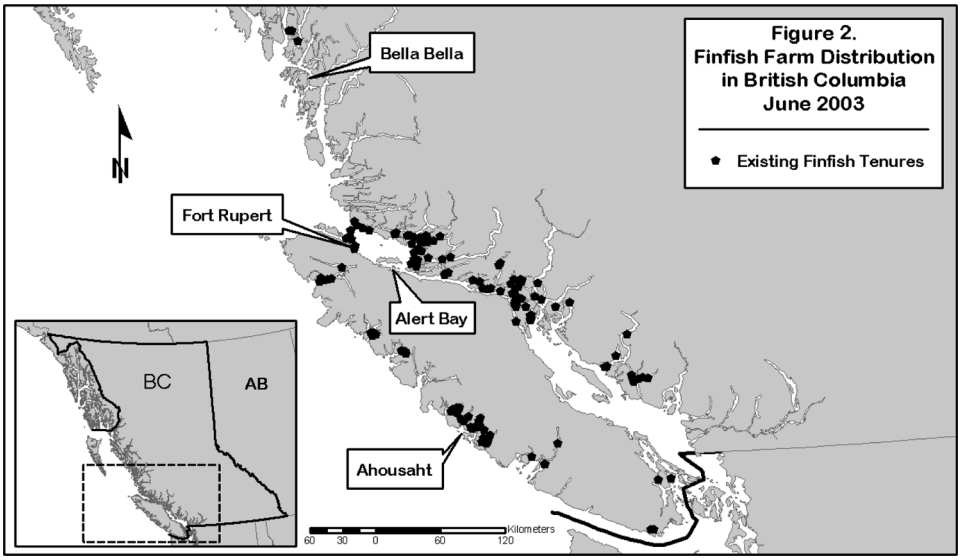

Figure 2. Finish farm distribution in British Columbia, June 2003. Existing finfish tenures are shown as stars.

interviews were done by telephone and one was through e-mail. In order to broaden the thinking in the interviews, thematic questions were posed to facilitate an interactive dialogue.

Interview questions were designed to elicit general and specific information about participants' values regarding salmon aquaculture development in a nontechnical, inviting, and informal manner (see Table 1). The questions established a framework for each interview and provided a starting point for an interactive dialogue about the interviewee's views on salmon aquaculture in his or her territory (Step 1 in Figure 1). Agreement to participate, and consent to use the results for this study, were obtained from each participant (Step 2). Detailed notes were taken for each interview, summarizing points raised and related issues (Step 3).

The process outlined in Figure 1 served as a basis for interpreting and making use of the interview results to clarify First Nations' objectives for decisions related to salmon aquaculture. It also followed the steps of value focused thinking as discussed in the various applications noted earlier (e.g., Keeney 1992). First, the responses were compiled under four broader themes of concerns: siting, costs and benefits, process, and consequences (Step 4). This list of concerns included both ends and means, as well as many other related issues, such as broad cultural concerns, views on aquaculture technologies, and views on related approaches to generate local employment. The next step was to try and separate fundamental ends—reasons for concern about aquaculture—and means—ways to help achieve objectives (Step 5). Ends and means were distinguished according to the reasoning behind responses to questions about why a given concern was important to First Nations. If an issue was identified as an interest that leads to some other more basic concern, it was viewed as a means. If it represented an essential reason for interest in the decisions about siting salmon farms, or other related decisions, it was an end or fundamental objective (Keeney 1992).

Similar concepts expressed in the interviews in slightly different words were combined to avoid redundancy. The intent was to build a set of objectives that were compact, complete, understandable, and useful for guiding decisions (Keeney 1992). Once ends were distinguished from means, then each end was cast in terms of an objective for decision making by identifying each separate object, a decision context, and a direction of preference. For example, protecting the marine environment was viewed as a fundamental end, or a reason for concern about aquaculture. More protection is preferred to less (direction of preference) within choices regarding aquaculture (the decision context) (Step 6). For each of Steps 4 through 6, one of the interviewees served as a source of advice and feedback to ensure the ways of structuring the information generally made sense from the First Nations' viewpoint. Finally, the set of fundamental objectives and means objectives was reviewed by some of the original interviewees and presented at a workshop hosted by the British Columbia Aboriginal Fisheries Commission in June 2003. They confirmed that the preliminary set of structured objectives reflected their concerns regarding salmon aquaculture.[1] Discussion in subsequent workshops also confirmed the relevance of the structured objectives, discussed later in this article.

Interview Results

Responses to the questions listed in Table 1 were consistent among territories where interviews were held. In other words, location and, more importantly, the existing relationship to salmon aquaculture in the community where the participants live did not greatly affect the stated values. Summaries of these qualitative results are presented in the following sections, including direct quotes from selected interviews. Issues that arose in almost every interview included credibility of information, environmental consequences to wild salmon ecosystems, threats to traditional livelihoods, governmental and industry obligations to consult with First Nations, individual and community health, economic development opportunities, and safety. Those concerns framed the responses to subsequent questions. In the discussion that follows, we characterize the interviewees' concerns and values regarding salmon aquaculture, often using their words.

Concerns and Values Regarding Siting Issues

Table 1 summarizes the responses to questions about siting salmon farm developments. Several important ideas were raised in multiple interviews. The first was proximity of salmon farms to sites for clam digging, wild salmon fishing, herring fishing, and seaweed collection. In the words of one respondent, "Fish farms shouldn't be anywhere where they could affect the traditional harvesting of resources." The second was the option of land-based, closed-containment sites for salmon farming. One interviewee stated that "there is no room for fish farms in the ocean. It's expensive money-wise, but not environmentally, to put fish farms on land." Notably, the proximity of a salmon farm to a village was regarded by some as an advantage and by others as a disadvantage, based on considerations regarding employment and liveability. Finally, most interviewees stated that it was important to have ocean-based salmon farms in areas where natural flushing occurs from strong ocean currents, to prevent bioaccumulation of waste on the sea bottom near the aquaculture site.

Table 1. Interview questions and responses

Siting

Where is a good place to have a fish farm?	Where is a bad place to have a fish farm?	What are some regional considerations for developing fish farms along the coast?
• In areas where natural flushing occurs • In closed-containment units • On land • In open ocean where there are greater ocean currents • Near villages for easy access	• Near wild salmon streams • Near clam beaches • Near herring spawns • In closed bays where there are less ocean currents • Near villages because of odor and noise • Anywhere in the ocean • Near seaweed forests	• Cumulative effects • Region's ability to participate in the global market for wild fish versus farmed fish • Amount of information required to derive a regional strategy • Overlap in traditional territory boundaries • Protecting freshwater sources • Technological advances for land-based salmon farms • Joint ventures between First Nations and aquaculture industry corporations

Costs and benefits

What do you think are the major issues associated with fish farms?	What would be a successful fish farm?	What would be a disastrous fish farm?
• Environmental degradation of the marine environment • Health concerns • Poverty in First Nations communities, and associated social problems	• One that creates stable, long-term, skilled employment • One that generates profit for the community • One that provides community stability • One that has benign waste processing • One that farms local species of shellfish • One that produces value-added products • One that learns by beginning with land-based fish farms	• One where overhead exceeds a revenue • One where the sea bottom is contaminated • One where Atlantic salmon escape into the wild ocean • One where fish are infected with sea lice • One where pesticides and antibiotics are used • One that contaminates shellfish harvesting sites • One where profits and jobs are exported outside the community • One where there is high, short-term investment with no long-term gain

Process

What is the right process for deciding where a fish farm should go?

- Local participation in decision making from the outset
- Protocols established between the First Nations community, government, and industry
- Respect indigenous values
- Be transparent and honest in business negotiations
- Permits should be granted by First Nations governments
- Employ best practices and comprehensive research
- Utilize the precautionary principle and adaptive management

What social considerations should be included in decisions about fish farms?

- Distribution of profits and benefits
- Maintenance of traditional fisheries and practices
- Potential conflicts between elected and hereditary leadership

Where do you get information about fish farms?

- Meetings with the provincial government and fish farm corporations
- Treaty negotiations
- Media (newspapers, television, magazines)
- Published academic and government journals
- Conversations with fishermen, government officials, hereditary chiefs, and elders
- Regional, national, and international conferences
- Environmental nongovernmental organizations

Consequences

What might be some of the consequences of having a fish farm in your territory?

- It may disrespect elders' wishes
- It may limit or close access to other traditional food sources
- It may interfere with the commercial harvest of wild fisheries
- It may create dissension in communities that are trying to heal from past conflicts
- It may take advantage of First Nations communities that are vulnerable to bad development
- It may cause economic leakage and long-term community instability

Who wins when a fish farm is built?

- Corporations that build infrastructure
- Corporations that market farmed fish
- Employees of fish farms and their families
- Provincial government from tax revenue and tenure licensing fees
- Elected tribal councils
- Community members
- Fish farm industry supporters

Who loses when a fish farm is built?

- Other marine species whose habitats are destroyed by fish farms
- Fish farm competitors
- Traditional resource harvesters
- Commercial fishers
- Elders and traditional leaders
- Community members
- Wild salmon stocks

Responses to the question about aquaculture development at a regional scale revealed different perspectives regarding Indigenous traditional territory boundaries and administrative planning regions established by the provincial and/or federal government. One interviewee said, "I don't know other people's territories so I can't answer how many would be suitable along the entire coast of BC. I just know there shouldn't be fish farms in our area." Some important considerations that arose during the conversations about regional development included cumulative effects, the region's ability to participate in the global market for wild fish versus farmed fish, the amount of information required to derive a regional strategy, the issue of overlap in traditional territory boundaries, protecting freshwater sources, allowing for technological advances for land-based salmon farms, and the possibility of joint ventures between First Nations and aquaculture industry corporations. Many respondents suggested that there were already too many salmon farms in BC and one person noted, "The government does not have enough information to build a good regional strategy for fish farms. It's just all about the dollar in their decisions."

Concerns and Values Regarding Costs and Benefits

Potential successes and disasters for salmon farm development that were envisioned by the respondents are summarized in Table 1. Some of the poignant responses from this series of questions relate to community-based economic development. First Nations recognize their economically marginalized position in the current market society. Yet, the majority of people interviewed for this article believed that poverty and associated social problems in First Nations communities will not be solved by expanding the salmon aquaculture industry. According to a respondent, "Sacrificing survival for short-term economic gain is not worth it." It is also important to note that at least four interviewees indicated that it is impossible to have a successful fish farm because there are too many health and environmental reasons for not farming salmon. Another respondent indicated that "a successful fish farm does not farm salmon—sea cucumbers, shellfish, and prawns would be successful fish farms."

Concerns and Values Regarding Decision Processes

Given the recent advances in First Nations involvement in resource management decisions, the process for making decisions about salmon aquaculture development is crucial. Table 1 summarizes responses to questions about process and information sources. Based on their experiences, every participant had an informed opinion about how land use decisions should be made in their territory. It was pointed out that having local participation ("going to the roots," as one respondent put it) regarding salmon aquaculture in BC was already preempted when the provincial government lifted the moratorium on new salmon aquaculture licenses, without consulting First Nations (ENS 2002). Many comments suggested that, from their viewpoint, integrated decision making requires more transparency and honesty on the part of the provincial and federal governments. Examples included, "There should be respect for people who are affected by the outcome of decisions made in their territory," "Neglect and disrespect will, and does, result in direct action," and "First Nations start to trust government and every time they let us down because they pretend to hear what we have to offer but then disrespect us behind our backs."

Some possible innovations in institutional design were discussed. Based on the model for eco-tourism developed in the Gitga'at Territory (Uehara 2001), more than one interviewee (from different communities) put forward the idea of First Nations' tenure approval systems for foreshore leases that authorize any building or development in the foreshore area, as is necessary for salmon aquaculture. Building on mutually beneficial protocol agreements between environmental nongovernmental organizations and First Nations, several participants elaborated on the content of possible agreements among provincial and federal governments, aquaculture corporations, and First Nations' governments to stipulate best practices and comprehensive research approaches for salmon aquaculture developments. Most importantly, several participants mentioned use of the precautionary principle and adaptive management, suggesting that advances in land-based aquaculture systems were important first steps for BC's salmon farm industry.

These discussions about decision-making processes were shaped by development challenges facing First Nations people. Respondents indicated that employment in First Nations communities was essential to any poverty alleviation strategy. Several interviewees emphasized the importance of providing employment opportunities for young adults who might otherwise resort to social assistance or leave reserves in search of jobs. At the same time, the promise of skills development in aquacultural practices also raised concerns over the loss of traditional harvesting skills that First Nations have developed and employed over thousands of years. As one chief said, "We don't want to see the young people lose the skill base to sustain themselves after fish farming fails." For First Nations who have struggled to preserve their traditional ways of life since European contact over two centuries ago, fish farming is seen as a threat to their culture. In the words of one respondent, "You can't bring something strange into our place without something strange happening." Two interviewees from different communities also mentioned that an infusion of wealth into their communities from increased employment could lead to increased alcoholism and drug abuse unless there are effective healing programs in place.

Concerns and Values Regarding Consequences of Salmon Aquaculture Development

Finally, the responses to questions from the consequences theme in Table 1 reflect the uncertainty that exists regarding the future of salmon aquaculture in BC. Depending on how salmon farm developments are structured, communities could win or they could lose. If revenues are redirected into community development projects such as the construction of a "big house" or environmental restoration projects, First Nations can see themselves benefiting from salmon aquaculture. If agreements are structured to move profits out of the community, First Nations are no further ahead. In either case, the natural environment that provides a significant portion of the traditional food fishery runs the risk of being destroyed, in the view of those interviewed.

Based on failed past ventures in their communities, many First Nations are wary of provincial government involvement in business negotiations with multinational corporate interests in their traditional territories. A noteworthy point is that the elders and hereditary leaders that were interviewed in this study remain fundamentally opposed to salmon aquaculture. Many have been fishers for decades. They maintain that there is no shortage of wild salmon, suggesting that the federal government and industry participants create a myth about declining wild fisheries

populations. Within some First Nations communities, dissention between traditional and elected leadership has been on the rise. Conflicting perspectives on salmon aquaculture could exacerbate those conflicts.

Results Expressed as Objectives and Performance Measures for Planning and Policy Decisions

Table 2 elaborates on the fundamental objectives that were deduced from the interview results. It summarizes each objective category and specifies what it entails. For example, the objective regarding environmental protection is stated as "Promote protection of the natural marine environment." We use the term "promote" to indicate direction of preference, while avoiding the potential confusion of terms such as maximize or minimize. The latter terms are often misconstrued in these contexts to imply there is only one important objective. The subdivisions under that fundamental objective indicate what aspects of the marine environment are significant to the First Nations in salmon aquaculture decision contexts. Interpreting Table 2, the ideal alternatives for salmon aquaculture development, from the First Nations viewpoint, would be ones that create no adverse effects on the marine environment, provide local economic development opportunities, improve the status of First Nations individual and community health, encourage and enhance First Nations traditional livelihoods,

Table 2. A Preliminary characterization of First Nations' fundamental objectives for decisions related to salmon aquaculture in their traditional territories

- Promote protection of the natural marine environment
  - Wild salmon stocks
  - Shellfish stocks
  - Other marine species
  - Marine ecological systems
  - Marine habitat
- Promote First Nations community economic development
  - Stable, long-term, skilled employment for Band members
  - Band-related business opportunities
  - Sharing benefits of aquaculture development
- Promote health in First Nations communities
  - Community health
  - Individual health
- Promote protection of traditional livelihoods
  - Fishing
  - Harvesting/collecting
  - Crafting
- Promote good governance of salmon aquaculture
  - Assertion of aboriginal rights and title
  - Effective cooperation with provincial and federal governments
- Foster learning about the salmon aquaculture industry
  - Monitoring impacts of existing facilities
  - Conducting research in partnership with First Nations
  - Negotiating joint ventures and other business deals

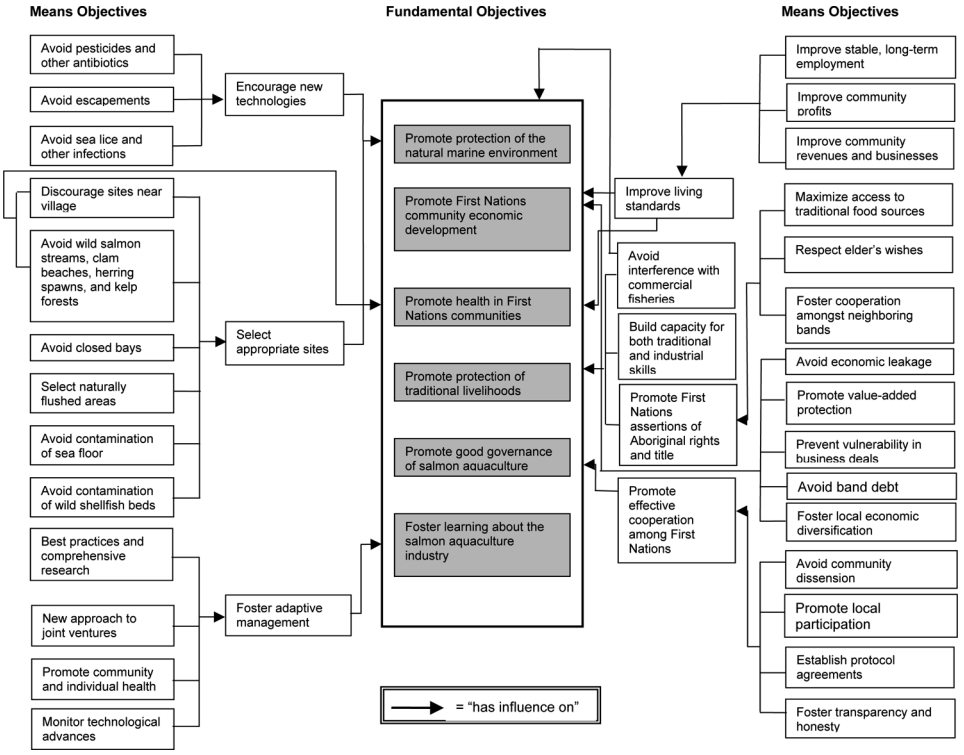

Figure 3. Means–ends network to characterize linkages among First Nations Objectives regarding salmon aquaculture.

contribute to the betterment of governance regarding salmon aquaculture decisions, and provide opportunities for learning about the salmon aquaculture industry.

Figure 3 is a means–ends objectives network that characterises the linkages among First Nations' objectives regarding salmon aquaculture and the means available to achieve those objectives. The column in the center of the figure briefly summarizes a preliminary view of the objectives of fundamental importance to First Nations, in the context of decisions regarding salmon aquaculture in their traditional territories. The sets of boxes linked to the center column with arrows are various means that First Nations identified as important to achieve the fundamental objectives, as discussed earlier. Figure 3 illustrates a way of navigating through the steps for making better decisions about salmon aquaculture, drawing on the words and concepts expressed in the interviews with First Nations members. The fundamental objectives are the ultimate ends of importance in the decisions, while the means are elements that can be combined to create attractive strategies.

It is unlikely that the perfect alternatives—ones that perform well on every objective—will be available. Instead, First Nations can use the objectives in Table 2 and the means–ends network in Figure 3 to think through the potential trade-offs among these objectives and strategies. The alternatives they can create through this method will aid them when making decisions about development in their traditional territories and will guide them through subsequent interactions with governments and corporations.

Discussion

Fundamental issues about salmon aquaculture arise when First Nations are given an opportunity to discuss the topic within the context of their territory. First, First Nations require access to credible information about the social, ecological, and economic consequences of developing salmon farms in their territories. Second, because Coastal First Nations' cultures are inextricably connected to the salmon that fed their ancestors, they are obliged to steward their territories. Protecting the environment that provides for their livelihood is of utmost importance to them. Third, their culture has been threatened by assimilation for more than two centuries, and requires protection. Preserving indigenous culture means, among other things, maintaining opportunities for traditional food gathering and respecting the wishes of elders and hereditary chiefs. Fourth, First Nations are moving forward in their assertion of aboriginal self-government. Part of the requirement for self-government is jurisdiction and authority to participate in decisions that directly affect their livelihoods. Fifth, after years of marginalization, First Nations want to improve the health of the communities and their members. To do so, they are working to alleviate poverty and improve the living standards. Finally, related to improving the health of their communities, First Nations are thinking strategically about how to enrich the community economic development opportunities that can bring stability to their people. Focusing on diversification strategies that favor indigenous ownership and management of core industries, they are exploring opportunities that bring revenue, investment, and employment to their people.

By integrating values of those most directly affected by the salmon aquaculture industry, decision makers may reach outcomes that are more desirable to First Nations and, as a result, easier to implement. The complexity of unresolved land claims in British Columbia means that First Nations are much more than stakeholders in the current debate over salmon aquaculture. They have a unique role to play in land-use decisions because of their increasing influence over how the lands and waters in their traditional territories should be managed, both in the courts and in coastal land and resource management planning processes.

Bringing First Nations values to a land-use planning or policy development process in a structured, rational way may help to eliminate the adversarial setting that is all too common in current government to government negotiations. By explaining First Nations preferences for stewardship in their traditional territories, this analysis may forge the way to creating more alternatives that meet with broader support from British Columbians.

Note

1. It would have been desirable to have more extensive interaction with the interviewees throughout Steps 4 through 7, but their remote locations made this awkward. The feedback in the workshop served as the basis for clarifying and confirming the findings.

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