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The importance of beliefs in predicting support for a South Coast National Marine Conservation Area in Newfoundland and Labrador, Canada

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ABSTRACT

Marine Protected Areas (MPAs) frequently fall short of their stated goals as marine conservation tools due to various regulatory, physical, sociocultural, and economic reasons. MPA designation, however, continues to be used for perceived conservation and socioeconomic benefits for adjacent communities. Local beliefs regarding ecological and socio-economic outcomes often influence the public support for MPAs and ultimately their effectiveness. This paper focuses on understanding local residents' beliefs regarding a potential South Coast National Marine Conservation Area (NMCA) in Newfoundland and Labrador and how those beliefs influence resident support for the NMCA. Data were collected from 180 Burgeo residents through a household survey. While 33% supported the designation of a South Coast NMCA, 43% opposed it and 26% were unsure. A principal component analysis (PCA) extracted five belief constructs. A regression model was used to examine relationships between these constructs and support for a South Coast NMCA. The results indicate that perceived economic development and marine conservation were the best predictors of support for NMCA establishment. Qualitative data analysis supported these findings and was used to better understand these relationships, with a minority of respondents seeing economic opportunities and protection and conservation as causes for support of the proposal. Qualitative responses also revealed strong concerns about the loss of traditional and current means of livelihood. If a South Coast NMCA is to be considered feasible it will require greater support and a shift in resident beliefs. This will require effective stakeholder engagement and increased educational and information campaigns.

1. Introduction

Marine protected areas (MPAs) can refer to a variety of spatial management strategies with different levels of regulatory strictness. Throughout this paper we refer to MPAs in a general sense or as the IUCN defines them: "Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part, or all, of the enclosed environment" (Kelleher and Kenchington, 1992 p.98). Canada is home to 797 Marine Protected Areas (MPAs). Reasons for protecting marine areas in Canada include, mainly, protection of ecological and socio-cultural values, as well as opportunities for sustainable harvesting (Government of Canada, 2010). Ecological, cultural and socioeconomic management objectives of MPAs vary for each sociocultural and environmental setting (Agardy et al., 2003; Dahl-Tacconi, 2005; Heck and Dearden, 2012). Parks

Canada is responsible for National Marine Conservation Areas (NMCAs), a type of MPA through which marine areas are managed for sustainable use with smaller zones of high protection (Parks Canada, 2010). NMCAs "encourage public understanding, appreciation and enjoyment" (Dearden and Rollins, 2009 p. 407); this differs from stricter no-take MPAs, implemented by Fisheries and Oceans Canada (DFO) or Environment Canada. While clear differences between NMCAs and MPAs exist, it is unknown whether these differences are understood by the public.

1.1. Background

Similar to the terrestrial program of protected areas and ecoregions, Parks Canada has an objective to represent each marine region in Canada with an NMCA. Currently, Parks Canada has established only four NMCAs out of the possible 29 identified marine regions in its

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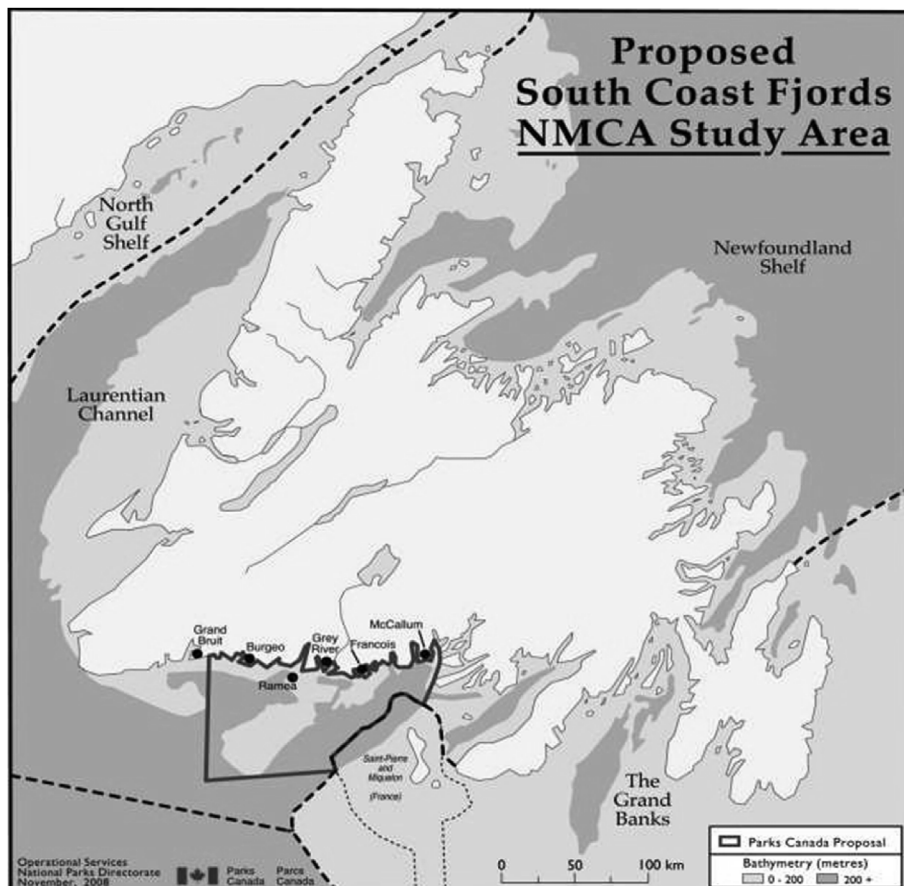


Fig. 1. Parks Canada's proposed South Coast Fjords NMCA study area.

NMCA program (Parks Canada, 2008, 2014). A South Coast NMCA in Newfoundland and Labrador (NL) would allow Parks Canada to represent the identified Laurentian Channel Region. The southwest fjords of Newfoundland are marked by low sandy beaches in the west to large granite cliffs and deep fjords in the east. The marine environment is considered to be ecologically rich, providing habitat for several species of whales (humpback, minke, orca and the globally rare and endangered blue whale). Endangered leatherback turtles and piping plover also frequent the area. The region boasts a diversity of migrant land and shorebirds and a productive spawning, nursery, rearing, and feeding area for lobster (CPAWS, 2011).

The potential for a South Coast NMCA has captured the interest of several groups, including: residents of Burgeo and other South Coast communities, Parks Canada and the NL chapter of the Canadian Parks and Wilderness Society (CPAWS). In February 2012, however, the Government of NL turned down Parks Canada's request to complete a South Coast NMCA feasibility study to advance the establishment of a potential fifth NMCA (Ballam, 2013), citing concerns about restrictions on aquaculture development, subsea oil and mineral exploration (Ballam, 2013; McLeod, 2013).

1.2. Research context

Successful establishment and management of conservation regimes often rely on public consultation and participation. Stakeholder engagement is presently seen as crucial to the education and understanding of benefits generated from MPAs and is regarded as a necessary condition for success (Charles and Wilson, 2009; Dearden and Rollins, 2009; Fiske, 1992; Kelleher, 1999; Kenchington and Kelleher, 1995; Walley, 2010). Benefits of early involvement include negotiation and mitigation of adverse effects, as well as avoiding consequence of late stage conflicts (Cocklin et al., 1998; Kenchington and Kelleher,

1995; Smith, 1982). Few studies exist that examine the direct relationship between beliefs and support for marine conservation initiatives. Those that have been conducted, however, gauge public knowledge and perceptions more broadly and demonstrate that understanding knowledge and perceptions can help resolve tensions between socioeconomic development and protection of marine environments (Wolfenden et al., 1994), thus reinforcing the need for baseline studies assessing levels of local support for the establishment of NMCAs and other forms of MPAs.

Perceptions of socioeconomic and ecological outcomes may ultimately determine the potential support for and success of a South Coast NMCA (Agardy et al., 2003; Bennett and Dearden, 2014; Christie et al., 2003; Heck et al., 2012). The benefit of gauging perceptions of local stakeholders (e.g. fishers) and encouraging participation in the planning processes of MPAs, range from increasing support to decreasing alienation (Suman et al., 1999; Gleason et al., 2010). Our research focuses specifically on understanding levels of resident support (or opposition) and how public beliefs influence support for designation of a South Coast NMCA. Although perceptions have been used as a broader term to encompass both beliefs and attitudes in the marine literature we have narrowed our focus on beliefs from a human dimensions perspective. Beliefs are judgements about what is true or false – judgements about what attributes are linked to a given object (Rokeach, 1973; Allen et al., 2009). An understanding of beliefs is valuable towards predicting behavioral intention to support conservation initiatives (Vaske and Donnelly, 1999). Understanding the public's level of knowledge along with their beliefs toward an MPA can also prove beneficial toward successful implementation of MPAs (Charles and Wilson, 2009; Davis, 2002). These social factors fall within the realm of 'step-zero' of MPA establishment: ensuring the conditions, drivers, and processes are acceptable prior to MPA planning and establishment (Chuenpagdee et al., 2013).

A human dimensions-approach can be useful in understanding what local residents believe will be the impacts (i.e. negative or positive) of marine conservation initiatives and how these beliefs influence policy, management, and decision-making processes (Majić and Bath, 2010; Decker and Chase, 1997; Wolfenden et al., 1994). The overarching goal of this research is to document and identify Burgeo residents' beliefs regarding a potential South Coast NMCA and gauge levels of support or opposition. This will allow for continued discussion of the feasibility of a South Coast NMCA and will help to inform future decision making regarding its establishment. Ultimately this research will help fill a gap in the academic literature on public perceptions of conservation measures in relation to the marine environment.

2. Material and methods

2.1. Study area

Newfoundland and Labrador is located in the Northeastern Atlantic Ocean. Parks Canada's proposed South Coast NMCA study area is a 15,000 km² portion of the South Coast off the island of Newfoundland. It extends from just east of the community of McCallum to east of the resettled community of Grand Bruit (Fig. 1). For the purpose of this study, sampling efforts were focused on the Town of Burgeo due to the accessibility of the town (it is the only community accessible by road). Further, Burgeo is the largest of the communities within the greater area. This allows it to act as the service hub (i.e. hospital, supermarket) for the remainder of the four communities. Burgeo's 1465 residents represent 61% of the region's population, which was 2400 in 2011 (NL Stats Agency, 2014a, b); Burgeo has also displayed a keen interest in the South Coast NMCA through its leadership in the initiative (CPAWS, 2012). For our survey, we targeted the adult population of Burgeo (i.e. over the age of 18) which was approximately 1240 individuals or 89% of the population (NL Stats Agency, 2014b; Stats Canada, 2013).

2.2. Survey design

A mixed, intra-method (quantitative/qualitative), pre-tested questionnaire (Katsirikou and Skiadas, 2010) was employed to assess local residents' attitudes and beliefs regarding a potential South Coast NMCA. Possible outcomes of MPAs presented in the questionnaire were derived from a review of the relevant literature. Conservation and biodiversity impacts of MPAs (e.g. Halpern, 2003), impacts to fish stocks (e.g. Lester et al., 2009; Salm et al., 2000) and fisheries (e.g. Roberts et al., 2001; Russ and Alcala, 2011), informed the possible ecological outcomes. Furthermore, various authors have summarized the expected socio-economic costs and benefits of MPA establishment such as restrictions to industry or enhanced tourism (e.g. Hoagland et al., 1995; Lemelin and Dawson, 2013). This method of questionnaire design was favored over traditional methods of using focus groups or key informant interviews due to limited time and resources for the study. Our method of questionnaire design was therefore deductive (Burnard et al., 2008; Spencer et al., 2003). Limitations to this method include its potential for bias and inflexibility regarding theme and theory development (Burnard et al., 2008). The importance of these apparent costs and benefits is subjective, emphasizing the importance of measuring public values, attitudes, and beliefs concerning these possibilities.

Quantitative questions were closed ended with answers displayed on a Likert response format (−2 = Strongly Disagree, 0 = Neutral, 2 = Strongly Agree), while qualitative questions were open-ended. Questions were designed to assess local residents' perceived knowledge and beliefs regarding and support for a South Coast NMCA. Perceived knowledge was measured using one item in the questionnaire: "how knowledgeable are you with the concept of a NMCA?". Beliefs were measured using 14 quantitative (see Table 1) and four qualitative items in the questionnaire. Lastly support was measured using one item in the questionnaire: "On a scale from 1 to 5 do you support or oppose the

potential designation of the South Coast as a National Marine Conservation Area?". Themes underlying the survey questions included: economic development, marine conservation, cultural enrichment, industrial development, and access to fishing.

Qualitatively beliefs were assessed throughout the questionnaire using four open-ended questions: 1) When you think of a South Coast NMCA what comes to mind, 2) What might be the negative and (3) positive impacts of the South Coast Region becoming a NMCA, and 4) Why are you opposed, supportive or neutral towards a South Coast NMCA?

2.3. Data collection

Field data were collected in the months of April and May of 2015. A total of 402 questionnaires were distributed to each household through a method of door-to-door visits. Respondents were instructed to have one adult in the home complete the questionnaire. Approximately two weeks were allowed for questionnaires to be completed (i.e. drop-off/pick-up method) (Glasow, 2005; Vaske, 2008). The drop-off/pick up method is considered advantageous particularly for small communities (Salant and Dillman, 1994).

2.4. Data analysis

Quantitative data were analyzed using IBM SPSS version 23. A principal component analysis (PCA) was used to extract broad themes within the belief items from the questionnaire. Reliability analysis were then run on all factors to ensure items accurately measured the broader themes or concepts in which the PCA grouped them. We used the factors as supervariables (independent) in our regression analysis. Lastly, an ordinary least squares regression analysis was run to test the level of influence that specific belief components have on Burgeo residents support or opposition to the establishment of a proposed South Coast NMCA.

Transcribed, qualitative data from open-ended questions were organized and analyzed using NVIVO 11. These data were first coded into individual themes that correspond to each individual question. A word frequency query then allowed for coding into sub-themes for the 5 most frequent words used by respondents. Qualitative data were presented with quantitative data to complement, support and/or contradict and expand upon any findings of the quantitative analysis. Qualitative data are presented with quantitative measures (e.g. % of respondents referencing a key word or idea) along with specific quotes to represent the sub-themes generated.

3. Results

3.1. Descriptive results

A total of 180 useable questionnaires were returned completed, yielding an overall response rate of 45%. The majority of respondents identified as male (68%), while 32% of respondents identified as female. Respondents over the age of 56 accounted for 64% of the sample, residents aged 46–55 years represented 19%, residents aged 36–45 comprised 9% of the sample, residents aged 26–35 represented 6% of the sample, whereas residents aged 18–25 comprised only 1% of the overall sample. These characteristics of our sample are similar to the census data for the community of Burgeo, with the exception that our sample consists of a higher percentage of male respondents (NL Stats Agency, 2014b; Stats Canada, 2013).

Quantitatively, beliefs were measured in the questionnaire using 14 specific question items. PCA analysis extracted the five expected belief constructs from these questions: 1) promotion of economic development (3 items), 2) promotion of marine conservation (3 items), 3) promotion of cultural enrichment/attachment to place (3 items), 4) restriction to industrial development (3 items), and 5) restriction to

Table 1
Principal Component Analysis on beliefs regarding the establishment of a South Coast NMCA and the reliability estimates for each extracted factor.

| A South Coast Marine Conservation Area will... | Factor | | | | | Mean | SD | Cronbach's Alpha |
|--|--------|------|------|------|------|------|------|------------------|
| | 1 | 2 | 3 | 4 | 5 | | | |
| Beliefs about Attachment to Place | | | | | | | | .90 |
| ...preserve outport towns... | .908 | | | | | 2.89 | 1.48 | |
| ...preserve rural outport culture... | .891 | | | | | 2.91 | 1.43 | |
| ...save South Coast communities from resettlement... | .884 | | | | | 2.68 | 1.43 | |
| Beliefs about Economic Development | | | | | | | | .95 |
| ...diversify the region's economy..... | | .849 | | | | 3.16 | 1.13 | |
| ...promote economic development... | | .834 | | | | 3.20 | 1.20 | |
| ...increase tourism... | | .788 | | | | 3.35 | 1.24 | |
| Beliefs about Industry Restrictions | | | | | | | | .84 |
| ...restrict industrial/economic development... | | | .863 | | | 3.37 | 1.27 | |
| ...restrict aquaculture development... | | | .844 | | | 3.31 | 1.30 | |
| ...restrict oil and gas development... | | | .841 | | | 3.70 | 1.29 | |
| Beliefs about Marine Conservation | | | | | | | | .85 |
| ...conserve marine life... | | | | .903 | | 3.65 | 1.24 | |
| ...benefit marine species... | | | | .862 | | 3.51 | 1.31 | |
| ...rebuild fish stocks... | | | | .687 | | 3.41 | 1.32 | |
| Beliefs about Fishing Restrictions | | | | | | | | .86 |
| ...restrict access to fishing... | | | | | .874 | 3.70 | 1.39 | |
| ...close the current fishery... | | | | | .856 | 3.34 | 1.48 | |

fishing (2 items) (Table 1).

Reliability estimates for the five belief constructs ranged from 0.84 to 0.95 (Table 1). Overall Cronbach's alpha could not be improved by deleting any items for each of the constructs. The recommended corrected item total correlations of 0.4 was exceeded in all cases (Vaske, 2008). For these reasons, specifically, all items were grouped together with their respective belief theme constructs.

For the qualitative information, coding for question one highlighted two broad themes from a word frequency query: 1) protection and conservation (30%) and 2) restrictions/threats to fishing (23%). Question two (perceived negative impacts) presented one broad theme: restrictions, limitations and loss (82%) with particular regard to fishing and hunting (43%), people and livelihoods (18%), and industrial development (5%). Question three (perceived positive impacts) responses revealed two main themes: 1) economic opportunities (28%) and 2) protection and conservation (20%). Finally, question four (why support or oppose an NMCA) coding revealed mainly concerns for restrictions & loss of livelihood and the current way of life (28%) for those opposed and expectations of economic development (25%) for those in support (Table 2).

3.2. Regression model

Regression analysis showed the predictive potential that the five

Table 2
Burgeo residents' reasons for support, opposition and neutrality regarding the establishment of a South Coast National Marine Conservation Area.

| Do you support a South Coast NMCA? | Why? (Beliefs) | Percentage | Sample Responses |
|------------------------------------|---|------------|--|
| Oppose | Restrictions & loss of livelihood and the current way of life | 28% | "restricts hunting/fishing which is our way of life" "...we would lose everything that we have access to all our lives: fishing, mussel picking, troutng etc." |
| Support | Expectations of economic development | 25% | "To promote tourism, create jobs, preserve/conserv species (e.g. codfish)" "anything that gets work in the area" |
| Neutral | Perceived lack of knowledge or need for more information | 34% | "I really don't know enough about what impact an NMC area would do for this area" "...there are too many unknowns to give a beneficial answer, not enough information." |

belief construct themes have on the behavioral intention to support or oppose the establishment of a South Coast NMCA. The belief that a South Coast NMCA will promote marine conservation was the most significant factor in predicting support ($\beta = 0.33, p < .001$). Beliefs of economic development promotion was the only other significant predictor of support for a South Coast NMCA ($\beta = 0.32, p < .001$). Beliefs that a South Coast NMCA will promote cultural enrichment was not a significant predictor of support ($\beta = 0.14, p = .07$). Beliefs that a South Coast NMCA will restrict industrial development ($\beta = -0.04, p = .5$) and restrict fishing activities ($\beta = -0.05, p = .47$) both suggested opposition, but were not significant predictors of behavioral intention. The regression explained 45% of the total variance ($R^2 = 0.45$) suggesting relationships are substantial according to Vaske (2008) (see Fig. 2).

4. Discussion

Despite several studies alluding to the importance of beliefs in determining attitudes and behavioral intention towards wildlife management issues (e.g. Manfredo et al., 1997; Zinn et al., 1998), few studies have examined the direct relationship between beliefs and support for marine conservation initiatives. However, it is suggested that measuring and understanding beliefs contribute to effective management, governance and decision making regarding marine

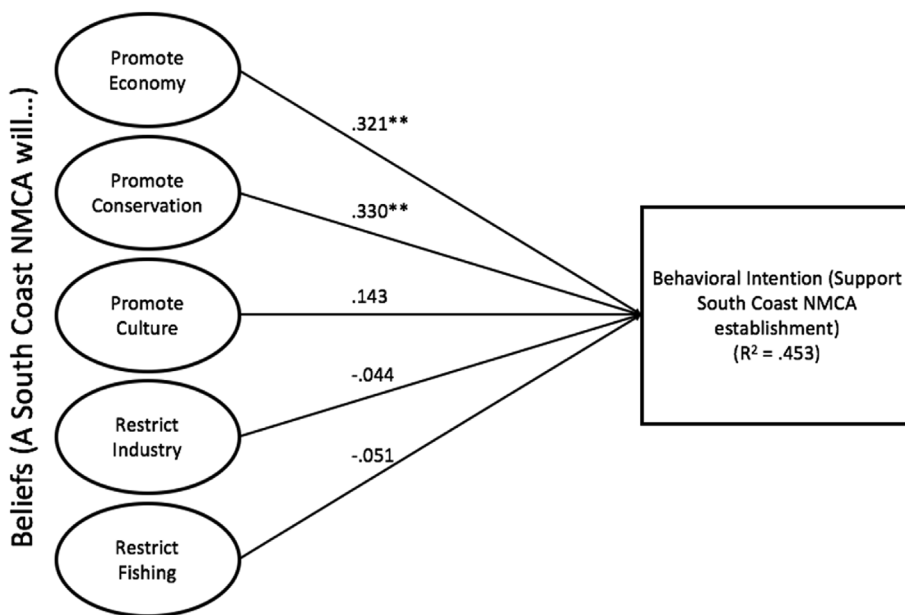


Fig. 2. Regression model of standardized regression coefficients for each relationship between beliefs and support regarding a South Coast NMCA.

conservation (Engel et al., 2014; Evans, 2009; Suman et al., 1999). Our findings revealed marine conservation and economic development beliefs were the most significant predictors of support, strengthening the argument that perceptions of socioeconomic and ecological outcomes may determine the potential support for and success of a South Coast NMCA (Agardy et al., 2003; Bennett and Dearden, 2014; Christie et al., 2003; Heck et al., 2012). Furthermore, qualitative data (e.g. responses to open ended questions such as what comes to mind, positive impacts, and reasons for support) revealed beliefs regarding economic development opportunities for the area (e.g. jobs) among some residents, with some mention of tourism and wildlife conservation. For example, individuals mentioned: “government investing money in the area with possible jobs” and “there will be money spent to develop the area for conservation purposes and jobs created to manage and maintain it.”

Residents' expectations of economic development combined with protection and conservation and continuing traditional livelihood activities to achieve a balance, displays a tendency toward sustainable development thinking. This makes sense considering the economic history of the Burgeo area has long been based on marine resources, particularly fishing (Hamilton and Butler, 2001; SRC, 2013).

A declining economy accompanied by the fear of losing rights and distrust of management by provincial and federal agencies (all of which were present in this study) are thought to be contributing factors to the above concerns (Lemelin, 2008; Lemelin et al., 2010). The declining economy of Burgeo is attributed mostly to the loss of a vital industry in 1991 with the Northern cod moratorium. As of 2011, Burgeo's unemployment rate was 43.9% while its employment rate for those 15 years and older was 29% (NL Stats Agency, 2014b). This accompanied by subsequent outmigration of young workers and a population decline of 12.2% (2006–2011) may explain the importance of potential for economic development in determining support for a South Coast NMCA.

Predictors of opposition, while not statistically significant, still showed a tendency towards not supporting NMCA establishment. These included beliefs about restrictions to fishing and industrial development. Findings from qualitative data on perceived negative impacts and reasons for opposing a South Coast NMCA revealed perceived restrictions to local peoples' livelihoods, mainly involving hunting and fishing. This lends further support to the predictors of opposition. Concerns for livelihood strategies (e.g. hunting and fishing) being quite prominent in Burgeo residents' perceptions of an NMCA, is consistent with that of residents of the Andaman Coast in Thailand and their perceptions of

Marine National Parks (Bennett and Dearden, 2014). Participants in that survey were particularly concerned about the “exclusion of fishers and subsistence harvesters from the area” (Bennett and Dearden, 2014, p. 110). Again this was a reoccurring theme for Burgeo residents and to some was seen as crucial to the continuing life of the community: “if you turn this into a reserve you would be just as well to resettle us”; “many depend on hunting and fishing for survival and support” and “if you are ... prohibited from fishing, hunting, walking, swimming and boating then you have no other purpose on earth to live.” Perceived threats to livelihoods and negative impacts on local stakeholders should not be underestimated as they can ultimately thwart attempts at NMCA designation, as seen at Bonavista- Notre Dame Bays, NL (Dearden and Rollins, 2009). This illustrates conflicting priorities between residents' concerns for traditional activities and government interest in future industrial development.

Knowledge levels of respondents may play an important role in understanding why residents believe a South Coast NMCA will bring socioeconomic restrictions and therefore oppose designation. Sixty-three percent of respondents completed the questionnaire with little knowledge of what a NMCA entails. This may account for beliefs around restrictions or loss of rights and access to livelihood activities, despite Parks Canada's promises to allow for such activities in an NMCA. Positive attitudes toward conservation in general have been found to be positively correlated with education and knowledge of the conservation issue at hand (Aipanjiguly et al., 2003; Decker et al., 2010; Fiallo and Jacobson, 1995). Some supportive respondents displayed such knowledge levels with references to balancing a traditional lifestyle (e.g. sustainable fish harvesting) with protection of the marine environment, resembling the management objectives of NMCAs (Parks Canada, 2010). During Lake Superior NMCA planning stages, Parks Canada claimed that support grew steadily over a four-year period as information became available and a clear proposal emerged (Parks Canada, 2001). This may indicate the potential for changing support levels in the future through information and education, if a South Coast NMCA feasibility study is pursued.

Another plausible explanation for expected restrictions, despite Parks Canada's (2010) mandate for maintaining sustainable traditional activities (e.g. fishing and hunting), is a distrust for the federal management agency as seen in Northwestern Ontario near the proposed Lake Superior NMCA (Lemelin, 2008; Lemelin et al., 2010). Trust with managing agencies may not only shape one's perceptions of restrictions, but also may determine compliance to protected area regulations where

a protected area is implemented (Stern, 2008a). Furthermore, active opposition by local residents towards neighboring parks can potentially arise as a result of distrust for institutions and managers (Stern, 2008b). The following quotations from respondents offer support for some Burgeo residents' distrust with potential governing and managing agencies associated with a South Coast NMCA: "I feel that your reason for the South Coast Region to become a NMCA is just another way someone is trying to take more rights away from the people of the South Coast"; "leave well enough alone, we are not doing anything to destroy this town, so don't you either"; "Honesty being non-existent when government officials get involved makes me nervous as to what really will take place in the area"; "Newfoundland was never a "have not" province we are a "can't have" province, where the decisions are made without consultation with the user groups."

Ultimately, findings based on quantitative and qualitative data from this study of Burgeo residents and the proposed South Coast NMCA resemble findings from other studies that protected areas in general can elicit positive perceptions of economic diversification in some, while negative perceptions of intrusive management tools by others (Cartwright, 2003; Cormier et al., 2008; Lemelin et al., 2010).

5. Conclusion

In this study Burgeo residents' beliefs related to a South Coast NMCA were identified and documented. Understanding those beliefs is a key step towards determining support levels toward the potential NMCA. Residents' beliefs highlight directly what locals perceive will come of a South Coast NMCA. Burgeo residents who opposed South Coast NMCA establishment believe that it would restrict fishing and, to a lesser extent, industry. Burgeo residents who supported South Coast NMCA establishment believed it had the potential for both marine conservation and economic development. This is expected in an aging community with a declining economy attributed to the loss of a crucial fishing industry due to overfishing and hence, inadequate marine conservation. While an NMCA may have the potential to help address these conservation concerns, beliefs about restrictions to the already limited, commercial fishery arises as an indicator of opposition to a South Coast NMCA. Identified beliefs also assisted in understanding knowledge levels. Burgeo residents displayed low perceived knowledge, with the majority of respondents stating they were very unknowledgeable with the concept of an NMCA. Furthermore, beliefs about restricted access to fishing are not entirely aligned with Parks Canada's mandate to allow for traditional sustainable activities to occur in an NMCA. This suggests the need for education and improved communication between Parks Canada and NMCA advocates and South Coast residents.

Attention to the findings of this study provides a stronger grasp on beliefs and knowledge levels of Burgeo residents regarding a South Coast NMCA. This information may be used to focus future communication and education campaigns towards addressing knowledge gaps. With a greater understanding of Parks Canada's mandate, residents may be swayed in their support levels. If a feasibility study is to be considered for a South Coast NMCA a clear communication strategy is needed to educate the public not only on Parks Canada's mandate, but also on the variety of MPAs in Canada, and their differing ecological and socio-economic objectives and outcomes. We recognize that influencing attitudes and in turn support levels requires much more than effective education and communication strategies. The suggested action from this study is not to change attitudes or behaviour through environmental education, but simply for marine management agencies to provide more information on the differences between MPA's and NMCA's in hopes to dispel any misinformed beliefs (e.g. NMCA's completely close fishing and hunting). Again education and information campaigns on behalf of agencies such as Parks Canada have a major role to play to develop a better understanding of what a South Coast NMCA will entail. Following such educational campaigns further studies should be performed to examine any shift in attitudes.

Our research provides a starting point to addressing the various types of conflicts (e.g. cognitive, value, economic, behavioral) associated with marine conservation issues. With a greater understanding of these conflicts, management and decision making can be better equipped to further address the potential feasibility of a South Coast NMCA.

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