BRITISH COLUMBIA
OIL AND GAS RESOURCE MANAGEMENT
PUBLIC OPINION SURVEY
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FINAL REPORT

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EXECUTIVE SUMMARY

The purpose of the *British Columbia Oil and Gas Resource Management Public Opinion Survey* was to inform the BC Oil and Gas Commission and the Science and Community Environmental Knowledge (SCEK) Fund about British Columbians' opinions and beliefs about the exploration, development, regulation, and management of oil and gas resources within the province. This report summarizes responses received from four regions of British Columbia: Vancouver Island/Lower Mainland (Development Regions 1 & 2), Coastal BC (Development Region 6), Southeastern BC (Development Regions 3 & 4), and Central-Northern BC (Development Regions 5, 7 & 8).

The survey instrument was a twelve-page booklet that contained questions that comprehensively measured people's attitudes and beliefs about a wide range of issues and challenges regarding the exploration, development, regulation, and management of oil and gas resources in British Columbia. The fourteen questions that made up the survey were:

Question 1: Opinions and beliefs about the management of oil and gas resources in BC;
Question 2: Opinions and beliefs about how people relate to the environment;
Question 3: Previous involvement in natural resource management decision-making through public participation opportunities;
Question 4: Opinions about the relative priorities for sustaining natural resource values;
Question 5: Opinions about the trustworthiness of different sources of information about oil and gas development;
Question 6: Opinions about the safety of oil and gas development in BC;
Question 7: Opinions about the importance of local ecological, economic, and social management objectives for oil and gas development;
Question 8: Opinions about local oil and gas development issues;
Question 9: Opinions about the management of rare plants and animals (*i.e.*, species at risk);
Question 10: Attitudes and opinions about climate change;
Question 11: Knowledge about different aspects of oil and gas in BC;
Question 12: Participation in outdoor recreation;
Question 13: Opinions about the economic contribution of oil and gas in BC; and
Question 14: Demographics.

There was also space for respondents to provide general comments. Analysis of these comments is not provided here.

The delivery of the survey employed a four-contact approach in order to maximize the rate of return. The first contact letter was sent Monday, July 4th 2011; the final contact was sent Friday July 22nd 2011. Based

on the population of British Columbia, the initial sample size was determined to be 3,086 people. A total of 1,326 responses were received by September 27th 2011. This represents a 43.0% response rate after correcting for undeliverable addresses; the number of current returns is sufficient to estimate a sample error of ±2.69% 19 times out of 20. Respondents represented a range of ages, educational backgrounds, occupations, and household income levels. 54.8% of respondents were male and 45.2% were female. Generally, respondents were longstanding residents of their communities. Respondents were generally biocentric in their attitudes.

The following priorities for sustaining natural resource values were identified by provincial residents:

1. Sustaining clean drinking water resources.
2. Sustaining biological richness.
3. Sustaining opportunities for a wide range of quality of life values.
4. Minimizing the amount of water used to retrieve oil and gas from the ground.
5. Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).
6. Sustaining local job creation.
7. Sustaining benefits that First Nations receive from oil and gas exploration and development.

Oil and gas resources are generally seen as important and relevant to British Columbians. Although there are some aspects of oil and gas exploration and development that respondents admitted to being uncertain about, respondents from all sample regions were generally aware and knowledgeable about many aspects of the management of oil and gas resources. There is a strong sense that the public has a desire to provide input into oil and gas resource management decision-making through public involvement mechanisms and opportunities for communication with local oil and gas managers.

Respondents tended to hold pro-environmental views and attitudes. However, there was also a sense that limits to growth were not absolute, and that human ingenuity and technological improvements could serve to provide solutions to many environmental issues. As the vast majority of the ecological, social, and economic objectives presented in the questionnaire were important to respondents, it would seem that an approach that addressed these objectives would be suitable for achieving the sustainable management of oil and gas resources, and that these resonate with the public and are in-line with public opinion of what oil and gas resource management objectives are important.

Trust and safety issues are of particular concern for British Columbians. There does seem to be an appetite for information about the management of oil and gas resources, particularly to help people be more confortable participating in decision-making about oil and gas management.

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1. INTRODUCTION.

There have been few studies of Canadian public opinion and attitudes toward the exploration, development, regulation, and management of oil and gas resources; there have been even fewer studies examining the attitudes of British Columbians. This report documents a survey of the British Columbia public about their attitudes and beliefs about the exploration, development, regulation, and management of oil and gas resources in British Columbia.

Natural resources play an important role in the social, economic and ecological health of British Columbia. This study collected relevant information related to the management of oil and gas resources and the social impacts of oil and gas exploration and development. Understanding public opinions about the sustainable management of oil and gas resources and surface land issues will inform discussions about the cumulative impacts of natural resource development through the application of community environmental knowledge and social preferences for resource management outcomes. This examination of the BC publics' attitudes and preferences for oil and gas exploration and development, as well as surface land issues, will also help to identify issues that are particularly relevant to the public.

In Canada, governments are authorized to promote public preferences (Wood, 2006); once an issue is identified and potential management options are identified (particularly if a management action entails influencing public behaviour or has implications for a public resource), the public may have a role to play in identifying which management options are preferred. Thus, the purpose of surveys of public opinion, attitudes, and beliefs about the exploration, development, regulation, and management of oil and gas resources is *not* to inform, review, or influence specific management or regulatory approaches for oil and gas resources. Rather, the purpose of surveys of public opinion, attitudes and beliefs about he exploration, development, regulation, and management of oil and gas resources is to inform options for their management and regulation, to guide the development of management strategies to achieve desired goals.

The role of public participation in regional land-use planning initiatives in British Columbia became formalized, first through the *Commission on Resources and the Environment* (CORE) process, which was initiated in 1992, and then through *Land and Resource Plans* (LRMPs) beginning in the late 1990s. This history of public engagement, coupled with an increasing concern about the environment, has created an expectation among British Columbians for opportunities to participate in decision-making for natural resources. Social context is an important consideration in policy analysis (Czech & Krausman, 1999); the management of publicly owned natural resources, such as oil and gas resources, depends on public acceptance (*i.e.*, a social license); and public acceptance can define policy options that are available to

managers; thus, it is important that sound social science information be integrated into policy-making (Zinn & Manfredo, 1998). However, it is important to recognize that the social context is dynamic; monitoring social context can identify changes in public attitudes towards an issue and may indicate whether efforts to influence public opinion or change people's behaviour have been effective.

Jacobson & Decker (2006) note that the "degree to which an institution is considered legitimate to society depends on its consonance with societal laws, norms, and cultures" (p. 532), and conclude that

> if institutions are not able to connect to broad societal norms and values, it is likely that their legitimacy will be questioned by society... This is particularly true for institutions and organizations whose focus is management of public resources" (p. 534).

A further consideration is that the perceptions of the public and oil and gas professionals can differ on some management actions: "natural resource managers are not always accurate in gauging public opinion and response to management decisions, even for those stakeholder groups with which they are most familiar" (Koval & Mertig , 2004, p. 233). Such disconnects between public and management perceptions may lead to conflicts or can increase the amount of time required to implement a management action.

This project fell under the SCEK Collaboration and Communication Envelope, and addressed two parts of the first SCEK Strategic Goal. In particular, this project sought to:

- Improve collaboration and communication among industry, government, First Nations and communities related to oil and gas activities (Strategic Goal 1.4); and
- Document and demonstrate the application of community environmental knowledge held by First Nations, resource-based communities, and resource users in the assessment and decision-making for oil and gas development, production and reclamation/restoration (Strategic Goal 1.5).

The primary objective of this project was to inform the BC Oil and Gas Commission, the Ministry of Energy and Mines, oil and gas companies, and stakeholders of public opinions and beliefs about sustainable natural resource management, in order to better understand and address the social impacts on a range of issues critical to natural resource and surface land management. This project also reflects an attempt to realize continued improvement in the ways in which oil and gas companies and the BC Oil and Gas Commission deliberate sustainable natural resource management issues, and will contribute to discussions about appropriate natural resource management practices in and near communities. Specifically, this project:

- Provides information for the identification of appropriate social criteria and indicators, measures, targets and thresholds for sustainable natural resource management and monitoring;

- Improves communication between government and communities though the solicitation of public opinion and the identification of social issues that are particularly relevant to the public; and
- Demonstrates the application of community environmental knowledge held by the BC public in the assessment and decision-making for oil and gas development, production and reclamation/restoration.

2. METHODS.

Potential respondents were provided with the option of completing a paper-based questionnaire (to be mailed back) or an Internet-based questionnaire. The questionnaire was identical for both delivery options, and was delivered and administered to residents of British Columbia in order to solicit opinions and beliefs about exploration, development, regulation, and management of oil and gas resources. The methods employed for questionnaire design, sample selection, survey delivery, and analyses follow.

2.1. Questionnaire Design.

The questionnaire employed in this study was developed using the principles of the Tailored Design Method (Salant & Dillman, 1994; Dillman, 2000), which identifies procedures to maximize survey return rates and minimize survey error, including questionnaire layout considerations. The identification of clear, concise research questions is important to focus the development of survey questions. It is also important that the resultant questionnaire be designed so that there is a logical flow of the questions, and that the wording of the questions and instructions to the respondents is clear, as brief as possible, and uncomplicated. However, some compromises among these elements are necessary to have a questionnaire that is both accessible to respondents and able to provide unbiased results.

A key requirement of the questionnaire was that it be suitable for delivery in multiple Development Regions in order that a better understanding of public opinion and beliefs about exploration, development, regulation, and management of oil and gas resources could be fostered though the comparison of regional responses to questions. Working drafts of the questionnaire were reviewed by employees of the BC Oil and Gas Commission and members of the Science and Community Environmental Knowledge (SCEK) Fund Steering Committee, and faculty members in the Faculty of Forestry at the University of British Columbia. A draft questionnaire was piloted with students in the Faculty of Forestry at the University of British Columbia to identify difficult questions and to gauge the amount of time necessary to complete the questionnaire. The final questionnaire was a twelve-page booklet (three folded 11-inch by 17-inch sheets printed on both sides), nine of which were printed with questions, which comprehensively measured people's opinions and beliefs about a wide range of oil and gas resource issues (Appendix A). The final questionnaire was approved by the Behavioural Research Ethics Board, a Division of the Office

of Research Services at the University of British Columbia; this review seeks to protect the rights of potential survey respondents. The fourteen questions that made up the survey are described below.

2.1.1. Question 1: Opinions and beliefs about the management of oil and gas resources in BC.

This question asked respondents for their opinions about general issues in the management of natural resources. Some of these statements were informed by previous examinations of landscape planning and management (Harshaw *et al.*, 2006). In particular, the statements in this question focused on attitudes about public participation in decision-making and perceptions of trust and responsibility of the management of oil and gas (and other) natural resources. This question listed twenty general statements expressing different views about natural resource management and in British Columbia. The order of the statements in this question was randomized to avoid bias. For each statement, respondents were asked to indicate their level of agreement on a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular statement.

2.1.2. Question 2: Opinions and beliefs about how people relate to the environment.

This question examined the structure and coherence of respondents' ecological worldviews to permit an assessment of their attitudes toward the environment. This question employs the *New Ecological Paradigm Scale*, which taps people's "primitive beliefs about humanity's relationship with the Earth" (Dunlap *et al.*, 2000, p. 439). The *New Ecological Paradigm Scale* is a robust and widely used tool that has been in use (previously as the *New Environmental Paradigm Scale*) since 1978; this scale has predictive validity, known-group validity, criterion validity, and content validity. The *New Ecological Paradigm (NEP) Scale* measures five facets of an ecological view: reality of limits to growth; anti-anthropocentricism; fragility of nature's balance; rejection of exemptionalism[1]; and the possibility of an eco-crisis. Respondents were presented with fifteen statements that expressed different views about the environment. For each statement, respondents were asked to indicate their degree of agreement on a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular statement.

2.1.3. Question 3: Previous involvement in natural resource management decision-making through public participation opportunities.

There are many different mechanisms and approaches that can be used to involve the public in natural resource decision-making; these range from low-intensity/low involvement activities like writing a letter to high intensity/high involvement activities like sitting on a public advisory group. This question asked

[1] "Exemptionalism is the belief that, because of its intelligence, creativity, and technology, the human species is not bound nor constrained by the biophysical laws of nature that restrict other species" (Cairns, 1998).

respondents to indicate which natural resource public involvement mechanisms/approaches they had used to become involved in natural resource decision-making; respondents could indicate the frequency of their use of the mechanisms/approaches using the following categories: never, only when I am affected, once in a while, and regularly. The five public involvement approaches/mechanisms that were asked about were:

1. Public meeting/town hall meeting;
2. Letter/email;
3. Phone call;
4. Survey (including this one); and
5. Public advisory group.

Respondents had the option of indicating another public involvement approach/mechanism that they had been involved in. The order of the approaches/mechanisms was randomized to avoid bias.

2.1.4. Question 4: Opinions about the relative priorities for sustaining natural resource values.

This question asked respondents to consider a series of paired trade-offs among seven values that are considered in the sustainable management of natural resources. The seven natural resource values used in this section were derived from discussions with the BC Oil and Gas Commission:

1. Minimizing the amount of water used to retrieve oil and gas from the ground;
2. Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining);
3. Sustaining biological richness;
4. Sustaining the benefits that First Nations receive from oil and gas exploration and development;
5. Sustaining clean drinking resources;
6. Sustaining local job creation; and
7. Sustaining opportunities for a wide range of quality of life values.

The seven natural resource values were arranged in pairs, such that each resource value was compared against the other six resource values. A total of 21-paired statements were prepared. The order of the paired statements was randomized to avoid bias. This method of inquiry is based on the standard approach developed by Thurstone (1959) in which respondents make repeated comparative judgments about preferences for outcomes (Green & Tull, 1978). This approach permits the construction of a univariate interval scale (that is conducive to statistical analysis) to identify the priority rankings of (in this case) factors for the protection of species at risk, as well as the relative importance of each natural resource value.

For each of the 21 paired statements, respondents indicated which factor they thought was a higher priority for the protection of species at risk. Specifically, priorities were elicited by asking the following: "*The following list of natural resource values has been arranged in pairs. For each pair, check the box beside the factor that you think should have a higher priority for managing our natural resources sustainably*". To improve the clarity of the question, an example was provided.

2.1.5. Question 5: Opinions about the trustworthiness of different sources of information about oil and gas development.

There are many different sources of information about the exploration, development, regulation, and management of oil and gas resources that are available to people. Respondents were asked to indicate the trustworthiness of each potential source of information using a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular source of information. The eleven sources on information about the exploration, development, regulation, and management of oil and gas resources that respondents indicated trustworthiness for were:

1. Internet;
2. Local leaders;
3. Local media;
4. National media;
5. Politicians;
6. Friends;
7. Universities and colleges;
8. Government;
9. Religious or spiritual leaders;
10. Experts; and
11. Environmental non-governmental organizations.

Respondents had the option of indicating another public involvement approach/mechanism that they had been involved in. The order of the approaches/mechanisms was randomized to avoid bias.

2.1.6. Question 6: Opinions about the safety of oil and gas development in BC.

Safety issues related to the development of oil and gas resources in BC my pose concerns for members of the public. Respondents were presented with four statements that expressed different views about the safety of oil and gas development in BC (*i.e.*, living near an oil and gas development, regulations and monitoring of oil and gas developments, economic benefits in relation to safety concerns, and availability of information about oil and gas developments). For each statement, respondents were asked to indicate

their degree of agreement on a five-point scale. Respondents had the option of indicating that they did not know enough about a particular statement or did not have an opinion about a particular statement. Respondents were also asked whether they had any safety concerns about the development of oil and gas in BC, and were asked to explain their answer in a comment box.

2.1.7. Question 7: Opinions about the importance of local ecological, economic, and social management objectives for oil and gas development.

Respondents were presented with twenty-two statements about different oil and gas management objectives that represented ecological, economic, and social elements natural resource management. The statements included in this question were informed by a review sustainable natural resource management criteria and indicators. The statements were grouped by category of indicator (*i.e.*, ecological, economic, and social values) to help focus respondent's answers. Respondents were asked to indicate the level of importance that they felt each objective should have in their area on a five-point scale; a "Don't know/No Opinion" option was available if respondents felt that they did not have enough knowledge to respond to a particular statement or did not have an opinion about a statement.

2.1.8. Question 8: Opinions about local oil and gas development issues.

This question presented respondents with eleven statements about local-level oil and gas resource development issues, and asked them to indicate their level of agreement with each statement on a five-point scale. The statements addressed concerns that included responsiveness to local concerns, community benefits, availability of information about oil and gas development, the relative environmental sensitivity of oil and gas development, water use, local processing of oil and gas, and awareness of the BC Oil and Gas Commission. The order of items in this question was randomized to avoid bias. Respondents could indicate that they did not know enough about a particular statement or did not have an opinion about a statement. The statements in this section were informed by suggestions from the BC Oil and Gas Commission.

2.1.9. Question 9: Opinions about the management of rare plants and animals (i.e., species at risk).

This question asked respondents about their opinions regarding options for the management of species at risk, to inform local decisions about their management and perceived local importance. Respondents were asked to indicate their level of agreement with seven statements about management of species at risk on a five-point Likert scale. These statements addressed the relative importance of species at risk and perceptions of the oil and gas industry's response to species at risk. Respondents could indicate that they did not know enough about a particular statement or did not have an opinion about a statement. A definition of species at risk (BCMSR/BCWLAP, 2001) was provided to respondents in order to provide context for the seven statements.

2.1.10. Question 10: Attitudes and opinions about climate change.

Mitigating anthropogenic impacts to the climate, and adapting to uncertain conditions are among the actions that are available to address climate change. The questions posed in this set of questions ask respondents about their opinions on climate change and whether respondents had changed their behaviour in response to perceived climate change.

Respondents were asked about their degree of concern and knowledge of climate change, whether they have noticed any effects of climate change in their communities, whether they have any plans to change their behaviour in response to climate change, and whether they thought that oil and gas managers/regulators should be doing anything in response to climate change. Respondents are also asked their opinion about whether the management of oil and gas resources management should prioritize responses to climate change, and how oil and gas development might prioritize their response to climate change. This question will provide evidence of people's beliefs, ideas, and suggestions for addressing climate change, and local opinions about how oil and gas managers should be prioritizing their responses to climate change.

2.1.11. Question 11: Knowledge about different aspects of oil and gas in BC.

Knowledge can be assessed by self-reporting (Halder et al., 2010; McFarlane & Stedman, 2003), and by a series of true/false questions (see Mcfarlane & Boxall, 2000). Although self-assessments of knowledge can be biased due to overestimation of actual knowledge, this question presents seven statements about oil and gas management in BC and the geological development of hydrocarbons, and asks respondents to indicate whether the statements are true or not. The form of the question was derived from McFarlane & Boxall (1999); statements were included after consultations with staff from the BC Oil and Gas Commission. Taken together, the seven statements provide an assessment of peoples knowledge and familiarity with the context that frames the exploration, development, regulation, and management of oil and gas resources BC, which will help to interpret the results of other questions and suggest areas where information about the exploration, development, regulation, and management of oil and gas resources could be better communicated to the public.

2.1.12. Question 12: Experiences with outdoor recreation.

This set of questions measured the degree of a person's involvement in outdoor recreation. Participation in outdoor recreation activities provides opportunities to experience nature and the environment first-hand; these experiences can shape people's attitudes and beliefs about the management of natural resources. This set of questions is based on the recreation specialization framework, which examines the "cognitive, behavioral, and psychological components in an effort to distinguish among types of recreationists"

(Manning, 1999, p. 233). Measures of recreation specialization are related to attitudes about, and preferences for, management practices (Manning, 1999). The recreation specialization framework provides a basis for the differentiation of recreationists holding various goals, preferences, and behaviors (McFarlane, 2001). The recreation specialization framework is composed of three interrelated and mutually reinforcing dimensions: cognitive, affective, and behavioural (McIntyre & Pigram, 1992). The cognitive dimension incorporates the knowledge and skills that a recreationist acquires over time; both knowledge and skills increase and become more focused as specialization increases. The affective dimension incorporates the psychological attachment that recreationists develop and is expressed in terms of enduring involvement, or the importance of activity, the enjoyment derived from activity, self expression through activity, and the degree of centrality that an activity assumes in a person's life; as recreation specialization increases, it is expected that measures of enduring involvement will increase. The behavioural dimension incorporates the frequency of participation (also termed avidity), prior experience, and the recreationist's familiarity with a particular setting; as recreation specialization increases so too does the frequency of participation, and familiarity with particular settings – and their prior experience accumulates as well (McIntyre & Pigram, 1992). McFarlane (2004) notes that there is an assumption that recreationists choose settings that are consistent with their cognitive representations, and that this can be predicted by specialization. All three specialization dimensions were examined study using the sixteen-item index developed by Needham *et al*. (2009).

2.1.13. Question 13: Opinions about the economic contribution of oil and gas in BC.

This question asked respondents about their opinions regarding the relative importance of provincial oil and gas jobs in British Columbia in light of future economic well-being and mechanisms for ecological protection and other commercial resource uses. Respondents were asked the relative degree of oil and gas revenue loss that they would be willing to accept in their community in order to:

1. Ensure that the economic well-being of future generations is the same as it is today;
2. Ensure that the economic well-being of future generations is improved;
3. Increase the amount of land in parks and protected areas; and
4. Ensure the economic well-being of a lower revenue generating sector (*e.g.*, forestry).

Respondents indicated the degree of acceptable degrees of loss of oil and gas revenues on a five-point scale (from None of the revenue to All of the revenue). The first two items asked respondents to make tradeoffs between the welfare of the current generation versus future generations, and will help in determining their acceptable social discount rate for making these types of tradeoffs. The third item asked respondents to make trade-offs between the extent of protected areas (a common mechanism for the sustaining biological and ecological values) and oil and gas revenue losses they would be willing to

accept. The fourth item asked respondents to make a trade-off between the viability of other commercial resource sectors and oil and gas revenue losses they would be willing to accept.

2.1.14. Question 14: Demographics.

This final question asked respondents to provide information about themselves. Socioeconomic characteristics, such as urban and rural residency (Manfredo *et al.*, 2003; Clendenning *et al.*, 2005), gender, age, length of residency in community (Koval & Mertig, 2004; White *et al.*, 2005), income and education (Manfredo *et al.*, 2003) help to explain people's attitudes, beliefs and perceptions toward environmental issues and land-use management. This information is useful as it allows the demographic characteristics of the final survey responses to be compared with Census data to determine the representativeness of the sample, and allow for weighting of data (if necessary) to Census data. Information about socioeconomic characteristics also permits for a segmentation of responses to other questions by particular socioeconomic characteristics. Information was collected about respondents' age, gender, length of residence in their community, education, occupation, income, and respondents' main connections to the natural environment. Personal connections to nature can influence how people acquire their knowledge about exploration, development, regulation, and management of oil and gas resources. Knowing about what people's connection to nature is could yield information about the general relevancy of nature to respondents; this information may assist in interpreting general attitudes and perceptions for priorities for the exploration, development, regulation, and management of oil and gas resources. Harshaw *et al.* (2006) asked about people's connections to forests; a similar approach elicits connections to the natural environment and could be useful in identifying potential participants for public participation or citizen forums that are concerned with the exploration, development, regulation, and management of oil and gas resources.

2.1.15. General Comments.

Space was provided for respondents to elaborate on any of their answers, or to offer comments that they felt were of importance to the exploration, development, regulation, and management of oil and gas resources in BC.

2.2. Sample Selection.

In order to establish that the sample broadly reflected the opinions of British Columbians, every effort was made to maximize the return rate and achieve a small 95% confidence interval for the results (see Section 2.3). A desired threshold for the number of returns was identified. This threshold was based on the population of British Columbia, the appropriate 95% confidence interval that was associated with the population size, and an estimate of the response rate. The 2009 population of British Columbia was

4,530,960 (BC Stats, 2010). Based on this population, the number of desired returned completed questionnaires, based on a varied population with a sample error of ±5% at the 95% confidence level (*i.e.* ±5% 19 times out of 20), was calculated as 385 (Salient & Dillman, 1994).

However, if one wishes to be able to compare the responses from people in one part of the province to another, the sample needs to be stratified by geographic location; one standard method of stratifying British Columbia is by development region. There are eight development regions in British Columbia; however, a representative sample of residents in each development region was prohibitive. Instead, amalgamated development regions were used to provide four broad geographical areas: Vancouver Island/Lower Mainland, Coastal BC, Southeastern BC, and Central/Northern BC. Such an approach would require a sample size of 1,536. Based on an anticipated 50% return rate, the final sample size was determined to be 3,086.

Initial sample recruitment was made by telephone in order to obtain valid mailing addresses (valid mailing addresses are difficult to obtain for rural areas and it was important to be able to include both rural and urban respondents in the sample); people that were not listed in the telephone directory were not included in the sample. The sample was stratified by four areas that were an amalgamation of the eight British Columbia Development Regions (Figure 1) to provide a basis of comparison for British Columbians' attitudes and beliefs toward the management of oil and gas exploration and development (Table 1). Potential respondents were randomly selected from provincial telephone records, and were asked if they wish to participate in the survey (see Appendix B). Sample recruitment was done between Tuesday June 7th and Wednesday June 29th 2011. People that were willing to participate in the survey were given the option of completing the survey using a paper-based questionnaire or an Internet-based questionnaire; potential respondents were asked to provide their email and postal address.

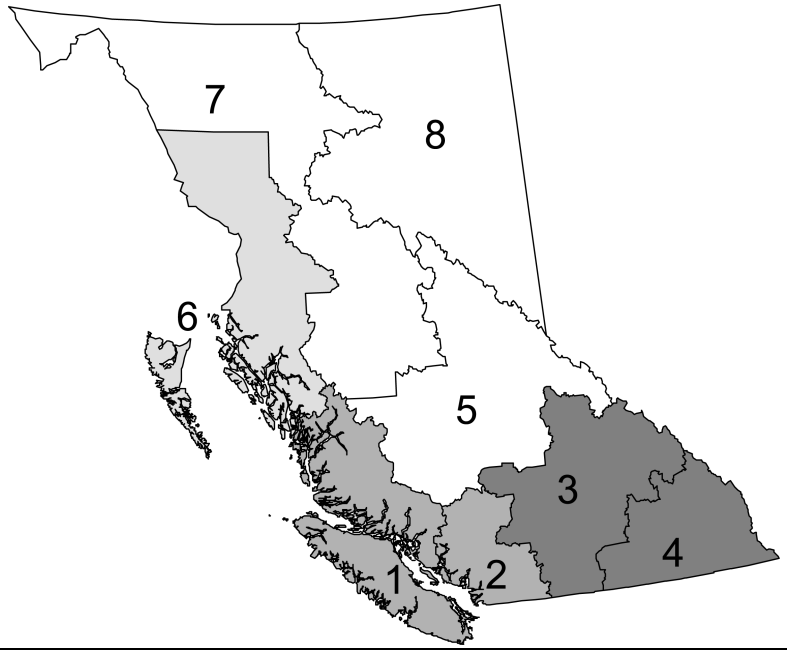


Figure 1. British Columbia development regions and study sample regions (shaded).

Table 1. Sample region correspondence with British Columbia Development Regions.

Sample Region	BC Development Region
Vancouver Island/Lower Mainland	1. Vancouver Island/Coast
	2. Lower Mainland/Southwest
Coastal BC	6. North Coast
Southeastern BC	3. Thompson-Oakanagan
	4. Kootenay
Central/Northern BC	5. Cariboo
	7. Nechako
	8. Northeast

2.3. Survey Delivery.

The survey design closely followed the Tailored Design Method (Dillman, 2000) and incorporated a multiple contact approach suitable for mail surveys. This multiple contact approach sought to maximize response rates, which is important in capturing the broad range of opinions and beliefs typically found in at the provincial scale and in drawing inferences to the provincial population. Four contact letters were developed to accompany this questionnaire; these are described below. All survey materials and the

design of the survey's delivery conformed to the ethical guidelines set out by the University of British Columbia's Office of Research Services, and received approval from the University of British Columbia's Research Ethics.

The first letter/email was an initial contact message (Appendix C) that was prepared to remind potential respondents that they had provided their name and mailing address for participation in a research project examining their opinions about the management of oil and gas exploration and development in British Columbia. The mailing/email dates of the contact letters sent to respondents are listed in Tables 2 and 3. The second contact was a package that contained a questionnaire (Appendix A) and a stamped and addressed return envelope for potential respondents that indicated a preference for a paper-based questionnaire; a link to the Internet survey and a copy of the cover letter was emailed to those potential respondents that preferred an Internet-based questionnaire. A cover letter (Appendix D) accompanied the questionnaire and detailed the purpose and procedures of the survey, assured the potential respondents that their responses would be kept confidential, provided contact information should they have had any questions about the research project arise, and informed potential respondents of their rights as research subjects. The third contact was a reminder postcard (Appendix E) that was sent to everyone in the sample to remind people that had not completed or sent in their questionnaires to do so, and to thank those respondents that had completed and returned their questionnaires. The fourth contact was a replacement questionnaire package that was sent to all non-respondents. This package contained a cover letter asking respondents to complete the questionnaire (Appendix F), a questionnaire, and a stamped addressed return envelope.

Table 2. BC Oil & Gas Resource Management Public Opinion Survey mailing dates.

Mailing #	Sample Region	Mailing Date
Mailing #1	Central-Northern BC	July 4, 2011
	Vancouver Island & Lower Mainland	July 4, 2011
	Coastal BC	July 7, 2011
	Southeastern BC	July 15, 2011
Mailing #2	Central-Northern BC	July 7, 2011
	Vancouver Island & Lower Mainland	July 7, 2011
	Coastal BC	July 12, 2011
	Southeastern BC	July 19, 2011
Mailing #3	Central-Northern BC	July 12, 2011
	Vancouver Island & Lower Mainland	July 12, 2011
	Coastal BC	July 15, 2011
	Southeastern BC	July 22, 2011
Mailing #4	Central-Northern BC	July 22, 2011
	Vancouver Island & Lower Mainland	July 22, 2011
	Coastal BC	July 22, 2011
	Southeastern BC	July 25, 2011

Table 3. BC Oil & Gas Resource Management Public Opinion Survey emailing dates.

Email #	Sample Region	Email Date
Email #1	Central-Northern BC	July 4, 2011
	Vancouver Island & Lower Mainland	July 4, 2011
	Coastal BC	July 4, 2011
	Southeastern BC	July 11, 2011
Email #2	Central-Northern BC	July 6, 2011
	Vancouver Island & Lower Mainland	July 6, 2011
	Coastal BC	July 6, 2011
	Southeastern BC	July 13, 2011
Email #3	Central-Northern BC	July 11, 2011
	Vancouver Island & Lower Mainland	July 11, 2011
	Coastal BC	July 11, 2011
	Southeastern BC	July 18, 2011
Email #4	Central-Northern BC	July 15, 2011
	Vancouver Island & Lower Mainland	July 15, 2011
	Coastal BC	July 15, 2011
	Southeastern BC	July 22, 2011

2.4. Analysis.

The data from all completed questionnaires was entered twice in to a database to facilitate the verification of data for keying errors, and accuracy and consistency in data coding (Salant & Dillman, 1994). For each completed case (*i.e.* respondent's completed questionnaire), the data from the two datasets was compared, such that each cell (*i.e.* each answer to a question) was verified. When discrepancies were identified, the questionnaire was consulted and the necessary correction was made. The resultant dataset can be considered to be free of errors due to data entry mistakes. The data was also checked for outliers or obvious patterns; when these were identified they were checked against the corresponding questionnaire.

Tests for non-response bias were conducted by comparing early and late respondents on a number of demographic characteristics and key variables about attitudes towards oil and gas management. Three equal sized groups (*i.e.*, early respondents, late respondents, and respondents whose completed questionnaires were received after the first third of questionnaires, but before the last third of questionnaires) were created based on the date of questionnaire returns by sample region; this approach assumes that late respondents are similar to non-respondents (Armstrong and Overton 1977). T-tests were used to identify any differences between early and late respondents for age, environmental outlook (*i.e.*, new ecological paradigm score), and attitudes about the management of oil and gas resources in BC (*i.e.*, the oil and gas industry have earned the trust to manage oil and gas resources for the long-term, there are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development, and government regulatory authorities are responsive to public concerns);

chi-square tests and nominal post hoc tests were calculated for gender, education, and household income.

Descriptive statistics were calculated for each question (except Question 4 – see below). For those questions that asked respondents to indicate their level of agreement or assessment of trust or importance, the percentage of responses was calculated for each interval. The mean response, 95% confidence interval, and standard deviation were also calculated for each question (or question item for those questions that had multiple items). In order to identify any differences between the four sample regions for each question, several statistical tests were employed. For each question, analysis of variance (AVOVA) was used to test for differences between the mean scores for each sample region ($\alpha = 0.05$). *Levene's test* for homogeneity of variance (an assumption of ANOVA) was calculated; if results indicate that variance among the community means are not equal, then the *Welch F test* was employed to test for differences among mean scores (Field, 2005). *Post hoc* tests were used to identify where differences lay. As the sample sizes of the sample regions are not equal, the *Scheffe* test was employed for questions where there was homoscedasticity (*i.e.* homogeneity of variance) (Bluman, 2004). For questions where responses between constituencies were hetroscedastic, the *Games-Howell* test was used (Field, 2005).

For Question 14 (demographics) ANOVA and *post hoc* tests ($\alpha = 0.05$) were used to assess any differences in mean responses of the four sample regions for three items: age, years of residency in community, and number of people residing in each household. Chi-square tests of independence were employed to test for differences between the four sample regions ($\alpha = 0.05$) for three items: gender, highest level of education attained, and household income. No assessments were made for differences between the sample regions for employment sector and main connections to the natural environment. Open-ended responses to occupation and sector questions were assigned to the North American Industry Classification System (NAICS) standard[2].

Detailed descriptions for more complex question analysis are presented below for questions two and four.

2.4.1. Question 2: Opinions and beliefs about how people relate to the environment.

In addition to the descriptive statistics calculated for responses to this question, an examination of the *New Ecological Paradigm Scale* was made to determine if the Scale was an appropriate metric for measuring environmental attitude for the four sample regions examined here. Responses to the items in the NEP Scale were recoded so that the items reflected a consistent scale (*i.e.* 1 = dominant social paradigm, reflective of anthropocentric attitudes; 5 = new ecological paradigm, reflective of biocentric attitudes). Cronbach's Alpha was calculated to test for unidimensionality (*i.e.* internal consistency) of the

[2] The NAICS is the standard used by Statistics Canada and BC Stats.

Scale. Tests were preformed to gauge whether there were any gains in the internal consistency of the Scale if any of the 15 items are removed. A Principal Components Analysis was then employed to further examine the internal consistency of the scale and its applicability to study area. Cronbach's Alpha was then calculated again for each of the five facets of the NEP scale to examine whether the facets could be used alone or were better used together. Finally, a summative scale was constructed to provide an indicator of environmental attitude.

2.4.3. Question 4: Opinions about the relative priorities for sustaining natural resource values.

The Thurstone Scale technique was used to analyze respondents' preference for seven resource values considered in the sustainable management of natural resources. Specifically, Thurstone's *Case V* was selected. This technique consists of presenting respondents with a table containing paired factors (*i.e.*, natural resource values) and asking which factor (in each pair) is their priority (Thurstone 1974). The observations consist of the proportions of times one factor is judged to be a greater or lower priority than the other factors. Eight Thurstone scales were developed to illustrate the relative priority of values that are considered in the sustainable management of natural resources: five to illustrate the patterns of response for the four sample regions and for the Province as a whole; and three to illustrate the patterns of response for the Peace River Development Region (where the majority of oil and gas exploration and development is currently occurring), the Central/Northern BC Sample Region with responses from the Peace River Development Region removed, and one for the remaining three sample regions in aggregate. In total, 21 pairs of resource values that inform natural resource management (*i.e.* combinations of seven values taken two at a time) were presented to the respondents (*Eq. 1*).

$$ {}_7C_2 = \frac{7!}{(7-2)!\,2!} = 21 \text{pairs of factors} \qquad (Eq.\ 1) $$

Separate Thurstone Scales were constructed for each area of interest. In order to do this, the proportion of times that each natural resource value was selected over the others was computed for each area of interest. Next, z-scores corresponding to the proportions were assigned to each attribute based on the assumption that the proportions are normally distributed. Finally, a ranking scale was created to demonstrate the differences from each of the attributes' standardized means scores. The resultant Thurstone Scales illustrates the rank and the cumulative distances between the factors. Thus, it serves as an effective and straightforward visual tool for conveying how respondents within each area of interest

prioritize the resource values that can be considered in the sustainable management of natural resources and how the distances between these values varies[3].

Prior to constructing the Thurstone Scales for each sample region, the internal consistency (*i.e.* the degree to which the data fit the Thurstone *Case V* model) was assessed (Torgerson, 1958; Thurstone, 1959). The average absolute differences between derived and observed proportions was computed for each factor, summed, and divided by the number of factors to obtain a grand average known as the overall discrepancy of the analyses[4]. Average discrepancy values of up to 7% to 8% are generally considered acceptable (Thurstone 1959).

Thurstone's *Case V* procedure also allows for confidence intervals to be constructed around the scaled factors, and thus, inferential statistical techniques can readily be applied to the values observed on the scales that were constructed for each sample region. This is based on the premise that the unit of the intervals in each of the constructed scales is equal to $\sqrt{2}\sigma$, and the standard deviation of any scale value (*s.v.*) can be obtained by rearranging the terms to become $\sigma = \frac{1}{\sqrt{2}}$ (Thurstone 1974). Confidence intervals from Thurstone scales were computed (Agahian & Amirshahi, 2006; *Eq.2*).

$$95\%\ \text{C.I.} = \text{s.v.} \pm \frac{1.96s}{\sqrt{n}} = \frac{1.39}{\sqrt{n}} \qquad (\textit{Eq. 2})$$

Where *n* is the sample size (*i.e.* the number of observations for each pair of responses), and *s* is the standard deviation, which is equal to $\frac{1}{\sqrt{2}}$. Confidence intervals were constructed for the observed scale values for all areas. Finally, comparisons of the sample regions were conducted to determine whether they differed with respect to the prioritization of the values considered in the sustainable management of natural resources. Instead of comparing scale values[5], a modified Z-test for proportions was used as recommended by Sloan *et al*. (1994). Specifically, the average proportions of times that each factor was preferred over the others were compared between all areas of interest.

2.4.4. General Comments.

The open-ended comments that were provided by respondents are not addressed in this report.

[3] For a more detailed description and formulation of the technique and its applications, see Green and Tull (1978), and Malhotra (1986).
[4] See Torgerson (1958) and Thurstone (1959) for a complete description of this methodology.
[5] The scale value of a given resource value is dependent on the inter-relationships of all resource values in a group. Therefore, a resource value that has the same scale value in different sample regions may not be perceived as having the same priority given the rankings and distances of the other resource values on the scales.

3. RESULTS.

A total of 17,716 sample recruitment telephone calls were completed; of these completed calls, 3,085 people (17.4%%) agreed to participate in the *BC Oil and Gas Resource Management Public Opinion Survey* (Table 4). A total of 1,327 completed responses were received between July 6 and September 12, 2011, which represents 7.5% of all telephone calls completed, or a 43.0% of all people that agreed to participate in the survey. The number of completed questionnaires is sufficient to estimate a sample error of ±2.69% at the 95% confidence interval (*i.e.* 19 times out of 20). The pattern of response by sample region (Table 5) indicates that the proportion of respondents from the Vancouver Island/Lower Mainland sample region was less than the proportion of people residing in that area, while the proportion of respondents from the other three sample regions was greater than the proportion of people residing in those areas. Thus, residents of the Vancouver Island/Lower Mainland and Southeastern BC sample region may be under-represented in the sample, while residents of the Coastal and Central/Northern BC sample regions may be over-represented.

Table 4. Sample recruitment information.

	Vancouver Island/ Lower Mainland	Coastal BC	Southeastern BC	Central/Northern BC	Total
Total Eligible Respondents	5,875	3,937	4,138	3,766	17,716
Respondent Refusal	3,920	2,635	3,083	2,419	12,057
Total Recruits	771	770	771	773	3,085
Refusal Rate	66.7%	66.9%	74.5%	64.2%	68.1%
Response Rate	13.1%	19.6%	18.6%	20.4%	17.4%

Table 5. Completed questionnaire returns by sample region.

Sample Region	Mail Returns		Internet Returns		Total Returns		Sample Region Population as % of BC Population
	n	%	n	%	n		
Vancouver Island/Lower Mainland	167	50.3%	169	49.6%	336	25.3%	77.5%
Coastal BC	178	61.2%	113	38.8%	291	21.9%	1.3%
Southeastern BC	230	64.1%	129	35.9%	359	27.1%	15.2%
Central/Northern BC	214	62.8%	127	37.2%	341	25.7%	6.0%
TOTAL	**789**	**59.5%**	**538**	**40.5%**	**1,327**	**100.0%**	**100.0%**

A comparison of early and late respondents for selected demographic characteristics (*i.e.*, age, gender, education, and household income), environmental outlook (*i.e.*, new ecological paradigm score), and attitudes about the management of oil and gas resources in BC (*i.e.*, the oil and gas industry have earned the trust to manage oil and gas resources for the long-term, there are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development, and

government regulatory authorities are responsive to public concerns) indicated a few significant differences; however, the differences were small[6]. Thus, we can assume that there is little, if any, non-response bias in this analysis and inferences can be made to the provincial population.

3.1. Question 1: Opinions and beliefs about the management of oil and gas resources in BC.

On the whole, respondents were in agreement with the statements presented in Question 1 (Table 6). Almost twice as many respondents strongly/mildly agreed (51.6%) that the government should encourage onshore gas development throughout the province than did the percentage of respondents that strongly/mildly disagreed (26.2%). Almost as many respondents strongly/mildly agreed (35.7%) that they knew enough about oil and gas resources to provide meaningful input into oil and gas management and planning decisions, as did strongly/mildly disagree (37.3%). More than half (57.2%) strongly/mildly disagreed that British Columbia has enough protected areas such as provincial and national parks; just more than one-quarter of respondents (29.2%) strongly/mildly agreed. More than three-quarters of respondents (76.6%) strongly/mildly agreed that the citizens of British Columbia need to have more opportunities for input into the management of oil and gas resources, while fewer than one in ten respondents (8.2%) strongly/mildly disagreed. Almost three times as many respondents strongly/mildly agreed (60.9%) that the oil and gas industry controls too much of British Columbia's oil and gas resources than did the percentage of respondents that strongly/mildly disagreed (20.7%) with the statement. Almost half of respondents strongly/mildly agreed (47.4%) that providing long-term security of oil and gas resources to the oil and gas industry will promote the sustainable management of oil and gas, while one-third of respondents (33.4%) strongly/mildly disagreed. The majority of respondents strongly/mildly agreed (70.0%) that the management of oil and gas resources focuses too much attention on economic outcomes and not enough attention on non-economic outcomes (*e.g.*, recreation, quality of life), while just more than one in ten respondents (12.3%) strongly/mildly disagreed. Almost one and one-half times as many respondents strongly/mildly disagreed (45.6%) that there will be sufficient oil and gas resources in British Columbia to meet our future needs as did respondents that strongly/mildly agreed (33.6%).

[6] The mean age of early respondents ($\bar{x}$ = 49.64) was significantly lower than the mean age of late respondents ($\bar{x}$ = 55.10) in the Vancouver Island/Lower Mainland sample region ($t(184) = -2.371$, $p < 0.05$). The mean age of early respondents ($\bar{x}$ = 54.86) was significantly lower than the mean age of late respondents ($\bar{x}$ = 59.00) in the Southeastern BC sample region ($t(184) = -2.371$, $p < 0.05$). There was a higher proportion of men among early respondents than among late respondents in the Central/Northern BC sample region ($\chi^2 = 5.050$, df = 1, $p < 0.05$; Phi = 0.171). The mean score of early respondents ($\bar{x}$ = 3.40) for the statement, "there are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development", was significantly lower than the mean score of late respondents ($\bar{x}$ = 4.27) in the Coastal BC sample region ($t(123.519) = -4.632$, $p < 0.05$).

Table 6. Question 1: Opinions and beliefs about the management of oil and gas resources in BC (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mildly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
The government should encourage onshore gas development throughout the province.	1,254	23.9%	**27.7%**	22.2%	10.6%	15.6%	2.66†	± 0.07	1.360
I know enough about oil and gas resources to provide meaningful input into oil and gas management and planning decisions.	1,176	10.5%	25.2%	**27.0%**	19.2%	18.1%	3.09‡	± 0.07	1.258
British Columbia has enough protected areas such as provincial and national parks.	1,296	14.1%	15.1%	13.6%	22.3%	**34.9%**	3.49▲	± 0.08	1.448
The citizens of British Columbia need to have more opportunities for input into the management of oil and gas resources.	1,286	**50.6%**	26.0%	15.2%	5.7%	2.5%	1.83	± 0.06	1.041
The oil and gas industry controls too much of British Columbia's oil and gas resources.	1,036	**36.9%**	24.0%	18.4%	14.3%	6.4%	2.29	± 0.08	1.270
Providing long-term security of oil and gas resources to the oil and gas industry will promote the sustainable management of oil and gas.	1,189	20.1%	**27.3%**	19.2%	14.2%	19.2%	2.85△	± 0.08	1.402
The management of oil and gas resources focuses too much attention on economic outcomes and not enough attention on non-economic outcomes (*e.g.*, recreation, quality of life).	1,248	**42.0%**	28.0%	17.7%	8.8%	3.5%	2.04	± 0.06	1.125
There will be sufficient oil and gas resources in British Columbia to meet our future needs.	982	12.7%	20.9%	20.8%	21.6%	**24.0%**	3.23	± 0.08	1.357
The oil and gas industry have earned the trust to manage oil and gas resources for the long-term.	1,250	4.2%	9.0%	17.8%	25.4%	**43.7%**	3.95★	± 0.06	1.162
There are enough checks and balances in place (*e.g.* legislation, professional ethics, skill certification) to ensure responsible oil and gas management and development.	1,191	6.5%	14.8%	16.5%	23.8%	**38.5%**	3.73	± 0.07	1.287
I understand how aboriginal and First Nation treaty rights work.	1,025	14.1%	**29.0%**	26.1%	15.0%	15.7%	2.89☆	± 0.08	1.274
There should be more research on below ground oil and gas related environmental issues (*e.g.*, drinking water).	1,290	**59.5%**	25.0%	11.4%	2.6%	1.6%	1.62	± 0.05	0.899

Table 6 (cont'd). Question 1: Opinions and beliefs about the management of oil and gas resources in BC (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mildly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
There should be more research on above ground oil and gas related environmental issues (*e.g.*, wildlife).	1,303	**56.3%**	23.3%	14.0%	4.2%	2.1%	1.73	± 0.05	0.996
There should be more research on above ground oil and gas related development issues (*e.g.*, gas transportation, processing plants).	1,283	**53.3%**	26.3%	14.7%	4.1%	1.6%	1.74	± 0.05	0.962
There should be more research on below ground oil and gas related development issues (*e.g.*, the fracturing of shale).	1,252	**58.9%**	22.7%	12.6%	3.7%	2.2%	1.68	± 0.05	0.975
The government should prioritize oil and gas development over local projects that have smaller economic benefits.	1,235	7.0%	13.0%	20.6%	23.7%	**35.5%**	3.68⬩	± 0.07	1.271
British Columbia's existing network of parks and protected areas is sufficient to conserve environmental values.	1,271	10.6%	12.9%	15.3%	19.4%	**41.8%**	3.69	± 0.08	1.395
Oil and gas development activities should be concentrated in one area and only open other areas up to development when the initial area has been rehabilitated.	1,216	21.8%	23.4%	**23.7%**	19.3%	11.8%	2.76◊	± 0.07	1.310
It is acceptable for the government to receive less revenue from oil and gas activities if oil and gas activities are coordinated with other activities.	1,021	14.9%	**27.3%**	23.4%	15.2%	19.2%	2.96	± 0.08	1.338
The government should encourage a natural gas economy over other energy sources.	1,188	8.7%	14.0%	22.8%	22.1%	**32.5%**	3.56	± 0.07	1.303

† The mean responses of the Vancouver Island/Lower Mainland and Coastal BC sample regions was significantly higher than the mean responses of the Southeastern BC and Central/Northern BC sample regions.

‡ The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean response of the Central/Northern sample region. The mean response of the Southeastern BC sample region was significantly higher than the mean responses for the Coastal BC and Central/Northern BC sample regions.

▲ The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean responses of the Southeastern BC and Central/Northern BC sample regions.

▵ The mean response of the Coastal BC sample region was significantly higher than the mean response of the Southeastern BC sample region.

* The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean response for the Central/Northern BC sample region; the mean response of the Coastal BC sample region was significantly lower than the mean responses for the Vancouver Island and Southeastern BC sample regions.

☆ The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean response for the Central/Northern BC sample region; the mean response of the Coastal BC sample region was significantly lower than the mean responses for the Vancouver Island and Southeastern BC sample regions.

⬩ Significant differences could not be identified.

◊ The mean response of the Vancouver Island/Lower Mainland sample region was significantly lower than the mean response for the Central/Northern BC sample region.

Five times as many respondents strongly/mildly disagreed (69.1%) that the oil and gas industry have earned the trust to manage oil and gas resources for the long-term than did respondents that strongly/mildly agreed (13.2%). Almost two-thirds of respondents strongly/mildly disagreed (62.3%) that there are enough checks and balances in place (*e.g.* legislation, professional ethics, skill certification) to ensure responsible oil and gas management and development; just more than one in five respondents strongly/mildly agreed (21.3%) with this statement. One and one-half as many respondents strongly/mildly agreed (43.1%) that they understood how aboriginal and First Nation treaty rights work than did respondents that strongly/mildly disagreed (30.7%). More than four respondents in five strongly/mildly agreed (84.5%) that there should be more research on below ground oil and gas related environmental issues (*e.g.*, drinking water), while fewer than one in ten respondents strongly/mildly disagreed (4.2%). The majority of respondents strongly/mildly agreed (79.6%) that there should be more research on above ground oil and gas related environmental issues (*e.g.*, wildlife); fewer than one in ten respondents (6.3%) strongly/mildly disagreed with this statement. Almost four respondents in five strongly/mildly agreed (79.6%) that there should be more research on above ground oil and gas related development issues (*e.g.*, gas transportation, processing plants), while fewer than one in ten respondents (5.7%) strongly/mildly disagreed. The majority of respondents strongly/mildly agreed (81.6%) that there should be more research on below ground oil and gas related development issues (*e.g.*, the fracturing of shale); fewer than one in ten respondents (5.9%) strongly/mildly disagreed with this statement. Almost three times as many respondents strongly/mildly disagreed (59.2%) that the government should prioritize oil and gas development over local projects that have smaller economic benefits than did respondents that strongly/mildly agreed (20.0%). The majority of respondents strongly/mildly disagreed (61.2%) that British Columbia's existing network of parks and protected areas is sufficient to conserve environmental values, while almost one-quarter (23.5%) of respondents strongly/mildly agreed. Almost one and one-half as many respondents strongly/mildly agreed (45.2%) that oil and gas development activities should be concentrated in one area and only open other areas up to development when the initial area has been rehabilitated than did respondents that strongly/mildly disagreed (31.0%). More than two respondents in five strongly/mildly agreed (42.5%) that it is acceptable for the government to receive less revenue from oil and gas activities if oil and gas activities are coordinated with other activities; just more than one-third of respondents strongly/mildly disagreed (34.4%) with this statement. More than twice as many respondents strongly/mildly disagreed (54.6%) that the government should encourage a natural gas economy over other energy source than did the percentage of respondents that strongly/mildly agreed (22.7%).

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for eight of the twenty items in Question 1 (Table 7).

Table 7. Question 1 (ANOVA): Opinions and beliefs about the management of oil and gas resources in BC (significant differences between sample regions in **bold**).

Item	n	df	F	p
The government should encourage onshore gas development throughout the province.	**1251**	**3**	**12.605**	**0.000**
I know enough about oil and gas resources to provide meaningful input into oil and gas management and planning decisions.	**1173**	**3**	**6.937**	**0.000**
British Columbia has enough protected areas such as provincial and national parks.	**1296**	**3**	**4.871**	**0.002**
The citizens of British Columbia need to have more opportunities for input into the management of oil and gas resources.	1283	3	2.391	0.067
The oil and gas industry controls too much of British Columbia's oil and gas resources.	1034	3	1.969	0.117
Providing long-term security of oil and gas resources to the oil and gas industry will promote the sustainable management of oil and gas.	**1186**	**3**	**6.750**	**0.000**
The management of oil and gas resources focuses too much attention on economic outcomes and not enough attention on non-economic outcomes (*e.g.*, recreation, quality of life).	1245	3	2.233	0.083
There will be sufficient oil and gas resources in British Columbia to meet our future needs.	980	3	0.143	0.934
The oil and gas industry have earned the trust to manage oil and gas resources for the long-term.	**1247**	**3**	**3.937**	**0.008**
There are enough checks and balances in place (*e.g.* legislation, professional ethics, skill certification) to ensure responsible oil and gas management and development.	1188	3	2.002	0.112
I understand how aboriginal and First Nation treaty rights work.	**1022**	**3**	**10.499**	**0.000**
There should be more research on below ground oil and gas related environmental issues (*e.g.*, drinking water).	1287	3	1.959	0.118
There should be more research on above ground oil and gas related environmental issues (*e.g.*, wildlife).	1300	3	1.720	0.161
There should be more research on above ground oil and gas related development issues (*e.g.*, gas transportation, processing plants).	1280	3	0.921	0.430
There should be more research on below ground oil and gas related development issues (*e.g.*, the fracturing of shale).	1250	3	0.925	0.428
The government should prioritize oil and gas development over local projects that have smaller economic benefits.	**1232**	**3**	**3.250**	**0.021**
British Columbia's existing network of parks and protected areas is sufficient to conserve environmental values.	1268	3	2.268	0.079
Oil and gas development activities should be concentrated in one area and only open other areas up to development when the initial area has been rehabilitated.	**1213**	**3**	**3.773**	**0.010**
It is acceptable for the government to receive less revenue from oil and gas activities if oil and gas activities are coordinated with other activities.	1018	3	1.758	0.154
The government should encourage a natural gas economy over other energy sources.	1185	3	1.942	0.121

There was a significant difference between the mean responses of the four sample regions for the first item, *the government should encourage onshore gas development throughout the province*, $F(3, 1254) = 12.605$, $p < 0.05$. Although the Levene statistic (3.020, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (12.216, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the

Vancouver Island/Lower Mainland ($\bar{x}$ = 2.78) and Coastal BC ($\bar{x}$ = 3.03) sample regions was significantly higher (*i.e.* less agreeable) than the mean responses of the Southeastern BC ($\bar{x}$ = 2.43) and Central/Northern BC ($\bar{x}$ = 2.48) sample regions.

There were significant differences between the mean responses of the four sample regions for the second item, *I know enough about oil and gas resources to provide meaningful input into oil and gas management and planning decisions*. As the Levene statistic (2.129, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x}$ = 3.19) was significantly higher (*i.e.*, less agreeable) than the mean response of the Central/Northern sample region ($\bar{x}$ = 2.91); the mean response of the Southeastern BC sample region ($\bar{x}$ = 3.30) was significantly higher (*i.e.*, less agreeable) than the mean responses for the Coastal BC ($\bar{x}$ = 2.95) and Central/Northern BC sample regions ($\bar{x}$ = 2.91).

There were significant differences between the mean responses of the four sample regions for the third item, *British Columbia has enough protected areas such as provincial and national parks*. Although the Levene statistic (3.369, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (5.112, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x}$ = 3.73) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Southeastern BC ($\bar{x}$ = 3.37) and Central/Northern BC ($\bar{x}$ = 3.36) sample regions.

There were significant differences between the mean responses of the four sample regions for the sixth item, *providing long-term security of oil and gas resources to the oil and gas industry will promote the sustainable management of oil and gas*. As the Levene statistic (0.788, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x}$ = 3.14) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Southeastern BC ($\bar{x}$ = 2.66) and Central/Northern BC ($\bar{x}$ = 2.74) sample regions.

There was a significant differences between the mean responses of two of the four sample regions for the ninth item, t*he oil and gas industry have earned the trust to manage oil and gas resources for the long-term*. As the Levene statistic (0.849, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x}$ = 1.15) was significantly higher (*i.e.*, less agreeable) than the mean response of the Southeastern BC sample region ($\bar{x}$ = 3.84).

There were significant differences between the mean responses of the four sample regions for the eleventh item, *I understand how aboriginal and First Nation treaty rights work*. As the Levene statistic (0.557, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x} = 3.14$) was significantly higher (*i.e.*, less agreeable) than the mean response for the Central/Northern BC sample region ($\bar{x} = 2.82$); the mean response of the Coastal BC sample region ($\bar{x} = 2.56$) was significantly lower (*i.e.*, more agreeable) than the mean responses for the Vancouver Island ($\bar{x} = 3.14$) and Southeastern BC ($\bar{x} = 3.05$) sample regions.

There were significant differences between the mean responses of the four sample regions for the sixteenth item, *the government should prioritize oil and gas development over local projects that have smaller economic benefits*. As the Levene statistic (0.444, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay. However, the Scheffe post hoc test did not identify any statistically significant differences between any of the sample regions.

There were significant differences between the mean responses of the two of the sample regions for the eighteenth item, *oil and gas development activities should be concentrated in one area and only open other areas up to development when the initial area has been rehabilitated*. As the Levene statistic (0.718, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x} = 2.63$) was significantly lower (*i.e.*, more agreeable) than the mean response for the Central/Northern BC sample region ($\bar{x} = 2.96$).

3.2. Question 2: Opinions and beliefs about how people relate to the environment.

In general, respondents agreed with the pro-biocentric statements (Table 8), with the exception of *the earth has plenty of natural resources if we just learn how to develop them*; twice as many respondents (51.6%) mildly/strongly agreed with that statement, than did respondents that mildly/strongly disagreed (25.3%). Almost two-thirds (61.5%) of respondents mildly/strongly agreed that *we are approaching the limit of the number of people the earth can support*, while one in five respondents (21.4%) mildly/strongly disagreed. More than three times as many respondents mildly/strongly disagreed (56.6%) that *humans have the right to modify the natural environment to suit their needs* than did respondents that mildly/strongly agreed (17.6%). Most respondents (70.5%) mildly/strongly agreed that *when humans interfere with nature it often produces disastrous consequences*, while just more than one in ten respondents (12.1%) mildly/strongly disagreed. More than half of respondents (59.5%) mildly/strongly disagreed that *human ingenuity will ensure that we do not make the earth unlivable*; one in five

Table 8. Question 2: Opinions and beliefs about how people relate to the environment (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mildly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
We are approaching the limit of the number of people the earth can support.	1,221	**39.5%**	22.0%	17.0%	12.4%	9.0%	2.29	± 0.07	1.337
Humans have the right to modify the natural environment to suit their needs.	1,316	5.5%	12.1%	25.8%	21.0%	**35.6%**	3.69†	± 0.07	1.225
When humans interfere with nature it often produces disastrous consequences.	1,318	**48.0%**	22.5%	17.5%	8.9%	3.2%	1.97	± 0.06	1.139
Human ingenuity will insure that we do NOT make the earth unlivable.	1,267	8.0%	13.5%	19.1%	22.6%	**36.9%**	3.67	± 0.07	1.307
Humans are severely abusing the environment.	1,309	**50.0%**	21.8%	16.0%	7.4%	4.8%	1.95	± 0.06	1.178
The earth has plenty of natural resources if we just learn how to develop them.	1,287	**27.2%**	24.4%	23.2%	12.4%	12.9%	2.59	± 0.07	1.344
Plants and animals have as much right as humans to exist.	1,313	**58.1%**	17.6%	12.5%	8.1%	3.7%	1.82	± 0.06	1.153
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	1,295	3.5%	6.5%	11.4%	21.5%	**57.1%**	4.22	± 0.06	1.099
Despite our special abilities humans are still subject to the laws of nature.	1,304	**68.8%**	19.7%	9.3%	1.2%	1.0%	1.46	± 0.04	0.792
The so-called 'ecological crisis' facing humankind has been greatly exaggerated.	1,284	9.7%	13.2%	13.8%	18.0%	**45.2%**	3.76	± 0.08	1.392
The earth is a closed system with very limited room and resources.	1,244	**38.1%**	21.3%	19.3%	13.3%	8.0%	2.32	± 0.07	1.315
Humans were meant to rule over the rest of nature.	1,284	9.0%	8.4%	12.5%	19.0%	**51.1%**	3.95	± 0.07	1.336
The balance of nature is very delicate and easily upset.	1,315	**50.7%**	24.0%	15.8%	7.5%	1.9%	1.86	± 0.06	1.058
Humans will eventually learn enough about how nature works to be able to control it.	1,278	3.9%	9.2%	17.3%	23.2%	**46.4%**	3.99‡	± 0.06	1.166
If things continue on their present course, we will soon experience a major ecological catastrophe.	1,275	**45.0%**	21.2%	15.8%	12.2%	5.8%	2.13	± 0.06	1.226

† The mean response of the Southeastern BC sample region was significantly higher than the mean responses of the Vancouver Island/Lower Mainland and Central/Northern BC sample regions.

‡ The mean response of the Southeastern BC sample region (was significantly higher than the mean responses of the Vancouver Island/Lower Mainland sample region.

respondents (21.5%) mildly/strongly agreed with this statement. Almost three-quarters of respondents (71.8%) mildly/strongly agreed that *humans are severely abusing the environment*, while fewer than one in five respondents (12.2%) mildly/strongly disagreed. Most respondents (75.7%) mildly/strongly agreed that *plants and animals have as much right as humans to exist*; just more than one in ten respondents (11.8%) mildly/strongly disagreed. More than three-quarters of respondents (78.6%) mildly/strongly disagreed that *the balance of nature is strong enough to cope with the impacts of modern industrial nations*, while one in ten respondents (10.0%) mildly/strongly agreed. Almost nine in ten respondents (88.5%) mildly/strongly agreed that *despite our special abilities humans are still subject to the laws of nature*; two in one hundred respondents (2.2%) mildly/strongly disagreed with this statement. More than twice as many respondents mildly/strongly disagreed (63.2%) that *the so-called 'ecological crisis' facing mankind has been greatly exaggerated* than did respondents that mildly/strongly agreed (22.9%). More than half of respondents (59.4%) mildly/strongly agreed that *the earth is a closed system with very limited room and resources*, while one in five respondents (21.3%) mildly/strongly disagreed. Four times as many respondents mildly/strongly disagreed (70.1%) that *humans were meant to rule over nature* than did respondents that mildly/strongly agreed with this statement. Three-quarters (74.7%) of respondents agreed that *the balance of nature is very delicate and easily upset*, while fewer than one in ten respondents (9.4%) mildly/strongly disagreed. Roughly seven in ten respondents (69.6%) mildly/strongly disagreed that *humans will eventually learn enough about how nature works to be able to control it*, while more than one in ten respondents (13.1%) mildly/strongly agreed. Two-thirds of respondents (66.2%) mildly/strongly agreed with the statement that *if things continue on their present course, we will soon experience a major ecological catastrophe*, while almost one in five respondents (18.0%) mildly/strongly disagreed. ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for three of the fifteen items in Question 2 (Table 9).

There were significant differences between the mean responses of the four sample regions for the first item, *we are approaching the limit of the number of people the earth can support*. As the Levene statistic (0.765, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay. However, the Scheffe post hoc test did not identify any statistically significant differences between any of the sample regions.

There were significant differences between the mean responses of the four sample regions for the second item, *humans have the right to modify the natural environment to suit their needs*. Although the Levene statistic (3.033, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (5.535, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Southeastern BC sample region ($\bar{x} = 3.90$) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x} = 3.55$) and Central/Northern BC ($\bar{x} = 3.62$) sample regions.

Table 9. Question 2 (ANOVA): Opinions and beliefs about the management of oil and gas resources in BC (significant differences between sample regions in **bold**).

Item	n	df	F	p
We are approaching the limit of the number of people the earth can support.	**1219**	**3**	**3.125**	**0.025**
Humans have the right to modify the natural environment to suit their needs.	**1314**	**3**	**5.258**	**0.001**
When humans interfere with nature it often produces disastrous consequences.	1316	3	1.543	0.202
Human ingenuity will insure that we do NOT make the earth unlivable.	1265	3	0.725	0.537
Humans are severely abusing the environment.	1307	3	1.638	0.179
The earth has plenty of natural resources if we just learn how to develop them.	1285	3	0.278	0.841
Plants and animals have as much right as humans to exist.	1311	3	1.516	0.209
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	1293	3	1.963	0.118
Despite our special abilities humans are still subject to the laws of nature.	1302	3	0.094	0.963
The so-called 'ecological crisis' facing humankind has been greatly exaggerated.	1282	3	2.115	0.097
The earth is a closed system with very limited room and resources.	1242	3	2.219	0.084
Humans were meant to rule over the rest of nature.	1282	3	2.415	0.065
The balance of nature is very delicate and easily upset.	1313	3	0.709	0.547
Humans will eventually learn enough about how nature works to be able to control it.	**1276**	**3**	**4.800**	**0.002**
If things continue on their present course, we will soon experience a major ecological catastrophe.	1273	3	0.509	0.676

There were significant differences between the mean responses of the four sample regions for the fourteenth item, *humans will eventually learn enough about how nature works to be able to control it*. Although the Levene statistic (6.461, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (4.493, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Southeastern BC sample region ($\bar{x} = 4.12$) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Vancouver Island/Lower Mainland sample region ($\bar{x} = 3.79$).

Cronbach's Alpha was calculated to be 0.904, which suggests the unidimensionality of the NEP Scale. This suggestion is supported as there were not any gains in Cronbach's Alpha if any of the 15 items were removed from the Scale. Cronbach's Alpha for the five facets were not as strong individually as for all items together (Reality of Limits to Growth $\alpha = 0.582$; Anti-Anthropocentricism $\alpha = 0.696$; Fragility of Nature's Balance $\alpha = 0.725$; Rejection of Exemptionalism $\alpha = 0.613$; Possibility of an Eco-Crisis $\alpha = 0.655$), which provides further evidence that the application of the NEP Scale to the four sample regions in aggregate is suitable as it is a unidimensional scale.

Two components were identified in the Principal Components Analysis (PCA) (Component #1 Eigen Value = 6.473; Component #2 Eigen Value = 1.1.083). The two components explain a total of 50.4% of the variance: Component #1 = 43.2%; Component #2 = 7.2%. In the unrotated PCA solution, all items loaded on the first component; no items were cross loaded. This is further evidence of the unidimensionality of the NEP Scale.

Applying the NEP as a summative scale indicated that respondents were generally accepting of the new ecological paradigm and tended to be biocentric in their attitudes. The minimum score was 1.20 and the maximum score was 5 (*i.e.* the top bound). The mean score was 3.76 ± 0.04 (n = 1,328) and the standard deviation was 0.741. There were not any statistically significant difference of the mean NEP Scale scores between the four sample regions sample regions $F(3, 1{,}326) = 1.337$, $p = 0.261$.

3.3. Question 3: Previous involvement in natural resource management decision-making through public participation opportunities.

Respondents indicated that they generally have not had previous involvement in natural resource decision-making through the public participation opportunities that were presented to them. With the exceptions of letters/emails and surveys (which included the current survey), at least two in five respondents had never had prior involvement in natural resource decision-making (Table 10). Public involvement mechanisms that require a higher level of commitment (*e.g.*, time, skills), such as public advisory groups, had the highest degrees of non-participation. Many respondents (one to two in five respondents) indicated that they had written a letter/email, made a phone call, or had attended a public meeting once in a while, which was more often than only when they were affected by an issue. Although only three-quarters of respondents indicated that they had completed a survey (including the one that they were presented with), this does suggest that surveys might be a relatively effective mechanism to engage with members of the public about natural resource management issues. Depending on their length, surveys can be public involvement mechanisms that do require a relatively high level of commitment; surveys have the advantage of focusing people's attention on specific issues.

Table 10. Question 3: Involvement in natural resource management (most frequently identified response in **bold**).

Item	Never	Only When I am Affected	Once in a While	Regularly
Public meeting/town hall meeting	**41.9%**	19.8%	32.7%	5.7%
Letter/email	35.4%	16.5%	**39.8%**	8.3%
Phone call	**46.5%**	16.3%	33.7%	3.5%
Survey (including this one)	5.7%	6.4%	**75.9%**	12.1%
Public advisory group	**59.5%**	12.0%	23.1%	5.5%
Other	**60.8%**	5.3%	15.4%	18.5%

Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for three items in this question. There was a significant difference between the four sample regions for the use of *letters and email* as a means of involvement in natural resource management (χ^2 = 8.202, df = 3, p > 0.05; Cramer's V =0.080); fewer Coastal BC respondents never wrote a letter compared to the other three sample regions. There was also a significant difference between the four sample regions for the use of *phone calls* as a means of involvement in natural resource management (χ^2 = 17.528, df = 3, p > 0.05; Cramer's V =0.116); more Vancouver Island/Lower Mainland respondents never made a phone call compared to other sample regions. Lastly, there was a significant difference between the four sample regions for *other* means of involvement in natural resource management (χ^2 = 28.694, df = 3, p > 0.05; Cramer's V =0.253); fewer Coastal BC respondents indicated other means of getting involved in natural resource management.

Some respondents indicated other public involvement mechanisms that they used to participate in natural resource management issues; these are listed in Table 11.

Table 11. Other public involvement mechanisms used by respondents to participate in natural resource decision-making.

Blogging
Button holing
Call news room - TV stations
Direct contact with natural resource managers
Discussions with politicians (MLA, mayor & council)
Education
First nations meetings
Focus group(s)
Government policy development
Joining groups raising awareness on these issues & creating art to raise awareness about these issues
Land and resource management planning tables
Letter to the editor (newspapers)
Outdoor recreation club meetings
Petitions
Protests/demonstrations
Public lectures
Supporting Environmental non-governmental organizations
Road blocks
Voting in elections

3.4. Question 4: Opinions about the relative priorities for sustaining natural resource values.

In total, eight Thurstone scales were constructed in this analysis: five to illustrate the patterns of response for the four sample regions and for the Province as a whole; and three to illustrate the patterns of response for the Peace River Development Region (where the majority of oil and gas exploration and development is currently occurring), the Central/Northern BC Sample Region with responses from the Peace River Development Region removed, and one for the remaining three sample regions in aggregate. First, 21 pairs of statements were presented to respondents (a combination of seven natural resource values taken two at a time).

Then, the proportions of times that each natural resource value was selected over the others were computed and displayed in a two-way table. Next, corresponding z-scores (unit normal deviates) were assigned to these observed proportions based on the assumption that the proportions are normally distributed (see Figure 2). Finally, mean z-scores were used to rank the seven statements and to obtain scale values.

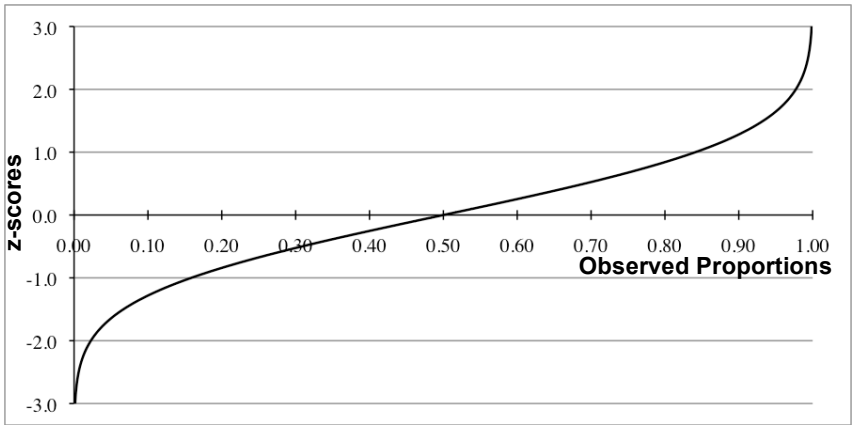


Figure 2. Observed proportions and corresponding z-scores based on the inverse normal cumulative distribution.

3.4.1. Patterns of Response for the Four Sample Regions and for British Columbia.

Tables 12-16 lists each natural resource value and the proportions of times that they were chosen over each other in each region. Figures 3 and 4 shows the Thurstone scales with the rank of the preferred natural resource values and the relative distances between them. The origin of the scale was assigned to the top-ranked natural resource value and arbitrarily set to one. The scale distance of each natural resource value is found by their cumulative distances from the origin.

Table 12. Vancouver Island/Lower Mainland Sample Region: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.325	0.000					
Sustaining clean drinking water resources.	0.078	0.281	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.602	0.747	0.935	0.000			
Sustaining local job creation.	0.631	0.742	0.924	0.583	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.409	0.556	0.765	0.323	0.312	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.804	0.866	0.979	0.843	0.738	0.877	0.000

Table 13. Coastal BC Sample Region: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.324	0.000					
Sustaining clean drinking water resources.	0.053	0.225	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.537	0.703	0.878	0.000			
Sustaining local job creation.	0.543	0.673	0.901	0.516	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.428	0.495	0.747	0.381	0.378	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.868	0.901	0.972	0.892	0.820	0.892	0.000

Table 14. Southeastern BC Sample Region: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.438	0.000					
Sustaining clean drinking water resources.	0.093	0.189	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.601	0.623	0.912	0.000			
Sustaining local job creation.	0.607	0.680	0.924	0.573	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.509	0.514	0.780	0.422	0.396	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.889	0.847	0.958	0.857	0.798	0.891	0.000

Table 15. Central/Northern BC Sample Region: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground	0.000						
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.397	0.000					
Sustaining biological richness.	0.085	0.218	0.000				
Sustaining clean drinking water resources.	0.526	0.629	0.886	0.000			
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.567	0.648	0.903	0.580	0.000		
Sustaining local job creation.	0.460	0.526	0.738	0.488	0.423	0.000	
Sustaining opportunities for a wide range of quality of life values.	0.871	0.884	0.976	0.901	0.843	0.892	0.000

Table 16. All sample regions: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground	0.000						
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.374	0.000					
Sustaining biological richness.	0.079	0.228	0.000				
Sustaining clean drinking water resources.	0.568	0.674	0.904	0.000			
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.589	0.686	0.914	0.565	0.000		
Sustaining local job creation.	0.453	0.523	0.759	0.405	0.377	0.000	
Sustaining opportunities for a wide range of quality of life values.	0.858	0.873	0.971	0.872	0.799	0.888	0.000

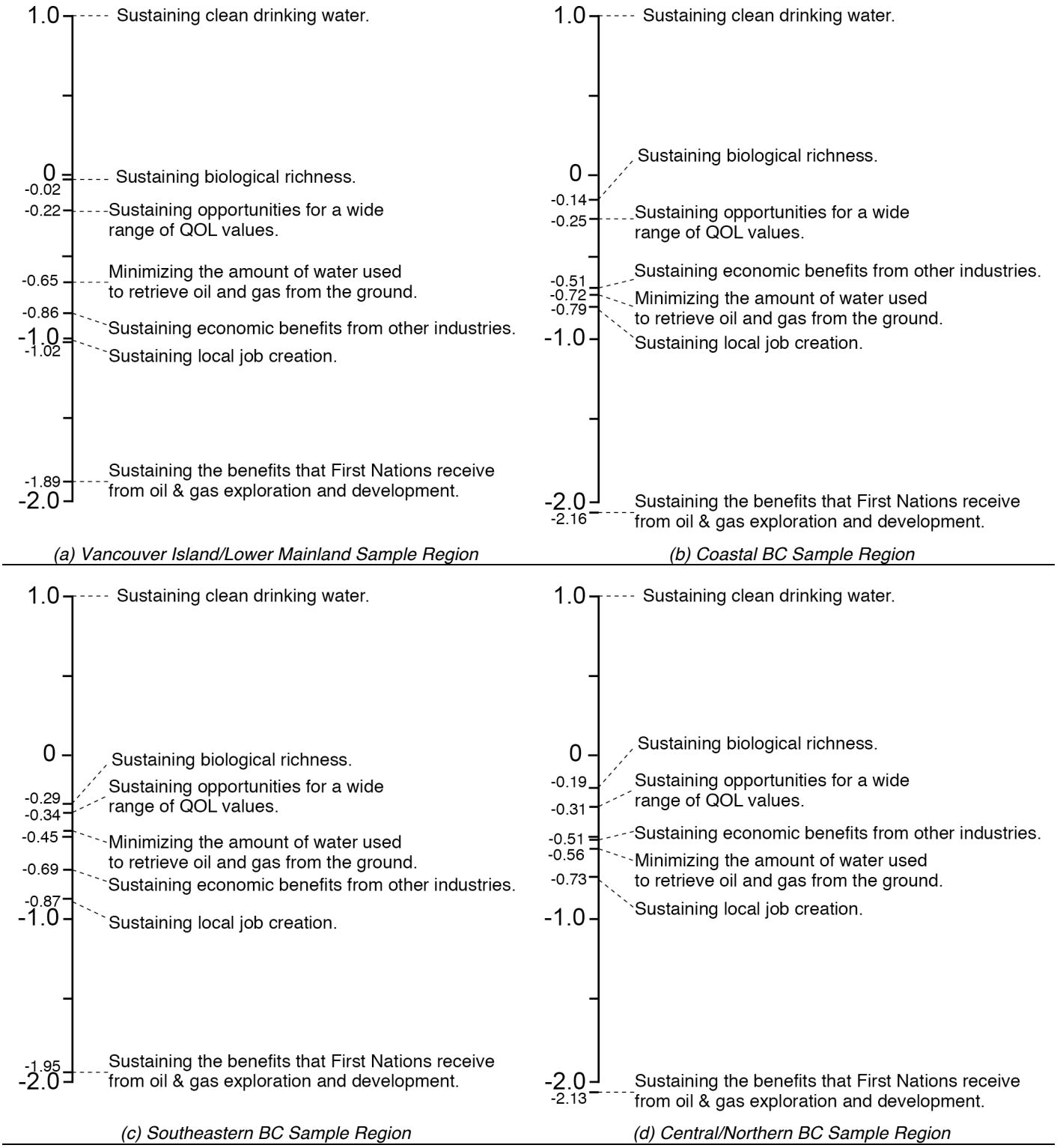


Figure 3. Thurstone scales: ranking and relative distances of the seven natural resource values in each sample region.

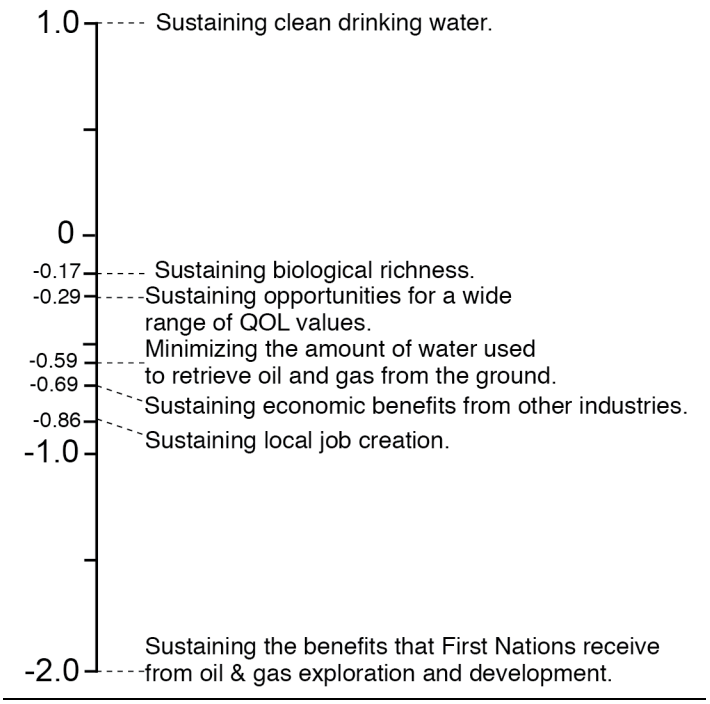


Figure 4. Thurstone scales: ranking and relative distances of the seven natural resource values for complete sample.

Table 17 shows the 95% confidence intervals for each scale and average discrepancies between observed and expected proportions for the five analyses. For example, in the scale for Coastal BC, "Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining)", "Minimizing the amount of water used to retrieve oil and gas from the ground", and "Sustaining local job creation" are not statistically different from each other when a confidence interval of ± 0.08 is built around the scale value of these statements.

Table 17. Confidence intervals and average discrepancies.

Sample Region	n	95% C.I. for scale values	Average Discrepancy
Vancouver Island/Lower Mainland	327	± 0.08	2.4%
Costal BC	280	± 0.08	2.6%
Southeastern BC	348	± 0.07	2.6%
Central/North BC	325	± 0.08	2.5%
All Areas	1280	± 0.04	2.3%

Also, internal consistencies or the average discrepancies of the five analyses were checked by taking the grand average of the differences between expected and observed proportions of each natural resource value. Average discrepancies values of up to 7% to 8% are generally considered acceptable.

A modified z-test for proportions was used to compare potential differences between regions. Specifically, the average preferred proportions of the seven natural resource values were used for the comparisons between the four areas (Table 18).

Table 18. Average preferred proportions for four sample regions.

	n	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
		Average preferred proportions $\bar{p}$						
Vancouver Island/ Lower Mainland	327	0.407	0.552	0.749	0.352	0.310	0.502	0.128
Costal BC	280	0.393	0.525	0.746	0.382	0.366	0.495	0.094
Southeastern BC	348	0.448	0.488	0.756	0.388	0.344	0.467	0.109
Central/North BC	325	0.415	0.501	0.743	0.418	0.367	0.465	0.090

Z-values for the comparisons were computed as per Equation 3.

$$z = \frac{\bar{p}_1 - \bar{p}_2}{\sqrt{\frac{1}{k-1} p_c q_c \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}} \qquad \textit{(Eq. 3)}$$

Where: $\bar{p}_1$ = the average proportion of statement *i* in area 1;

$\bar{p}_2$ = the average proportion of statement *i* in area 2;

k = total number of statement;

p_c = the combined proportions of statements *i* in area 1 and area 2 (*Eq. 4)*;

$$p_c = \frac{\bar{p}_1 n_1 + \bar{p}_2 n_2}{n_1 + n_2} \qquad \textit{(Eq. 4)}$$

q_c = 1 - p_c;

n_1 = sample size of area 1;

n_2 = sample size of area 2.

Table 18 shows the result of the 6 comparisons between the four areas for the seven natural resource values. As six comparisons were made, a Bonferroni correction was used resulting in an alpha level of 0.017 (α=0.1/6) and a two-tail z-critical of 2.394. Therefore, in Table 19, regions that are statistically different from each other on any statement are the ones with z-values greater than 2.394 or smaller than -2.394.

Table 19. z-values resulted from the comparisons between four sample regions (α=0.1).

Critical value = ± 2.394		Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.	Sustaining biological richness.
		z-values of the paired comparisons						
Vancouver Island/Lower Mainland								
	Costal	0.849	1.667	0.238	-1.847	***-3.593***†	0.419	***3.257***†
	Southeastern	***-2.646***†	***4.100***†	-0.504	-2.362	-2.314	2.198	1.882
	Centra/North	-0.507	***3.198***†	0.459	***-4.260***†	***-3.753***†	2.276	***3.733***†
Costal								
	Southeastern	***-3.395***†	2.245	-0.726	-0.395	1.420	1.684	-1.518
	Central/North	-1.334	1.409	0.203	-2.250	-0.023	1.768	0.322
Southeastern								
	Central/North	2.128	-0.848	0.970	-1.969	-1.502	0.117	1.922

† Statistically different at alpha = 0. 017. Negative signs indicate that proportions of items in column 1 are (statistically) lower than those of items in column 2.

3.4.2. Patterns of Response for the Peace River Development Region, the Central/Northern BC Sample Region (with Peace River Development Region responses removed), and the remaining three Sample Regions.

Tables 20-26 list each natural resource value and the proportions of times that they were chosen over each other in Peace River Development Region, the Central/Northern BC Sample Region (with Peace River Development Region responses removed), and the aggregated remaining three Sample Regions. Figure 5 illustrates the Thurstone scales with the rank of the preferred natural resource values and the relative distances between them. The origin of the scale was assigned to the top-ranked natural resource value and arbitrarily set to one. The scale distance of each natural resource value is found by their cumulative distances from the origin.

Table 20. Vancouver Island/Lower Mainland, Coastal BC, and Southeastern Sample Regions: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

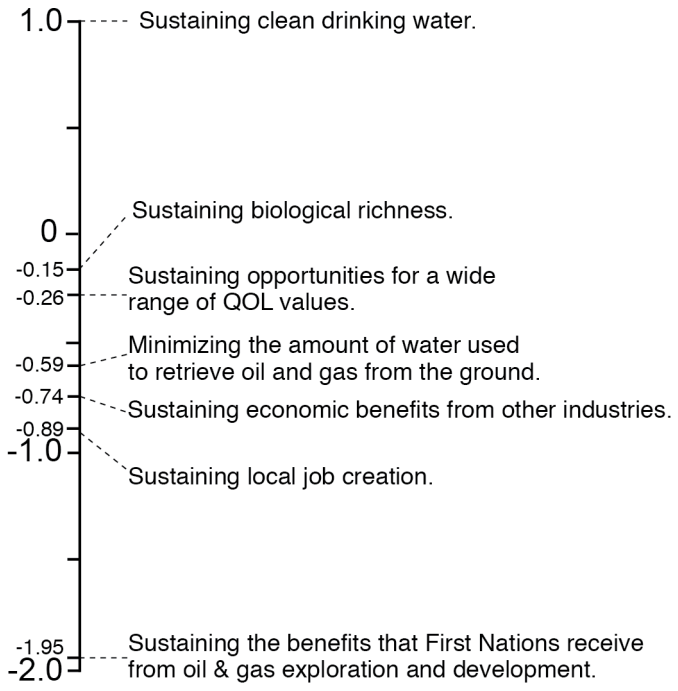
	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.366	0.000					
Sustaining clean drinking water resources.	0.076	0.231	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.583	0.689	0.910	0.000			
Sustaining local job creation.	0.597	0.699	0.917	0.560	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.451	0.522	0.765	0.376	0.362	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.854	0.870	0.969	0.863	0.784	0.886	0.000

Table 21. Central/Northern BC Sample Region (with Peace River Development Region responses removed): Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

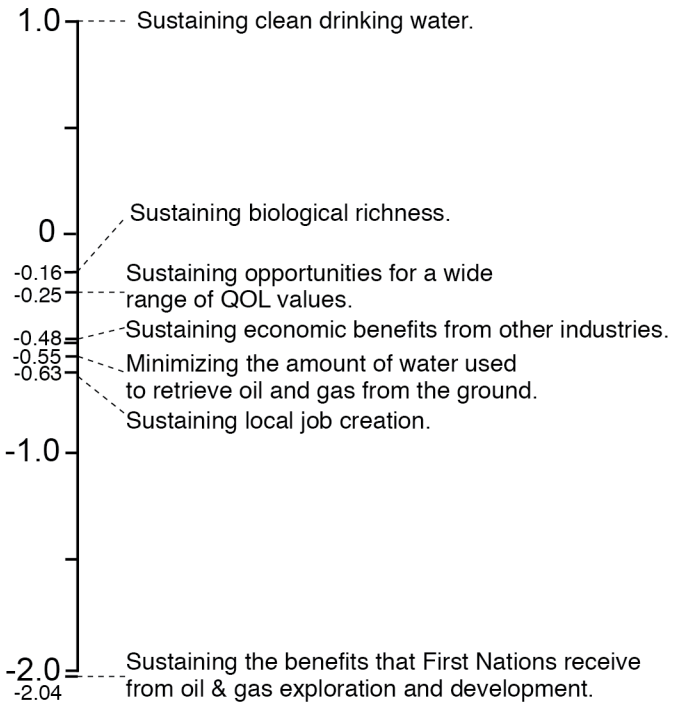
	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.390	0.000					
Sustaining clean drinking water resources.	0.086	0.235	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.511	0.637	0.883	0.000			
Sustaining local job creation.	0.532	0.626	0.896	0.555	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.456	0.496	0.728	0.492	0.432	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.864	0.873	0.974	0.890	0.848	0.887	0.000

Table 22. Peace River Development Region: Proportions of times in which the natural resource value listed in the top row were chosen over the values listed in the first column.

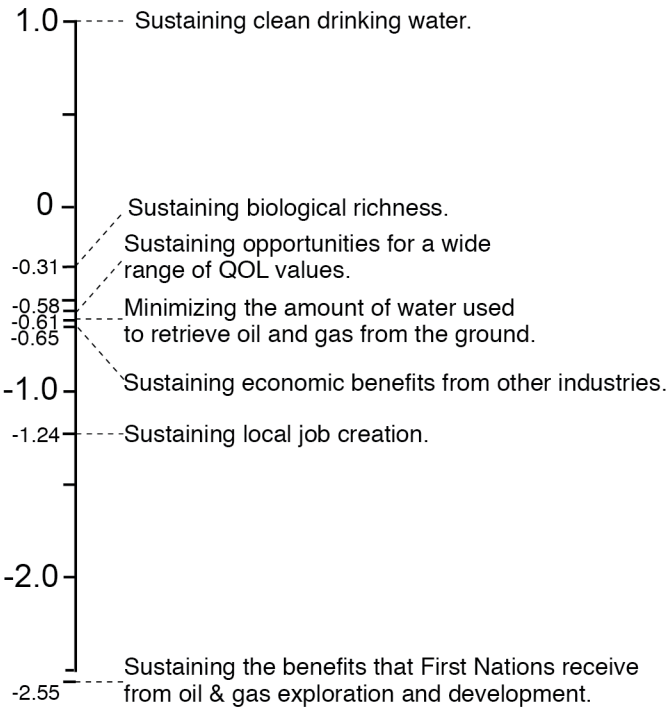
	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Minimizing the amount of water used to retrieve oil and gas from the ground.	0.000						
Sustaining biological richness.	0.426	0.000					
Sustaining clean drinking water resources.	0.082	0.148	0.000				
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	0.590	0593	0.900	0.000			
Sustaining local job creation.	0.724	0.746	0.934	0.689	0.000		
Sustaining opportunities for a wide range of quality of life values.	0.475	0.656	0.783	0.467	0.383	0.000	
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	0.902	0.934	0.980	0.950	0.820	0.917	0.000



(a) Vancouver Island/Lower Mainland, Coastal BC, and Southeastern Sample Regions



(b) Central/Northern BC Sample Region



(c) Peace River Development Region

Figure 5. Thurstone scales: ranking and relative distances of the seven resource values in Peace River Development Region, the Central/Northern BC Sample Region (with Peace River Development Region responses removed), and the remaining three Sample Regions.

Table 23 illustrates the 95% confidence intervals for each scale and average discrepancies between observed and expected proportions for the five analyses.

Table 23. Confidence intervals and average discrepancies.

Sample Region	n	95% C.I. for scale values	Average Discrepancy
Combined Vancouver Island/Lower Mainland, Coastal BC, and Southeastern Sample Regions	955	± 0.05	2.3%
Central/Northern BC (with Peace River Development Region removed)	265	± 0.09	28%
Peace River Development Region	60	± 0.18	3.0%

For example, in the scale for the Peace River Development Region, “Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining)”, “Minimizing the amount of water used to retrieve oil and gas from the ground”, and “Sustaining opportunities for a wide range of quality of life values:” are not statistically different from each other when a confidence interval of ±0.18 is applied to the scale value of these resource values. In other words, these resource values can be considered to have the same degree of relative importance to respondents from the Peace River Development Region.

The internal consistencies, or the average discrepancies, of the analyses were checked by taking the grand average of the differences between expected and observed proportions of each natural resource value. Average discrepancies values of up to 7% to 8% are generally considered acceptable.

A modified z-test for proportions was used to compare potential differences between the areas of interest. Specifically, the average preferred proportions of the seven natural resource values were used for the comparisons between the three areas (Table 24).

Table 24. Average preferred proportions.

	n	Minimizing the amount of water used to retrieve oil and gas from the ground.	Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
				Average preferred proportions $\overline{p}$				
Combined Vancouver Island/Lower Mainland, Coastal BC, and Southeastern Sample Regions	955	0.418	0.521	0.751	0.374	0.339	0.487	0.111
Central/Northern BC (with Peace River Development Region removed)	265	0.406	0.497	0.737	0.415	0.382	0.469	0.095
Peace River Development Region	60	0.457	0.521	0.767	0.432	0.301	0.450	0.071

Table 25 shows the result of the 3 comparisons between the four areas for the seven natural resource values. As three comparisons were made, a Bonferroni correction was used resulting in an alpha level of 0.033 (α=0.1/3) and a two-tail z-critical of 2.128. Therefore, in Table 25, regions that are statistically different from each other on any statement are the ones with z-values greater than 2.128 or smaller than -2.128.

Table 25. z-values resulted from the comparisons between regions (α=0.1).

Critical value = ± 2.394		Sustaining biological richness.	Sustaining clean drinking water resources.	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	Sustaining local job creation.	Sustaining opportunities for a wide range of quality of life values.	Sustaining the benefits that First Nations receive from oil and gas exploration and development.	Sustaining biological richness.
		z-values of the paired comparisons						
Combined Vancouver Island/Lower Mainland, Coastal BC, and Southeastern Sample Regions								
	Central/ Northern BC Sample Region	0.893	1.698	1.097	***-3.009†***	***-3.152†***	1.294	1.787
	Peace River Development Region	-1.454	-0.029	-0.695	***-2.203†***	1.465	1.355	***2.350†***
Central/ Northern BC Sample Region								
	Peace River Development Region	-1.790	-0.852	-1.170	-0.572	***2.854†***	0.633	1.431

† Statistically different at alpha = 0. 033.

3.5. Question 5: Opinions about the trustworthiness of different sources of information about oil and gas development.

Respondents were presented with eleven different sources of information about oil and gas development, and were asked to indicate the degree of trust they had in each source (Table 26). Universities and colleges were the highest rank source of information, as more than four in five respondents (81.3%) indicated that they strongly or somewhat trusted this source; fewer than one in ten respondents (8.8%) indicated that they strongly or somewhat distrusted universities and colleges as sources of information about oil and gas development. Almost three-quarters of respondents (73.4%) strongly or somewhat trusted experts as sources of information, while more than one in ten (13.5%) strongly or somewhat distrusted this source of information. Environmental non-governmental organizations were strongly or somewhat trusted by three in five respondents (60.0%), and were strongly or somewhat distrusted by more than one-quarter of respondents (26.5%) as sources of information about oil and gas development. Friends were trusted almost as much as environmental non-governmental organizations, as more than

half of respondents (59.8%) strongly or somewhat trusted friends as sources of information; fewer than one in ten respondents strongly or somewhat distrusted friends. The Internet was a trusted source of information about oil and gas development for over half of respondents (55.6%) and was strongly or somewhat distrusted by less than one-quarter of respondents (22.6%). Politicians were the source of information that was trusted least, as almost three-quarters of respondents (74.6%) strongly or somewhat distrusted politicians as sources of information about oil and gas development; just more than one in ten respondents strongly or somewhat trusted politicians. Almost three-times as many respondents strongly or somewhat distrusted Government (60.3%) than did respondents that strongly or somewhat trusted Government as a source of information about oil and gas development (22.5%). Almost half of respondents (48.2%) strongly or somewhat trusted national media, while more than one-third (35.1%) strongly or somewhat distrusted national media as a source of information about oil and gas development; local media was trusted less than national media – less than half of respondents (46.5%) strongly or somewhat trusted local media, while more than one-third (35.8%) strongly or somewhat distrusted local media as an information source. Although local leaders were trusted more than other politicians, fewer than two in five respondents (39.1%) strongly or somewhat trusted local leaders as sources of information, while more (46.9%) strongly or somewhat distrusted them as sources of information. More than twice as many respondents strongly or somewhat distrusted religious or spiritual leaders as sources on information about oil and gas development than did the percentage of respondents that reported strongly or somewhat trusting religious or spiritual leaders.

Table 26. Question 5: Trust of different sources of information about oil and gas development (most frequently identified response in **bold**).

Item	n	Strongly Distrust (1)	Somewhat Distrust (2)	Neither (3)	Somewhat Trust (4)	Strongly Trust (5)	Mean	95% CI	SD
Internet	1,153	3.9%	18.7%	21.7%	**50.7%**	4.9%	3.34	± 0.05	0.966
Local leaders	1,267	10.9%	36.0%	14.0%	**37.1%**	2.0%	2.83	± 0.06	1.104
Local media	1,282	8.7%	27.1%	17.7%	**43.1%**	3.4%	3.05	± 0.06	1.087
National media	1,280	9.1%	26.0%	16.7%	**42.7%**	5.5%	3.10	± 0.06	1.124
Politicians	1,273	**38.5%**	36.1%	13.0%	11.9%	0.5%	2.00	± 0.06	1.020
Friends	1,245	1.9%	6.3%	32.0%	**47.9%**	11.9%	3.62	± 0.05	0.846
Universities and colleges	1,250	1.4%	7.4%	9.9%	**55.7%**	25.6%	3.97[†]	± 0.05	0.882
Government	1,285	27.8%	**32.5%**	17.3%	20.9%	1.6%	2.36	± 0.06	1.139
Religious or spiritual leaders	1,132	26.0%	20.3%	**32.6%**	17.3%	3.8%	2.53	± 0.06	1.159
Experts	1,283	3.4%	10.1%	13.2%	**53.2%**	20.2%	3.77	± 0.05	0.993
Environmental non-governmental organizations	1,274	9.0%	17.5%	13.4%	**44.5%**	15.5%	3.40	± 0.07	1.202
Other	169	17.2%	5.9%	**30.8%**	16.0%	30.2%	3.36	± 0.21	1.412

[†] The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean responses of the Coastal BC sample region.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for one of the twelve items in Question 5 (Table 27).

Table 27. Question 5 (ANOVA): Trust of different sources of information about oil and gas development (significant differences between sample regions in **bold**).

Item	n	df	F	p
Internet	1,150	3	0.804	0.492
Local leaders	1,264	3	0.875	0.453
Local media	1,279	3	0.441	0.724
National media	1,277	3	1.331	0.263
Politicians	1,270	3	0.766	0.513
Friends	1,242	3	1.278	0.280
Universities and colleges	**1,247**	**3**	**5.033**	**0.002**
Government	1,282	3	1.876	0.132
Religious or spiritual leaders	1,129	3	1.252	0.289
Experts	1,280	3	1.472	0.220
Environmental non-governmental organizations	1,271	3	1.619	0.183
Other	168	3	0.444	0.722

There were significant differences between the mean responses of the four sample regions for the seventh item, *universities and colleges*. Although the Levene statistic (2.629, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (5.150, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x} = 4.09$) was significantly higher (*i.e.*, more trustworthy) than the mean responses of the Coastal BC sample region ($\bar{x} = 3.82$).

3.6. Question 6: Opinions about the safety of oil and gas development in BC.

There was a similar pattern of response for the first three statements in this question, as more than twice as many respondents expressed disagreement than did express agreement (Table 28). More than half of respondents (58.7%) mildly or strongly disagreed that *they would feel safe living near an oil and gas development*, while one-quarter of respondents (25.4%) indicated that they mildly or strongly agreed with this statement. A majority of respondents (58.5%) mildly or strongly disagreed that *there were enough checks and balances in place (e.g., rules, regulations, monitoring, oversight) to ensure safe oil and gas development*, while less than one-quarter of respondents (24.2%) mildly or strongly agreed that there were sufficient checks and balances. Over half of respondents (56.4%) mildly or strongly disagreed that *the economic benefits of oil and gas development in BC outweigh the potential risks*, while less than one-quarter of respondents indicated that they mildly or strongly agreed with this statement.

Table 28. Question 6: Trust of different sources of information about oil and gas development (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mildly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
I would feel safe living near an oil and gas development.	1,268	6.8%	18.6%	15.9%	18.0%	**40.7%**	3.67†	± 0.07	1.347
There are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development.	1,221	6.1%	18.1%	17.3%	22.5%	**36.0%**	3.64‡	± 0.07	1.297
The economic benefits of oil and gas development in BC outweigh the potential risks.	1,272	8.6%	15.6%	19.4%	17.4%	**39.0%**	3.63	± 0.07	1.357
I could feel safer if I had more information on oil and gas development.	1,246	30.9%	**31.1%**	19.9%	9.6%	8.5%	2.34▲	± 0.07	1.243

† The mean response of the Central/Northern sample region was significantly lower than the mean responses of the Vancouver Island/Lower Mainland and Coastal BC sample regions.
‡ The mean response of the Coastal BC sample region was significantly higher than the mean responses of the Central/Northern and Southeastern BC sample regions.
▲ The mean response of the Coastal BC sample region was significantly higher than the mean responses of the Vancouver Island/Lower Mainland and Southeastern BC sample regions; the mean response of the Southeastern BC sample region was significantly lower than the mean response of the Central/Northern BC sample region.

Almost two-thirds (62.0%) mildly or strongly agreed that they could feel safer of they had more information about oil and gas development, while fewer than one in five respondents disagreed that more information about oil and gas development could help them to feel safer.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for three of the four items in Question 6 (Table 29).

Table 29. Question 6 (ANOVA): Opinions and attitudes about the safety of oil and gas development in BC (significant differences between sample regions in **bold**).

Item	n	df	F	p
I would feel safe living near an oil and gas development.	**1,265**	**3**	**5.204**	**0.001**
There are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development.	**1,218**	**3**	**6.404**	**0.000**
The economic benefits of oil and gas development in BC outweigh the potential risks.	1,269	3	1.579	0.193
I could feel safer if I had more information on oil and gas development.	**1,243**	**3**	**6.951**	**0.000**

There were significant differences between the mean responses of the four sample regions for the first item, *I would feel safe living near an oil and gas development*. Although the Levene statistic (5.151, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (5.028, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Central/Northern sample region ($\bar{x} = 3.46$) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x} = 3.82$) and Coastal BC ($\bar{x} = 3.81$) sample regions.

There were also significant differences between the mean responses of the four sample regions for the second item, *there are enough checks and balances (e.g., rules, regulations, monitoring, oversight) to ensure safe oil and gas development*. Although the Levene statistic (6.788, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (6.592, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Coastal BC sample region ($\bar{x} = 3.46$) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Central/Northern ($\bar{x} = 3.52$) and Southeastern BC ($\bar{x} = 3.48$) sample regions.

Lastly, there were also significant differences between the mean responses of the four sample regions for the fourth item, *I could feel safer if I had more information about oil and gas development*. Although the Levene statistic (9.530, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal, the Welch F Test (6.937, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Coastal BC sample region ($\bar{x} =$

2.54) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x}$ = 2.25) and Southeastern BC ($\bar{x}$ = 2.14) sample regions; the mean response of the Southeastern BC sample region ($\bar{x}$ = 2.14) was significantly lower (*i.e.*, more agreeable) than the mean response of the Central/Northern BC sample region ($\bar{x}$ = 2.46).

The majority of respondents indicated that they did have safety concerns about the development of oil and gas in BC (Figure 6). Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for this question. There was a significant difference between the four sample regions (χ^2 = 36.015, df = 3, p > 0.05; Cramer's V =0.118); fewer Coastal BC respondents indicated that they were not sure about their safety concerns than the other three sample regions, fewer Coastal BC respondents also indicated that they did not have any safety concerns about their safety concerns than the other three sample regions; and more Southeastern BC respondents indicated that they were not sure about their safety concerns than the other three sample regions.

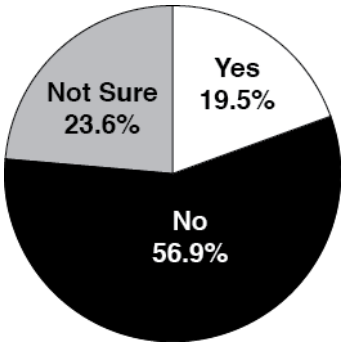


Figure 6. Do you have any safety concerns about the development of oil and gas in BC?

3.7. Question 7: Opinions about the importance of local ecological, economic, and social management objectives for oil and gas development.

In general, respondents indicated that ecological and social management objectives were more important than economic management objectives were (Table 30). More than four in five respondents (83.9%) indicated that it was very or extremely important that *rare and vulnerable habitat types be sustained in natural conditions*, while fewer than one in twenty respondents (3.2%) indicated that it was slightly important or not important at all that these habitats be sustained. A similar pattern was evident for the importance that *habitat is maintained for the full range and diversity of native wildlife species*: 84.5% indicated that this management objective was very or extremely important, while 3.2% of respondents

Table 30. Question 7: Opinions and beliefs about local ecological, economic, and social management objectives (most frequently identified response in **bold**).

Ecological Management Objectives									
Item	**n**	**Extremely Important (1)**	**Very Important (2)**	**Moderately Important (3)**	**Slightly Important (4)**	**Not Important At All (5)**	**Mean**	**95% CI**	**SD**
Rare and vulnerable habitat types are sustained in natural conditions.	1,275	**50.0%**	33.9%	12.9%	3.0%	0.2%	1.69	± 0.05	0.823
Habitat is maintained for the full range and diversity of native wildlife species.	1,298	**47.8%**	36.7%	12.2%	3.0%	0.2%	1.71	± 0.05	0.812
The natural distribution of important species in their habitats is maintained.	1,295	**44.6%**	37.7%	14.0%	3.4%	0.3%	1.77	± 0.05	0.835
Long-term soil fertility is maintained.	1,290	**53.6%**	34.7%	9.4%	1.6%	0.8%	1.61	± 0.04	0.782
Area disturbed by oil and gas resource development is minimized.	1,294	**55.4%**	32.7%	9.0%	2.3%	0.6%	1.60[†]	± 0.04	0.796
Slope stability is maintained and soil erosion is prevented.	1,298	**58.1%**	32.7%	7.1%	1.6%	0.5%	1.54	± 0.04	0.737
The ability of the landscape to recover from disturbance is maintained.	1,307	**57.7%**	34.4%	6.0%	1.6%	0.2%	1.52	± 0.04	0.703
The amount of water used to develop oil and gas resources is minimized.	1,300	**57.7%**	28.3%	10.9%	2.6%	0.5%	1.60	± 0.05	0.820
It is OK to sacrifice economic benefits to protect the environment.	1,296	**37.0%**	30.7%	20.6%	8.1%	3.5%	2.10	± 0.06	1.100

[†] The mean response of the Central/Northern sample region was significantly higher than the mean responses of the Vancouver Island/Lower Mainland and Coastal BC sample regions.

Table 30 (cont'd). Question 7: Opinions and beliefs about local ecological, economic, and social management objectives (most frequently identified response in **bold**).

Economic Management Objectives									
Item	**n**	**Extremely Important (1)**	**Very Important (2)**	**Moderately Important (3)**	**Slightly Important (4)**	**Not Important At All (5)**	**Mean**	**95% CI**	**SD**
Oil and gas development continues to contribute to economic well-being.	1,280	17.0%	24.5%	**32.0%**	11.0%	5.5%	2.54[†]	± 0.06	1.069
Employment and income sources in the local economy are diversified.	1,263	27.2%	**46.6%**	19.9%	5.2%	1.2%	2.07	± 0.05	0.884
The provincial government receives economic benefits from oil and gas resource development.	1,267	23.1%	**33.4%**	25.0%	12.8%	5.7%	2.45	± 0.06	1.143
Local First Nations receive economic benefits from oil and gas resource development.	1,250	9.4%	18.2%	**27.3%**	21.0%	24.1%	3.32	± 0.07	1.277
A competitive, diversified oil and gas sector exists.	1,126	15.4%	**35.9%**	27.7%	13.3%	7.7%	2.62	± 0.07	1.129
It is OK to sacrifice short term impacts to the environment for economic gain as long as the impact is rehabilitated.	1,181	17.4%	**28.5%**	21.3%	15.2%	17.7%	2.87[‡]	± 0.08	1.351

[†] The mean response of the Coastal BC sample region was significantly higher than the mean response of the Southeastern BC (and Central/Northern sample regions.
[‡] The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean response of the Southeastern BC sample region.

Table 30 (cont'd). Question 7: Opinions and beliefs about local ecological, economic, and social management objectives (most frequently identified response in **bold**).

Item	n	Extremely Important (1)	Very Important (2)	Moderately Important (3)	Slightly Important (4)	Not Important At All (5)	Mean	95% CI	SD
Social Management Objectives									
The public are given meaningful opportunities for expressing their opinions and concerns about the management of oil and gas resources.	1,284	**44.9%**	39.2%	12.5%	2.8%	0.6%	1.75	± 0.05	0.825
Information is shared between the public and oil and gas companies about oil and gas resource development activities.	1,293	**52.7%**	37.4%	7.5%	1.8%	0.5%	1.60	± 0.04	0.750
Oil and gas resource development plans recognize and respect First Nations and treaty rights.	1,260	**29.8%**	27.4%	20.0%	12.1%	10.8%	2.47[†]	± 0.07	1.317
Recreation resources, opportunities and experiences are maintained or enhanced.	1,291	36.1%	**38.9%**	19.3%	4.6%	1.2%	1.96	± 0.05	0.917
Drinking water quality is maintained.	1,315	**87.8%**	10.6%	1.4%	0.2%	0.1%	1.14	± 0.02	0.416
Oil and gas development conserves unique or special social, cultural, and spiritual places and features.	1,260	**38.2%**	29.9%	19.8%	8.3%	3.8%	2.10	± 0.06	1.117
Worker and community safety is maintained.	1,306	**77.9%**	19.8%	1.8%	0.3%	0.2%	1.25	± 0.03	0.519

[†] The mean response of the Vancouver Island/Lower Mainland sample region was significantly lower than the mean responses of the Central/Northern sample region.

indicated that this was only slightly important or not important at all. The majority of respondents (82.3%) indicated that it was very or extremely important that *the natural distribution of important species in their habitats is maintained*; only 3.7% of respondents felt that this management objective was slightly important or not important at all. Most respondents (88.3%) indicated that it was very or extremely important that *long-term soil fertility is maintained*, while fewer than one in forty respondents (2.4%) indicated that this was slightly important or not important at all. Just fewer than nine in ten respondents (88.1%) reported that it was very or extremely important that *the area disturbed by oil and gas resource development is minimized*, while 2.9% of respondents indicated that this was slightly important or not important at all. Nine out of ten respondents (90.8%) reported that it was very or extremely important that *slope stability is maintained and soil erosion is prevented*; fewer than one respondent in forty (2.1%) indicated that this management objective was slightly important or not important at all. More than nine in ten respondents indicated that *the ability of the landscape to recover from disturbance is maintained* was a very or extremely important management objective, while just more than one respondent in one hundred (1.8%) indicated that this management objective was slightly important or not important at all. More than four respondents in five (86.0%) reported that *the amount of water used to develop oil and gas resources is minimized* was a very or extremely important management objective; fewer than one in thirty respondents (3.1%) reported that this was only slightly important or not important at all. More than six-times as many respondents indicated that was very or extremely important (67.7%) that *it was OK to sacrifice economic benefits to protect the environment* than did the percentage of respondents that indicated that this management objective was slightly important or not important at all.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for four of the nine ecological objectives in Question 7 (Table 31). There were significant differences between the mean responses of the four sample regions for the fifth ecological management objective, *area disturbed by oil and gas resource development is minimized*. Although the Levene statistic (3.174, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (4.572, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Central/Northern sample region ($\bar{x} = 1.73$) was significantly higher (*i.e.*, less impotent) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x} = 1.53$) and Coastal BC ($\bar{x} = 1.51$) sample regions.

Significant differences were identified between the mean responses of the four sample regions for the sixth ecological management objective, *slope stability is maintained and soil erosion is prevented*. The Levene statistic (4.135, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; the Welch F Test (2.442, $p > 0.05$) did not confirm the presence of any significant statistical differences between the four sample regions.

Table 31. Question 7 (ANOVA): Opinions and beliefs about local ecological, economic, and social management objectives (significant differences between sample regions in **bold**).

Ecological Management Objectives				
Item	**n**	**df**	**F**	**p**
Rare and vulnerable habitat types are sustained in natural conditions.	1,272	3	1.759	0.153
Habitat is maintained for the full range and diversity of native wildlife species.	1,295	3	1.716	0.162
The natural distribution of important species in their habitats is maintained.	1,292	3	2.388	0.067
Long-term soil fertility is maintained.	1,287	3	2.378	0.068
Area disturbed by oil and gas resource development is minimized.	**1,291**	**3**	**4.985**	**0.002**
Slope stability is maintained and soil erosion is prevented.	**1,295**	**3**	**2.849**	**0.036**
The ability of the landscape to recover from disturbance is maintained.	**1,304**	**3**	**2.791**	**0.039**
The amount of water used to develop oil and gas resources is minimized.	**1,297**	**3**	**2.694**	**0.045**
It is OK to sacrifice economic benefits to protect the environment.	1,293	3	2.496	0.058

Significant differences were also identified between the mean responses of the four sample regions for the seventh ecological management objective, *the ability of the landscape to recover from disturbance is maintained*. The Levene statistic (3.953, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; the Welch F Test (2.393, $p > 0.05$) did not confirm the presence of any significant statistical differences between the four sample regions.

Lastly, significant differences were identified between the mean responses of the four sample regions for the eighth ecological management objective, *the amount of water used to develop oil and gas resources is minimized*. Although the Levene statistic (3.570, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; the Welch F Test (2.657, $p < 0.05$) confirmed the presence of significant statistical differences between the four sample regions. However, the Games-Howell *post hoc* test did not reveal where any differences between the four sample regions lay.

There was more variation in the degree of importance attributed to economic management objectives than there was for ecological management objectives. More than twice as many respondents indicated that it was very or extremely important (41.5%) that *oil and gas development continues to contribute to economic well-being* than did respondents that indicated that this management objective was slightly important or not important at all. Almost three-quarters of respondents (73.8%) reported that it was very or extremely important that *employment and income sources in the local economy are diversified*, while

just more than one respondent in twenty (6.4%) indicated that this management objectives was slightly important or not important at all. Over half of respondents (56.5%) reported that it was very or extremely important that *the provincial government receives economic benefits from oil and gas development*, while just fewer than one respondent in five (18.5%) reported that this management objective was slightly important or not important at all. Almost twice as many respondents indicated that it was slightly important or not important at all (45.1%) that *local First nations receive economic benefits from oil and gas resource development* than did respondents that indicated that this management objective was very or extremely important (27.6%). Just over half of respondents (51.3%) reported that the management objective of *a competitive, diversified oil and gas sector exists* was very or extremely important, while just more than one in five respondents (21.0%) reported that this was slightly important or not important at all. More than two respondents in five (45.9%) indicated that *it is OK to sacrifice short-term impacts to the environment for economic gain as long as the impact is rehabilitated*; almost one-third of respondents (32.9%) indicated that this management objective was slightly important or not important at all.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for two of the six economic objectives in Question 7 (Table 32).

Table 32. Question 7 (ANOVA): Opinions and beliefs about local ecological, economic, and social management objectives (significant differences between sample regions in **bold**).

Economic Management Objectives				
Item	**n**	**df**	**F**	**p**
Oil and gas development continues to contribute to economic well-being.	**1,277**	**3**	**6.209**	**0.000**
Employment and income sources in the local economy are diversified.	1,260	3	1.188	0.313
The provincial government receives economic benefits from oil and gas resource development.	1,264	3	1.839	0.138
Local First Nations receive economic benefits from oil and gas resource development.	1,247	3	1.379	0.248
A competitive, diversified oil and gas sector exists.	1,123	3	2.064	0.103
It is OK to sacrifice short term impacts to the environment for economic gain as long as the impact is rehabilitated.	**1,178**	**3**	**4.536**	**0.004**

There were significant differences between the mean responses of the four sample regions for the first economic management objective, *oil and gas development continues to contribute to economic well-being*. As the Levene statistic (2.053, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x} = 2.75$) was significantly higher (*i.e.*, less important)

than the mean response of the Southeastern BC ($\bar{x}$ = 2.42) and Central/Northern ($\bar{x}$ = 2.44) sample regions.

There were statistically significant differences between the mean responses of the four sample regions for the sixth economic management objective, *it is OK to sacrifice short-term impacts to the environment for economic gain as ling as the impact is rehabilitated*. As the Levene statistic (1.883, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x}$ = 3.06) was significantly higher (*i.e.*, less important) than the mean response of the Southeastern BC sample region ($\bar{x}$ = 2.67).

On the whole, respondents indicated that the social management objectives were important. More than four respondents in five (84.1%) reported that it was very or extremely impotent that *the public are given meaningful opportunities for expressing their opinions and concerns about the management of oil and gas resources*, while fewer than one in twenty respondents (3.4%) indicated that this was slightly important or not important at all. Nine respondents in ten (90.1%) reported that it was very or extremely important that *information is shared between the public and oil and gas companies about oil and gas resource development activities*; fewer than one respondent in twenty indicated that this management objective was slightly important or not important alt all. More than twice as many respondents indicated that it was very or extremely important (57.2%) that *oil and gas resource development plans recognize and respect First Nations and treaty rights* than did respondents that indicated that this management objective was slightly important or not important at all (22.9%). Three-quarters of respondents (75.0%) reported that the management objective that *recreation resources, opportunities and experiences are maintained or enhanced* was either very or extremely important; just more than one in twenty respondents (5.8%) indicated that this management objective was slightly important or not important at all. Almost all respondents (98.4%) indicated that the management objective that *drinking water quality is maintained* was very or extremely important, while fewer than one respondent in one hundred indicated that this was slightly important or not important at all. More than two-thirds of respondents (68.1%) reported that it was very or extremely important that *oil and gas development conserves unique or special social, cultural, and spiritual places and features*; more than one respondent in ten reported that this management objective was slightly important or not important at all. Almost all respondents (97.7%) indicated that it was very or extremely important that *worker and community safety is maintained*; fewer than one respondent in one hundred indicated that this management objective was slightly important or not important at all.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for one of the seven social objectives in Question 7 (Table 33).

Table 33. Question 7 (ANOVA): Opinions and beliefs about local ecological, economic, and social management objectives (significant differences between sample regions in **bold**).

Social Management Objectives				
Item	**n**	**df**	**F**	**p**
The public are given meaningful opportunities for expressing their opinions and concerns about the management of oil and gas resources.	1,281	3	1.350	0.257
Information is shared between the public and oil and gas companies about oil and gas resource development activities.	1,290	3	2.038	0.107
Oil and gas resource development plans recognize and respect First Nations and treaty rights.	**1,257**	**3**	**2.669**	**0.046**
Recreation resources, opportunities and experiences are maintained or enhanced.	1,288	3	2.362	0.070
Drinking water quality is maintained.	1,312	3	1.714	0.162
Oil and gas development conserves unique or special social, cultural, and spiritual places and features.	1,257	3	1.928	0.123
Worker and community safety is maintained.	1,303	3	0.639	0.590

There were significant differences between the mean responses of the four sample regions for the third social management objective, *oil and gas resource development plans recognize and respect First Nations and treaty rights*. Although the Levene statistic (5.914, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (2.740, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x} = 2.36$) was significantly lower (*i.e.*, more impotent) than the mean responses of the Central/Northern sample region ($\bar{x} = 2.64$).

3.8. Question 8: Opinions about local oil and gas development issues.

Respondents were mixed in their level of agreement with the eleven statements posed to them about local-level oil and gas issues (Table 34); given the provincial scope of this survey and the potential number of locales, this degree of variation is not surprising. Almost as many respondents mostly or strongly agreed (37.7%) as did mostly or strongly disagreed (36.9%) that *local oil and gas industry managers are responsive to public concerns*. A similar balance among respondents was evident for the statement that *government regulatory authorities are responsive to public concerns*: 34.6% of respondents mostly or strongly agreed with this statement, while 38.1% of respondents mostly or strongly disagreed. More than two in five respondents (45.0%) mostly or strongly agreed that *cutting back oil and gas activities would reduce the standard of living of communities*, while less than one-quarter of respondents mostly or strongly disagreed. Almost half of respondents (46.8%) mostly or strongly agreed

Table 34. Question 8: Opinions and beliefs about local oil and gas resource development issues (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mostly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
Local oil and gas industry managers are responsive to public concerns.	1,019	18.1%	19.6%	**25.4%**	19.1%	17.8%	2.99†	± 0.08	1.305
Government regulatory authorities are responsive to public concerns.	1,146	17.0%	17.6%	**27.2%**	21.6%	16.5%	3.03‡	± 0.08	1.317
Cutting back oil and gas activities would reduce the standard of living of communities.	1,180	17.6%	27.4%	**30.4%**	14.8%	9.7%	2.72▲	± 0.07	1.199
Overall, oil and gas exploration and development produce positive results for local communities.	1,203	15.9%	**30.9%**	29.9%	13.0%	10.3%	2.71	± 0.07	1.184
I have had opportunities to receive honest and accurate information about oil and gas from the government regulator.	869	3.5%	10.0%	25.8%	**30.8%**	29.9%	3.74	± 0.07	1.096
In general, the oil and gas industry is more environmentally sensitive than other industries in my area.	922	9.3%	15.2%	25.2%	23.4%	**26.9%**	3.43	± 0.08	1.284
In times of drought, water will be diverted to priority uses (*e.g.*, agricultural resources, municipal uses).	1,041	**55.2%**	26.1%	10.7%	4.6%	3.4%	1.75	± 0.06	1.041
Oil and gas processing should be done in BC.	1,207	**39.9%**	31.6%	19.2%	3.0%	6.3%	2.04	± 0.06	1.130

Table 34 (cont'd). Question 8: Opinions and beliefs about local oil and gas resource development issues (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mostly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
Improving oil and gas development technologies will minimize environmental impacts.	1,234	**39.3%**	37.3%	17.0%	3.5%	2.9%	1.93	± 0.05	0.981
Local communities should receive a fair share of locally generated government income.	1,283	**52.7%**	35.3%	10.1%	1.3%	0.6%	1.62	± 0.04	0.769
I am aware of the BC Oil and Gas Commission as a government regulator.	866	29.0%	**32.6%**	22.5%	8.1%	7.9%	2.33◊	± 0.08	1.198

† The mean response of the Coastal BC sample region was significantly higher than the mean response of the Southeastern BC sample region.
‡ The mean response of the Southeastern BC sample region was significantly higher than the mean response of the Coastal BC sample region.
▲ The mean response of the Coastal BC sample region was significantly higher than the mean response of the Central/Northern BC sample region.
The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean responses of the Central/Northern sample region; and the mean response of the Coastal BC sample region was significantly higher than the mean responses of the Vancouver Island/Lower Mainland, Southeastern BC, and Central/Northern sample regions.
The mean response of the Southeastern BC sample region was significantly higher than the mean response for the Central/Northern BC sample region.
The mean response of the Central/Northern BC sample region was significantly lower than the mean responses for the Vancouver Island/Lower Mainland, Coastal BC, and Southeastern BC sample regions.
The mean response of the Vancouver Island/Lower Mainland sample region was significantly higher than the mean responses of the Coastal BC and Central/Northern BC sample regions.
◊ The mean response of the Central/Northern BC sample region was significantly lower than the mean responses of the Vancouver Island/Lower Mainland and Southeastern BC sample regions.

that *overall, oil and gas exploration and development produce positive results for local communities*; fewer than one-quarter of respondents (23.3%) mostly or strongly disagreed with this statement. Three in five respondents (60.7%) mostly or strongly disagreed that *they have had opportunities to receive honest and accurate information about oil and gas from the government regulator*, while just more than one in ten respondents (13.5%) mostly or strongly agreed. Twice as many respondents mostly or strongly disagreed (50.3%) that i*n general, the oil and gas industry is more environmentally sensitive than other industries in my area* than did the percentage of respondents that mostly or strongly agreed. Ten times as any respondents mostly or strongly agreed that *in times of drought, water would be diverted to priority uses (e.g., agricultural resources, municipal uses)* than did the percentage of respondents that mostly or strongly disagreed (8.0%). More than seven in ten respondents (71.5%) mostly or strongly agreed that *oil and gas processing should be done in BC*, while fewer than one in ten respondents (9.3%) mostly or strongly disagreed. More than eleven times as many respondents mostly or strongly agreed (76.6%) that *improving oil and gas development technologies will minimize environmental impacts* than did the percentage of respondents that mostly or strongly disagreed (6.4%). More than four of five respondents (88.0%) mostly or strongly agreed that *local communities should receive a fair share of locally generated government income*, while fewer than one in fifty respondents (1.9%) mostly or strongly disagreed with this management objective. Fewer than two-thirds of respondents (61.6%) mostly or strongly agreed that *they were aware of the BC Oil and Gas Commission as a government regulator*, while fewer than one in five respondents (16.0%) mostly or strongly disagreed.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for eight of the eleven local oil and gas resource development issues in Question 8 (Table 35).

Table 35. Question 8 (ANOVA): Opinions and beliefs about local oil and gas resource development issues (significant differences between sample regions in **bold**).

Item	n	df	F	p
Local oil and gas industry managers are responsive to public concerns.	**1,017**	**3**	**4.658**	**0.003**
Government regulatory authorities are responsive to public concerns.	**1,143**	**3**	**3.651**	**0.012**
Cutting back oil and gas activities would reduce the standard of living of communities.	**1,177**	**3**	**3.437**	**0.016**
Overall, oil and gas exploration and development produce positive results for local communities.	**1,120**	**3**	**10.805**	**0.000**
I have had opportunities to receive honest and accurate information about oil and gas from the government regulator.	**867**	**3**	**5.931**	**0.001**
In general, the oil and gas industry is more environmentally sensitive than other industries in my area.	919	3	0.684	0.562
In times of drought, water will be diverted to priority uses (*e.g.*, agricultural resources, municipal uses).	1,038	3	1.225	0.300
Oil and gas processing should be done in BC.	**1,204**	**3**	**8.205**	**0.000**
Improving oil and gas development technologies will minimize environmental impacts.	1,231	3	1.831	0.140
Local communities should receive a fair share of locally generated government income.	**1,280**	**3**	**10.325**	**0.000**
I am aware of the BC Oil and Gas Commission as a government regulator.	**863**	**3**	**6.089**	**0.000**

There were significant differences between the mean responses of the four sample regions for the first local oil and gas resource development issue, *local oil and gas industry managers are responsive to public concerns*. As the Levene statistic (1.307, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x} = 3.21$) was significantly higher (*i.e.*, less agreeable) than the mean response of the Southeastern BC sample region ($\bar{x} = 2.77$).

Statistically significant differences were identified between the mean responses of the four sample regions for the second local oil and gas resource development issue, *government regulatory authorities are responsive to public concerns*. As the Levene statistic (0.371, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Southeastern BC sample region ($\bar{x} = 3.87$) was

significantly higher (*i.e.*, less agreeable) than the mean response of the Coastal BC sample region ($\bar{x}$ = 3.23).

Statistically significant differences were also identified between the mean responses of the four sample regions for the third local oil and gas resource development issue, *cutting back oil and gas activities would reduce the standard of living of communities*. As the Levene statistic (1.506, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x}$ = 2.84) was significantly higher (*i.e.*, less agreeable) than the mean response of the Central/Northern BC sample region ($\bar{x}$ = 2.54).

There were significant differences between the mean responses of the four sample regions for the fourth local oil and gas resource development issue, *overall, oil and gas exploration and development produce positive results for local communities*. Although the Levene statistic (3.078, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (9.573, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x}$ = 2.74) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Central/Northern sample region ($\bar{x}$ = 2.47); and the mean response of the Coastal BC sample region ($\bar{x}$ = 3.02) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x}$ = 2.74), Southeastern BC ($\bar{x}$ = 6.67), and Central/Northern ($\bar{x}$ = 2.47) sample regions.

Statistically significant differences between the mean responses of the four sample regions were identified for the fifth local oil and gas resource development issue, *I have had opportunities to receive honest and accurate information about oil and gas from the government regulator*. Although the Levene statistic (7.098, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (6.097, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Southeastern BC sample region ($\bar{x}$ = 3.95) was significantly higher (*i.e.*, less agreeable) than the mean response for the Central/Northern BC sample region ($\bar{x}$ = 3.52).

There were statistically significant differences identified between the mean responses of the four sample regions identified for the eighth local oil and gas resource development issue, *oil and gas processing should be done in BC*. Although the Levene statistic (14.389, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (8.500, $p < 0.05$) confirmed the presence of the differences. The Games-Howell *post hoc* test revealed that the mean response of the Central/Northern BC sample region ($\bar{x}$ = 1.83) was significantly lower (*i.e.*, more

agreeable) than the mean responses for the Vancouver Island/Lower Mainland ($\bar{x}$ = 2.19), Coastal BC ($\bar{x}$ = 2.20), and Southeastern BC ($\bar{x}$ = 2.02) sample regions.

Statistically significant differences were also identified between the mean responses of the four sample regions for the tenth local oil and gas resource development issue, *local communities should receive a fair share of locally generated government income*. As the Levene statistic (2.393, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Vancouver Island/Lower Mainland sample region ($\bar{x}$ = 1.79) was significantly higher (*i.e.*, less agreeable) than the mean responses of the Coastal BC ($\bar{x}$ = 1.50) and Central/Northern BC ($\bar{x}$ = 1.50) sample regions.

Lastly, there were statistically significant differences identified between the mean responses of the four sample regions for the eleventh local oil and gas resource development issue, *I am aware of the BC Oil and Gas Commission as a government regulator*. As the Levene statistic (1.811, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Central/Northern BC sample region ($\bar{x}$ = 2.08) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Vancouver Island/Lower Mainland ($\bar{x}$ = 2.54) and Southeastern BC ($\bar{x}$ = 2.39) sample regions.

3.9. Question 9: Opinions about the management of rare plants and animals (*i.e.*, species at risk).
Respondents were generally supportive of strategies to protect species at risk (Table 36). More than ten times as many respondents mostly or strongly agreed (71.8%) that *the management of species at risk should be given priority over economic benefits* than did the percentage of respondents that mostly or strongly disagreed (6.4%). More than twice as many respondents mostly or strongly disagreed (49.5%) that *oil and gas exploration and development does a good job of managing for species at risk* than did the percentage of respondents that mostly or strongly agreed (21.5%). More than one-third of respondents mostly or strongly agreed (35.0%) that *oil and gas exploration and development are the commercial activities that most affect species at risk*, while more than one-quarter of respondents (28.5%) mostly or strongly disagreed with this statement. More than three-times as many respondents mostly or strongly disagreed (53.3%) that *it is acceptable to protect species at risk even if it harms other species* than did the percentage of respondents that mostly or strongly agreed (14.0%). Almost three-quarters of respondents (72.7%) mostly or strongly agreed that *it is acceptable to limit oil and gas exploration and development activities in areas that are important for species at risk*, while fewer than one in ten respondents (8.2%) mostly or strongly disagreed. More than three-quarters of respondents (79.4%) mostly or strongly agreed that *the management of species at risk in the area where I live is important to me*, while fewer than one in twenty respondents (4.7%) mostly or strongly disagreed. A similar pattern of

Table 36. Question 9: Opinions and beliefs about the management of rare plants and wildlife (most frequently identified response in **bold**).

Item	n	Strongly Agree (1)	Mostly Agree (2)	Partly Agree/ Disagree (3)	Mildly Disagree (4)	Strongly Disagree (5)	Mean	95% CI	SD
The management of species at risk should be given priority over economic benefits.	1,302	**41.5%**	30.3%	21.8%	4.9%	1.5%	1.95	± 0.05	0.979
Oil and gas exploration and development does a good job of managing for species at risk.	879	5.0%	16.5%	**29.0%**	25.3%	24.2%	3.47	± 0.08	1.169
Oil and gas exploration and development are the commercial activities that most affect species at risk.	994	13.8%	21.2%	**36.4%**	21.7%	6.8%	2.87	± 0.07	1.113
It is acceptable to protect species at risk even if it harms other species.	1,180	2.7%	11.3%	**32.7%**	31.7%	21.6%	3.58	± 0.06	1.032
It is acceptable to limit oil and gas exploration and development activities in areas that are important for species at risk.	1,287	**41.0%**	31.7%	19.0%	5.2%	3.0%	1.98†	± 0.06	1.040
The management of species at risk in the area where I live is important to me.	1,295	**50.1%**	29.3%	25.8%	3.0%	1.7%	1.77‡	± 0.05	0.938
The management of species at risk outside of the area where I live is important to me.	1,294	**50.2%**	29.6%	16.2%	2.2%	1.7%	1.76▲	± 0.05	0.921

† The mean response of the Coastal BC sample region was significantly lower than the mean responses of the Central/Northern BC sample region.
‡ The mean response of the Coastal BC sample region was significantly lower than the mean responses of the Central/Northern BC sample region.
▲ The mean response of the Coastal BC sample region was significantly lower than the mean responses of the Central/Northern BC sample region.

response was evident for the statement that *the management of species at risk outside of the area where I live is important to me*: 79.8% of respondents mostly or strongly agreed, and 3.9% mostly or strongly disagreed.

ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for four of the seven items about the management of rare plants and wildlife in Question 9 (Table 37).

Table 37. Question 9 (ANOVA): Opinions and beliefs about the management of rare plants and wildlife (significant differences between sample regions in **bold**).

Item	n	df	F	p
The management of species at risk should be given priority over economic benefits.	1,299	3	2.030	0.108
Oil and gas exploration and development does a good job of managing for species at risk.	**877**	**3**	**2.877**	**0.035**
Oil and gas exploration and development are the commercial activities that most affect species at risk.	991	3	0.977	0.403
It is acceptable to protect species at risk even if it harms other species.	1,177	3	1.830	0.140
It is acceptable to limit oil and gas exploration and development activities in areas that are important for species at risk.	**1,284**	**3**	**2.918**	**0.033**
The management of species at risk in the area where I live is important to me.	**1,292**	**3**	**3.534**	**0.014**
The management of species at risk outside of the area where I live is important to me.	**1,291**	**3**	**3.102**	**0.026**

Significant differences were identified between the mean responses of the four sample regions for the second item about the management of rare plants and wildlife, *oil and gas exploration and development does a good job of managing for species at risk*. As the Levene statistic (0.378, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal; however, a Scheffe *post hoc* test did not identify where the differences lay.

There were statistically significant differences identified between the mean responses of the four sample regions for the fifth item about the management of rare plants and wildlife, *it is acceptable to limit oil and gas exploration and development activities in areas that are important for species at risk*. As the Levene statistic (1.710, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the

Coastal BC sample region ($\bar{x}$ = 1.84) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Central/Northern BC sample region ($\bar{x}$ = 2.08).

Statistically significant differences were also identified between the mean responses of the four sample regions for the sixth item about the management of rare plants and wildlife, *the management of species at risk in the area where I live is important to me*. As the Levene statistic (1.321, p > 0.05) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x}$ = 1.62) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Central/Northern BC sample region ($\bar{x}$ = 1.87).

Lastly, statistically significant differences were identified between the mean responses of the four sample regions for the seventh item about the management of rare plants and wildlife, *the management of species at risk outside of the area where I live is important to me*. As the Levene statistic (0.757, p > 0.05) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean response of the Coastal BC sample region ($\bar{x}$ = 1.67) was significantly lower (*i.e.*, more agreeable) than the mean responses of the Central/Northern BC sample region ($\bar{x}$ = 1.88).

3.10. Question 10: Attitudes and opinions about climate change.

The majority of respondents reported (68.3%) that they were somewhat or very concerned about the effects of climate change (Table 38); only 13.6% of respondents reported being somewhat unconcerned or not concerned at all. There were no statistically significant differences between the mean responses of four sample regions for this question.

Table 38. Question 10: On a scale of 1 to 5, with 1 being NOT CONCERNED AT ALL and 5 being VERY CONCERNED, how concerned are you about the effects of climate change? (most frequently identified response in **bold**).

n	1,230
Not concerned at all (1)	6.0%
Somewhat unconcerned (2)	7.6%
Neither concerned nor unconcerned (3)	18.0%
Somewhat concerned	25.7%
Very concerned	**42.6%**
Mean	3.91
95% CI	± 0.07
SD	1.203

The majority of respondents indicated that they had noticed some effects of climate change in their communities (Figure 7). A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the four sample regions for this question (χ^2 = 11.442, df = 6, p > 0.05; Cramer's V = 0.066).

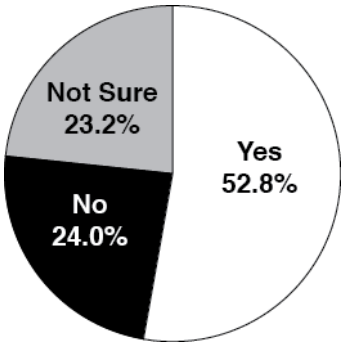


Figure 7. Have you noticed any effects of climate change in your community?

Most respondents reported (47.8%) that they either had a pretty good idea, or a very clear idea of the effects climate change may have on their community or its surrounding environment (Table 39); only 17.8% of respondents reported that they really didn't know, or had absolutely no idea of the effects climate change may have on their community or its surrounding environment. There were no statistically significant differences between the mean responses of four sample regions for this question.

Table 39. Question 10: On a scale of 1 to 5 with 1 being I HAVE ABSOLUTELY NO IDEA and 5 being I HAVE A VERY CLEAR IDEA, do you know what effects climate change may have on your community or its surrounding environment? (most frequently identified response in **bold**)

n	1,240
I have absolutely no idea (1)	6.9%
I don't really know (2)	10.9%
I have some idea (3)	34.4%
I have a pretty good idea	31.5%
I have a very clear idea	16.3%
Mean	3.39
95% CI	± 0.06
SD	1.095

The majority of respondents indicated that they had personal plans to do something in response to climate change (Figure 8). A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the four sample regions for this question (χ^2 = 7.332, df = 6, p > 0.05; Cramer's V = 0.053).

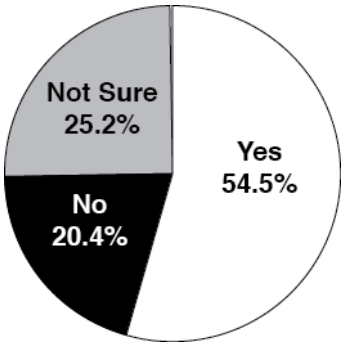


Figure 8. Do you personally plan to do anything in response to climate change?

The majority of respondents indicated that they thought that oil and gas managers should be doing something in response to climate change (Figure 9). A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the four sample regions for this question (χ^2 = 8.669, df = 6, p > 0.05; Cramer's V = 0.058).

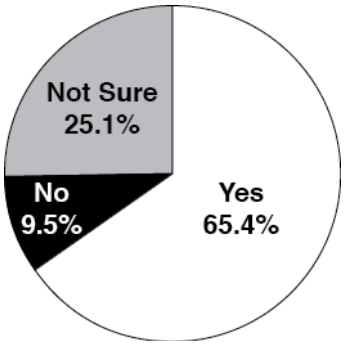


Figure 9. Do you think oil & gas managers should be doing something in response to climate change?

More than three-quarters of respondents (77.1% ± 0.08) indicated that they thought it was more important to start acting now on climate change with what we know, instead of continuing to monitor for climate change so we can learn more. A chi-square test of independence indicated that there were no statistically significant differences in response patterns between the four sample regions for this question ($\chi^2 = 2.214$, df = 3, $p > 0.05$; Cramer's V = 0.041).

3.11. Question 11: Knowledge about different aspects of oil and gas in BC.

A majority of respondents correctly answered each of the true/false statements that were posed (Table 40).

Table 40. Question 11: Familiarity with different aspects of oil and gas in BC.

Statement	n	Correct Responses
Hydrocarbons are created from organically rich deposits that have been subjected to tremendous heat and pressure. **(True)**	961	93.9%
Natural gas is not a greenhouse gas. **(False)**	1,045	51.1%
Oil and gas deposits take millions of years to form. **(True)**	1,205	93.5%
Currently, there is a ban on the development of off-shore oil and gas resources in BC. **(True)**	963	89.7%
The oil and gas produced in BC is mainly for use in BC. **(False)**	979	94.7%
The majority of BC's active oil and gas development is in the Peace region, in the northeast part of the province. **(True)**	1,075	95.1%
Government revenue from oil and gas development is higher than any other natural resource industry. **(True)**	630	69.5%

The mean percent of correct responses to the seven statements in this question was 64.1% (n = 1,295, SD = 0.223); this indicates that most respondents correctly answered the majority of the true/false statements posed in this question. ANOVA results indicated that that there were statistically significant differences between the mean responses of the four sample regions for the mean percentage of correct responses for the seven true/false statements, $F(3, 1292) = 15.262$, $p < 0.05$. As the Levene statistic (2.542, $p > 0.05$) indicated that the variances of the mean responses of the sample regions were equal, a Scheffe *post hoc* test was used to identify where the differences lay: the mean percentages of correct responses of the Vancouver Island/Lower Mainland (59.7%) and Southeastern BC (60.8%) sample regions were significantly lower than the mean percentage of correct responses for the Coastal BC (68.4%) and Central/Northern BC (68.5%) sample regions.

3.12. Question 12: Participation in outdoor recreation.

Respondents reported involvement in 37 outdoor recreation activities (Table 41). The three most popular outdoor recreation activities were hiking, walking, and camping.

Table 41. Most recent outdoor recreation activities (n = 1,277).

Activity	Frequency	%
Hiking	259	20.3%
Walking	176	13.8%
Camping	167	13.1%
Fishing	166	13.0%
Other leisure activity	147	11.5%
Multiple activities	59	4.6%
Biking (general)	56	4.4%
Hunting	37	2.9%
Boating	33	2.6%
Kayaking	23	1.8%
ATV	20	1.6%
Swimming	18	1.4%
Horseback riding	15	1.2%
Skiing (general)	14	1.1%
Canoeing	13	1.0%
Mountain biking	10	0.8%
Wildlife photography	8	0.6%
Cross-country skiing	6	0.5%
Downhill skiing	6	0.5%
None	5	0.4%
4-Wheeling	4	0.3%
Bird watching	4	0.3%
Enjoying nature	4	0.3%
Backcountry activities	4	0.3%
Gathering	4	0.3%
Beach activities	4	0.3%
Snowmobiling	3	0.2%
Rock climbing	2	0.2%
SCUBA diving	2	0.2%
Back packing	1	0.1%
Exploring	1	0.1%
Parks	1	0.1%
Rock hunting	1	0.1%
Water sports	1	0.1%
Mountaineering	1	0.1%
Picnicking	1	0.1%
Geocaching	1	0.1%

Respondents had participated in the activity that hey had done most recently for an average of 32.2 ±1.0 years (SD = 17.843). The amount of time spent on an outdoor recreation activity varied with activity (Table 42).

Table 42. Most recent outdoor recreation activities (n = 1,283).

Activity	n	Mean	95% CI	SD
ATV	20	12.45	± 3.7	8.413
Backcountry activities	4	37.50	± 12.3	12.583
Backpacking	1	30.00	–	–
Beach activities	4	26.75	± 18.8	19.207
Biking (General)	55	29.44	± 4.6	17.478
Bird watching	4	40.00	± 21.2	21.602
Boating	33	22.58	± 5.0	14.629
Camping	167	36.96	± 2.3	14.951
Canoeing	13	30.46	± 6.2	11.428
Cross-country skiing	6	32.33	± 10.7	13.367
Downhill skiing	6	24.17	± 11.4	14.275
Enjoying nature	4	44.00	± 25.6	26.115
Exploring	1	25.00	–	–
Fishing	166	38.43	± 2.4	15.791
Gathering	4	18.50	± 15.5	15.780
Geocaching	1	1.00	–	–
Hiking	254	31.50	± 2.0	15.859
Horseback riding	15	32.20	± 8.6	17.013
Hunting	37	37.57	± 3.8	11.880
Kayaking	23	12.78	± 5.3	12.926
Mountain biking	10	15.60	± 5.6	9.058
Mountaineering	1	35.00	–	–
Multiple activities	57	34.44	± 4.4	16.864
Other leisure activity	145	26.23	± 2.7	16.776
Parks	1	70.00	–	–
Picnicking	1	31.00	–	–
Rock climbing	2	7.50	± 4.9	3.536
Rock hunting	1	20.00	–	–
SCUBA diving	2	16.50	± 22.5	16.263
Skiing (general)	14	32.64	± 9.5	18.135
Snowmobiling	3	23.33	± 14.2	12.583
Swimming	17	41.12	± 6.0	12.644
Walking	171	38.00	± 3.3	21.852
Water sports	1	1.00	–	–
Wildlife photography	8	20.50	± 9.9	14.283

Respondents represented a range of skill levels with regard to the outdoor recreation activity that they had participated in most recently; most respondents indicated that they had an intermediate skill level (Table 43).

Table 43. Skill levels of respondents for outdoor recreation activity that they had participated in most recently. (n = 1,284; most frequently identified response in **bold**).

Skill Level	Frequency	%
Beginner	38	3.0%
Novice	132	10.3%
Intermediate	**593**	**46.2%**
Advanced	406	31.6%
Expert	115	9.0%

Respondents reported preferences for a range of outdoor recreation settings for the outdoor recreation activity that they had participated in most recently; most respondents preferred easily accessed natural areas with some facilities access (Table 44).

Table 44. Skill levels of respondents for outdoor recreation activity that they had participated in most recently (respondents could select more than one preferred setting; most frequently identified response in **bold**).

Setting	Frequency	%
Large, undisturbed wilderness areas.	455	33.9%
Large wilderness areas with limited access and camp-sites.	627	46.7%
Semi-wilderness areas with limited motorized.	587	43.7%
Easily accessed natural areas with some facilities access.	**766**	**57.0%**
Rural areas	555	41.3%
Urban areas	300	22.3%

Respondents provided details about different aspects of the outdoor recreation activity that they had participated in most recently (Table 45). Four in five respondents (80.3%) agreed that *if they stopped the activity that they had participated in most recently, an important part of their lives would be missing*; fewer than one respondent in ten (8.6%) disagreed with this statement. More than two respondents in five (46.8%) agreed that *they would rather do the activity that they had participated in most recently than most anything else*, while almost one-quarter of respondents disagreed. Four times as many respondents agreed (64.4%) that *participation in the activity that they had participated in most recently was a large part of their lives* than did the percentage of respondents that disagreed (15.6%). Two out of five respondents (40.1%) agreed that *most other recreation activities do not interest them as much as the activity that they had participated in most recently*; almost as many respondents (37.5%) disagreed with this statement. More than one-third of respondents (37.9%) agreed that *the activity that they had participated in most recently is becoming a more central part of their lives each year*, while more than one-quarter of

Table 45. Outdoor recreation activity characteristics (most frequently identified response in **bold**).

	n	Strongly Disagree (1)	Disagree (2)	Neither (3)	Agree (4)	Strongly Agree (5)	Mean	95% CI	SD
If I stopped this activity, an important part of my life would be missing.	1,297	3.3%	5.3%	11.1%	36.0%	**44.3%**	4.1	± 0.03	1.025
I would rather do this activity than do most anything else.	1,293	4.5%	19.7%	29.1%	**32.3%**	14.5%	3.3	± 0.03	1.083
Participation in this activity is a large part of my life.	1,288	2.8%	12.8%	20.0%	**44.9%**	19.5%	3.7	± 0.03	1.020
Most other recreation activities do not interest me as much as this activity does.	1,289	6.5%	31.0%	22.4%	**31.4%**	8.7%	3.0	± 0.03	1.109
This activity is becoming a more central part of my life each year.	1,287	5.1%	23.4%	**33**.6%	29.2%	8.7%	3.1	± 0.03	1.031
Given the skills I have developed in this activity, it is more important that I continue to participate in it.	1,288	3.6%	10.5%	28.6%	**43.6%**	13.7%	3.5	± 0.03	0.974
I feel that I am more skilled in this activity than any other people in general.	1,290	14.8%	29.8%	**31.8%**	18.6%	5.0%	2.7	± 0.03	1.088
Testing my skills in this activity is very important to me.	1,289	9.8%	24.0%	**35.0%**	26.6%	4.7%	2.9	± 0.03	1.038
In general, I am becoming more skilled in this activity each year.	1,290	6.0%	17.2%	32.4%	**38.2%**	6.2%	3.2	± 0.03	0.998
I have accumulated a lot of equipment for this activity.	1,284	14.0%	19.2%	18.0%	**36.5%**	12.3%	3.1	± 0.04	1.262
I have invested a lot of money in equipment for this activity.	1,287	15.6%	22.5%	19.5%	**29.9%**	12.4%	3.0	± 0.04	1.284
I feel that I have more equipment for this activity than other people that do this activity in general.	1,288	21.4%	**31.0%**	29.7%	13.5%	4.3%	2.5	± 0.03	1.100
I often spend time learning about the newest equipment available for this activity.	1,290	23.3%	**27.5%**	27.0%	18.7%	3.5%	2.5	± 0.03	1.140
In general, I am obtaining more equipment for this activity each year.	1,290	22.6%	**25.5%**	24.7%	23.1%	4.1%	2.6	± 0.03	1.184

respondents (28.5%) disagreed. Four times as many respondents agreed (57.3%) that *given the skills they had developed in the activity that they had participated in most recently, it is more important that they continue to participate in it* than did the percentage of respondents that disagreed (14.1%). More than two respondents in five (44.6%) disagreed that they felt that *they were more skilled in the activity that they had participated in most recently than any other people in general*, fewer than one-quarter of respondents (23.6%) agreed with this statement. One-third of respondents (33.8%) disagreed that *testing their skills in the activity that they had participated in most recently was very important to them*; almost as many respondents (31.3%) disagreed with this statement. More than two respondents in five (44.4%) agreed that in general, *they were becoming more skilled in the activity that they had participated in most recently each year*, while fewer than one-quarter of respondents (23.2%) disagreed. Almost half of respondents (48.8%) agreed that *they had accumulated a lot of equipment for the activity that they had participated in most recently*, while one-third of respondents (33.2%) disagreed. More than two respondents in five (42.3%) agreed that *they had invested a lot of money in equipment for the activity that they had participated in most recently*, while more than one-third of respondents (38.1%) disagreed. More than half of respondents (52.4%) disagreed that they felt that *they had more equipment for the activity that they had participated in most recently than other people that do the same activity in general*, while fewer than one in five respondents (17.8%) agreed. Half of respondents (50.8%) disagreed that *they often spend time learning about the newest equipment available for the activity that they had participated in most recently*, while more than one respondent in five (22.2%) agreed. More than two respondents in five (48.1%) disagreed that *in general, they had obtained more equipment for the activity that they had participated in most recently each year*, while more than one-quarter of respondents (27.2%) agreed.

One-quarter of respondents (25.7%) indicated that *the activity that they had participated in most recently was an enjoyable, but infrequent activity that was incidental to other travel and outdoor interests*; these respondents were not highly skilled at the activity that they had participated in most recently, rarely read magazine articles about it, and did not own much equipment beyond the basic necessities. More than half of respondents (53.9%) indicated that *the activity that they had participated in most recently was an important, but not exclusive outdoor activity*; they occasionally read magazine articles about it and purchased additional equipment to aid in it, but their participation in the activity was inconsistent, and they were moderately skilled at it. One in five respondents (20.4%) indicated that *the activity that they had participated in most recently was their primary activity*; they had purchased ever-increasing amounts of equipment to aid in the activity, participated in this activity every chance that they had, considered themselves to be highly skilled, and frequently read magazine articles about the activity.

3.13. Question 13: Opinions about the economic contribution of oil and gas in BC.

The majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to ensure that the economic well-being of future generations is the same as it is today (Table 46). Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for this question. There was a significant difference between the four sample regions (χ^2 = 40.301, df = 12, p > 0.05; Cramer's V = 0.105); more Coastal BC and Southeastern BC respondents indicated that they were willing to lose more provincial oil and gas revenues than did respondents from the Vancouver Island/Lower Mainland and Central/Northern BC sample regions. However, these differences are minimal.

Table 46. Question 13: Opinions about the economic contributions of oil and gas in British Columbia (most frequently identified response in **bold**).

Item	n	None of the Revenue (1)	Some of the Revenue (2)	About Half of the Revenue (3)	Most of the Revenue (4)	All of the Revenue (5)
… ensure that the economic well-being of future generations is the same as it is today?	1,280	6.0%	**52.8%**	21.9%	12.3%	7.0%
… ensure that the economic well-being if future generations is improved?	1,284	8.2%	**51.2%**	20.2%	13.4%	6.9%
… increase the amount of land in parks and protected areas?	1,287	14.5%	**49.3%**	18.9%	9.6%	7.7%
… ensure the economic well-being of lower revenue generating sectors (*e.g.*, Forestry)?	1,278	13.8%	**57.0%**	17.4%	7.4%	4.4%

The majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to ensure that the economic well-being of future generations is improved. Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for this question. There was a significant difference between the four sample regions (χ^2 = 45.986, df = 12, p > 0.05; Cramer's V = 0.109); more Coastal BC respondents indicated that they were willing to lose more provincial oil and gas revenues than did respondents from the Vancouver Island/Lower Mainland, Southeastern BC, and Central/Northern BC sample regions. However, these differences are minimal.

The majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to increase the amount of land in parks and protected areas. Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for this question. There was a significant difference between the four sample regions (χ^2 = 37.702, df = 12, p > 0.05; Cramer's V = 0.099); more Coastal BC respondents indicated that they were willing to lose more provincial oil and gas

revenues than did respondents from the Vancouver Island/Lower Mainland, Southeastern BC, and Central/Northern BC sample regions. However, these differences are minimal.

The majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to ensure that the economic well-being of a lower revenue generating sector (*e.g.*, Forestry). Chi-square test of independence indicated that there were statistically significant differences between the four sample regions for this question. There was a significant difference between the four sample regions (χ^2 = 22.872, df = 12, $p > 0.05$; Cramer's V = 0.077); more Coastal BC respondents indicated that they were willing to lose more provincial oil and gas revenues than did respondents from the Vancouver Island/Lower Mainland, Southeastern BC, and Central/Northern BC sample regions. However, these differences are minimal.

3.14. Question 14: Demographic Characteristics.

Respondents' average age was 54.52 ± 0.77 years (SD = 14.350). The youngest respondent was 19 years of age; the oldest respondent was 90 years of age. There were significant statistical differences between the mean age of the four sample regions, $F(3, 1316) = 13.738$, $p < 0.05$. Although the Levene statistic (2.990, $p < 0.05$) indicated that the variances of the mean responses of some sample regions were not equal, the Welsh F Test (14.970, $p < 0.05$) confirmed the presence of these differences. The Games-Howell post hoc test indicated that the mean age of respondents from the Southeastern BC sample region ($\bar{x}$ = 58.63) was significantly higher than the mean ages of the Vancouver Island/Lower Mainland ($\bar{x}$ = 53.70), Coastal BC ($\bar{x}$ = 52.90), and Central/Northern BC ($\bar{x}$ = 52.57) sample regions.

Of the 1,304 respondents reporting their gender, 54.8% were male and 45.2% were female (SD = 0.498). There were no significant differences between the four sample regions for the proportions of men and women that responded to the survey (χ^2 = 1.377, df = 3, $p > 0.05$; Cramer's V = 0.033). A distribution of age by gender is presented in Figure 10.

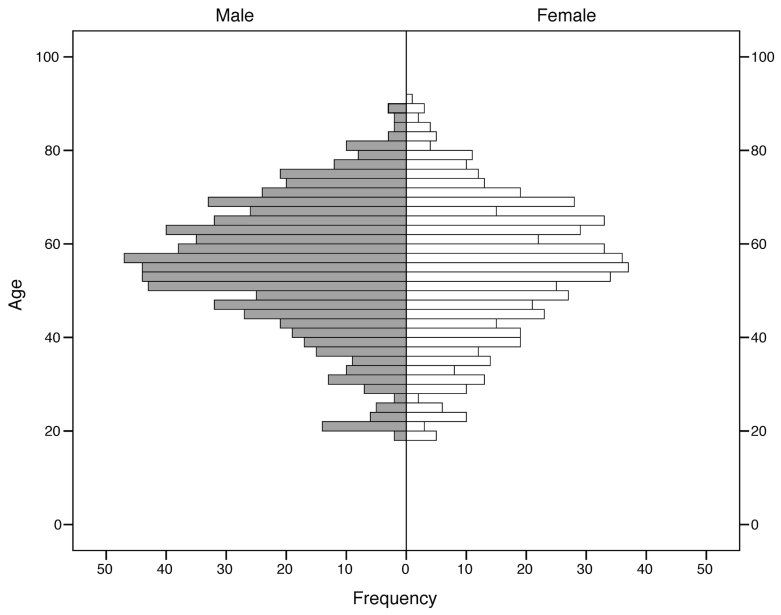


Figure 10. Distribution of respondent age by gender.

On average, respondents were residents of their communities for 24.93 ±0.91 years (n = 1,269; SD = 16.490). The number of years of community residence ranged from one year to 83 years. There were no significant statistical differences between the four sample regions for the length of time respondents had lived in their communities the mean age of the four sample regions, $F(3, 1268) = 8.468$, $p > 0.05$. Figure 11 illustrates the distribution of respondents by regional district; Table 47 demonstrates the distribution of sample respondents by development region.

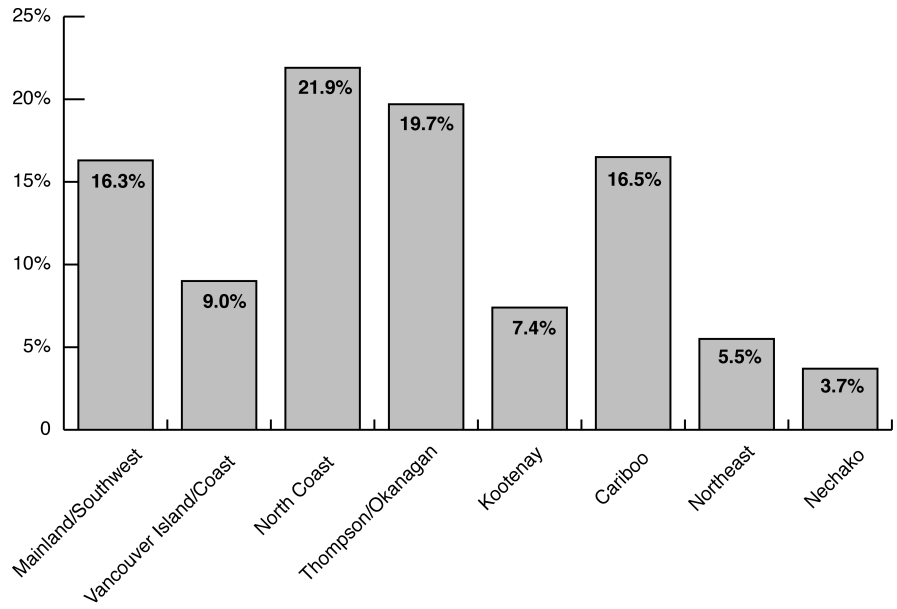


Figure 11. Distribution of respondents by regional district (n = 1,326).

Table 47. Distribution of respondents by development region (n = 1,326).

Sample Region	Development Region	Frequency	% Sample Area	% Sample
Vancouver Island/Lower Mainland	Greater Vancouver	172	51.3%	13.0%
(n = 335)	Capital	67	20.0%	5.1%
	Fraser Valley	27	8.1%	2.0%
	Nanaimo	18	5.4%	1.4%
	Comox-Strathcona	16	4.8%	1.2%
	Cowichan Valley	11	3.3%	0.8%
	Sunshine Coast	9	2.7%	0.7%
	Squamish-Lillooet	8	2.4%	0.6%
	Powell River	4	1.2%	0.3%
	Alberni-Clayoquot	1	0.3%	0.1%
	Central Coast	1	0.3%	0.1%
	Mount Waddington	1	0.3%	0.1%
Coastal BC	Kitimat-Stikine	200	68.7%	15.1%
(n = 291)	Skeena-Queen Charlotte	91	31.3%	6.9%
Southeastern BC	Central Okanagan	71	19.8%	5.4%
(n = 359)	Thompson-Nicola	59	16.4%	4.4%
	North Okanagan	52	14.5%	3.9%
	Okanagan-Similkameen	45	12.5%	3.4%
	Central Kootenay	38	10.6%	2.9%
	East Kootenay	37	10.3%	2.8%
	Columbia-Shuswap	34	9.5%	2.6%
	Kootenay Boundary	23	6.4%	1.7%
Central-Northern BC	Fraser-Fort George	139	40.8%	10.5%
(n = 341)	Cariboo	80	23.5%	6.0%
	Peace River	62	18.2%	4.7%
	Bulkley-Nechako	48	14.1%	3.6%
	Northern Rockies	11	3.2%	0.8%
	Stikine (Region)	1	0.3%	0.1%

Respondents' community of residence (by sample region) is illustrated in Tables 48-51.

Table 48. Respondent communities in the Vancouver Island/Lower Mainland sample region (n = 335).

Community	Frequency	%
Victoria	49	14.6%
Vancouver	48	14.3%
Burnaby	20	6.0%
Surrey	16	4.8%
Maple Ridge	15	4.5%
Coquitlam	14	4.2%
North Vancouver	14	4.2%
Nanaimo	12	3.6%
Richmond	11	3.3%
Abbotsford	9	2.7%
Langley	9	2.7%
Chilliwack	7	2.1%
Delta	7	2.1%
Salt Spring Island	7	2.1%
Mission	6	1.8%
Courtenay	5	1.5%
Gibsons	5	1.5%
New Westminster	5	1.5%
Chemainus	4	1.2%
White Rock	4	1.2%
Campbell River	3	0.9%
Duncan	3	0.9%
North Saanich	3	0.9%
Parksville	3	0.9%
Roberts Creek	3	0.9%
Agassiz	2	0.6%
Cloverdale	2	0.6%
Comox	2	0.6%
Denman Island	2	0.6%
Garibaldi Highlands	2	0.6%
Hope	2	0.6%
Port Coquitlam	2	0.6%
Saanichton	2	0.6%
Sechelt	2	0.6%
Shawnigan Lake	2	0.6%
Sooke	2	0.6%
Squamish	2	0.6%
Aldergrove	1	0.3%

Table 48 (cont'd). Respondent communities in the Vancouver Island/Lower Mainland sample region (n = 335).

Community	Frequency	%
Black Creek	1	0.3%
Bowser	1	0.3%
Brown Birch	1	0.3%
Cobble Hill	1	0.3%
Coombs	1	0.3%
Gabriola	1	0.3%
Galiano	1	0.3%
Ganges	1	0.3%
Garibalda Island	1	0.3%
Hagensborg	1	0.3%
Halfmoon Bay	1	0.3%
Hornby Island	1	0.3%
Ladysmith	1	0.3%
Lake Errock	1	0.3%
Lantzville	1	0.3%
Lillooet	1	0.3%
Madeira Park	1	0.3%
Malahat	1	0.3%
Mill Bay	1	0.3%
Pender Island	1	0.3%
Pitt Meadows	1	0.3%
Port Alberni	1	0.3%
Port Hardy	1	0.3%
Port Mcneill	1	0.3%
Powell River	1	0.3%
Sechealt	1	0.3%
West Vancouver	1	0.3%
Whistler	1	0.3%

Table 49. Respondent communities in the Coastal BC sample region (n = 291).

Community	Frequency	%
Terrace	102	35.1%
Prince Rupert	48	16.5%
Kitimat	47	16.2%
Queen Charlotte	17	5.8%
Hazelton	15	5.2%
Thornhill	10	3.4%
Masset	7	2.4%
New Hazelton	7	2.4%
Kitwanga	5	1.7%
Iskut	4	1.4%
Port Clements	4	1.4%
Sandspit	4	1.4%
Lax Kw'alaams	2	0.7%
Port Clenents	2	0.7%
South Hazelton	2	0.7%
Stewart	2	0.7%
Terrace	2	0.7%
Tlell	2	0.7%
Aiyansh	1	0.3%
Gitwinkshilkw	1	0.3%
Greenville	1	0.3%
Haisla	1	0.3%
Hartley Bay	1	0.3%
Old Hazelton	1	0.3%
Port Edward	1	0.3%
Port Simpson	1	0.3%
Telegraph Creek	1	0.3%

Table 50. Respondent communities in the Southeastern BC sample region (n = 359).

Community	Frequency	%
Kelowna	54	15.0%
Kamloops	38	10.6%
Vernon	24	6.7%
Cranbrook	18	5.0%
Salmon Arm	17	4.7%
Penticton	13	3.6%
Creston	10	2.8%
Nelson	9	2.5%
Grand Forks	8	2.2%
Trail	8	2.2%
Armstrong	7	1.9%
Coldstream	7	1.9%
Oliver	7	1.9%
Summerland	7	1.9%
Winfield	6	1.7%
Kimberley	5	1.4%
Lumby	5	1.4%
Sicamous	5	1.4%
Castlegar	4	1.1%
Enderby	4	1.1%
Logan Lake	4	1.1%
Osoyoos	4	1.1%
Revelstoke	4	1.1%
Westbank	4	1.1%
Fairmont Hot Springs	3	0.8%
Golden	3	0.8%
Jaffray	3	0.8%
Naramata	3	0.8%
West Kelowna	3	0.8%
Ashcroft	2	0.6%
Chase	2	0.6%
Christina Lake	2	0.6%
Clearwater	2	0.6%
Fauquier	2	0.6%
Kaleden	2	0.6%
Kaslo	2	0.6%
Keremeos	2	0.6%
Merritt	2	0.6%
Okanagan Falls	2	0.6%

Table 50 (cont'd). Respondent communities in the Southeastern BC sample region (n = 359).

Community	Frequency	%
Princeton	2	0.6%
Rossland	2	0.6%
Silverton	2	0.6%
Sorrento	2	0.6%
Tappen	2	0.6%
Winlaw	2	0.6%
Ashcroft	1	0.3%
Baynes Lake	1	0.3%
Blind Bay	1	0.3%
Bridesville	1	0.3%
Brisco	1	0.3%
Cache Creek	1	0.3%
Canoe	1	0.3%
Canyon	1	0.3%
Celista	1	0.3%
Clinton	1	0.3%
Crescent Valley	1	0.3%
Douglas Lake	1	0.3%
Edge Wood	1	0.3%
Edgewood	1	0.3%
Elkford	1	0.3%
Falkland	1	0.3%
Fernie	1	0.3%
Fruitvale	1	0.3%
Greenwood	1	0.3%
Harrogate	1	0.3%
Hedley	1	0.3%
Hope	1	0.3%
Langley	1	0.3%
Little Fort	1	0.3%
Lone Butte	1	0.3%
Lower Nicola	1	0.3%
Lytton	1	0.3%
Moyie	1	0.3%
Okanahan Falls	1	0.3%
Oyama	1	0.3%
Peachland	1	0.3%
Procter	1	0.3%

Table 50 (cont'd). Respondent communities in the Southeastern BC sample region (n = 359).

Community	Frequency	%
Radium Hot Springs	1	0.3%
Richmond	1	0.3%
Scotch Creek	1	0.3%
Skookumchuck	1	0.3%
Slocan Park	1	0.3%
South Slocan	1	0.3%
Ta Ta Creek	1	0.3%
West Bank	1	0.3%

Table 51. Respondent communities in the Central/ Northern BC sample region (n = 341).

Community	Frequency	%
Prince George	121	35.5%
Quesnel	41	12.0%
Williams Lake	25	7.3%
Smithers	24	7.0%
Fort St. John	16	4.8%
Dawson Creek	12	3.5%
Fort Nelson	11	3.2%
Chetwynd	8	2.3%
Charlie Lake	6	1.8%
Telkwa	6	1.8%
Vanderhoof	6	1.8%
108 Mile Ranch	5	1.5%
Burns Lake	5	1.5%
Houston	5	1.5%
Mackenzie	5	1.5%
150 Mile House	4	1.2%
Pouce Coupe	4	1.2%
Fort St. James	3	0.9%
Moberly Lake	3	0.9%
Valemount	3	0.9%
Farmington	2	0.6%
Hudson's Hope	2	0.6%
Mcbride	2	0.6%
Montney	2	0.6%

Table 51 (cont'd). Respondent communities in the Central/ Northern BC sample region (n = 341).

Community	Frequency	%
100 Mile House	1	0.3%
Alexis Creek	1	0.3%
Atlin	1	0.3%
Buick	1	0.3%
Dunster	1	0.3%
Fort Fraser	1	0.3%
Fraser Lake	1	0.3%
Horsefly	1	0.3%
Lac La Hache	1	0.3%
Likely	1	0.3%
Mcleod Lake	1	0.3%
Peace River Regional	1	0.3%
Prespatou	1	0.3%
Progress	1	0.3%
Rose Prairie	1	0.3%
Tatla Lake	1	0.3%
Tomslake	1	0.3%
Topley	1	0.3%
Tumbler Ridge	1	0.3%
Willow River	1	0.3%

Respondents represented a range of educational levels (Table 52). The majority of respondents

Table 52. Question 14: What is the highest level of education that you have completed? (n = 1,314; SD = 1.254; most frequently identified response in **bold**).

Level of Education	Frequency	%
Some high school	66	5.0%
High school	251	19.1%
Some university/college	366	27.9%
University/college	390	29.7%
Graduate degree	151	11.5%
Other	90	6.8%

There were no significant differences between the four sample regions for the proportions of respondents reporting different levels of education (χ^2 = 20.813, df = 15, $p > 0.05$; Cramer's V = 0.073).

Respondents reported being employed in a total of 65 different occupations (Table 53). The most frequently identified occupation was retired/semi-retired.

Table 53. Question 14: What is your occupation? (n= 1,276; SD = 26.887; most frequently identified response in **bold**).

Occupation	Frequency	%
Retired/Semi-retired	445	34.8%
Other	91	7.4%
Teacher	61	4.8%
Health Care	59	4.6%
Multiple jobs	38	3.0%
Student	34	2.7%
Manager	31	2.4%
Forester	27	2.1%
Homemaker	25	2.0%
Clerical	21	1.6%
Mechanic	21	1.6%
Sales	20	1.6%
Self-employed	19	1.5%
Administration	18	1.4%
Engineer	18	1.4%
Unemployed	17	1.3%
Carpenter	16	1.3%
Consultant	16	1.3%
Information Technologist	16	1.3%
Retail	15	1.2%
Disability: not working	15	1.2%
Business owner	14	1.1%
University/College Instructor	14	1.1%
Accountant	12	0.9%
Farmer/Rancher	12	0.9%
Government employee	12	0.9%
Oil & gas worker	12	0.9%
Municipal employee	12	0.9%
Transportation	11	0.9%
Heavy equipment operator	8	0.6%
Electrician	8	0.6%
Realtor	8	0.6%
Railroad employee	8	0.6%
Book keeper	7	0.5%

Table 53 (cont'd). Question 14: What is your occupation? (n= 1,276; SD = 26.887; most frequently identified response in **bold**).

Occupation	Frequency	%
Welder	7	0.5%
Biologist	7	0.5%
Supervisor	6	0.5%
Business person	5	0.4%
Mill employee	5	0.4%
Construction	5	0.4%
Dentistry	5	0.4%
Insurance agent	5	0.4%
Custodian	5	0.4%
Millwright	4	0.3%
Labourer	4	0.3%
Letter carrier	4	0.3%
Medical doctor	4	0.3%
Bank employee	4	0.3%
Maintenance	4	0.3%
Child Care	4	0.3%
Truck driver	3	0.2%
Chef	3	0.2%
Logger	3	0.2%
Plumber	3	0.2%
Security	3	0.2%
Clergy	3	0.2%
Legal services	3	0.2%
Stock broker	2	0.2%
Painter	2	0.2%
Barber/hair dresser	2	0.2%
Lab technician	2	0.2%
Human resources	2	0.2%
Journalist	2	0.2%
Machine operator	2	0.2%
Graphic design	2	0.2%

Respondents reported being employed in a total of 40 different employment sectors (Table 54). The most frequently identified employment sector was educational services.

Table 54. Question 14: What industry or sector do you work in? (n= 1,071; SD = 284.009).

Employment Sector	Frequency	%
Educational Services	155	14.5%
Professional/Scientific/Technical Services	110	10.3%
Pubic Administration	101	9.4%
Forestry & Logging	92	8.6%
Other	73	6.8%
Multiple	72	6.7%
Health Care: Hospitals	58	5.4%
Construction	41	3.8%
General Merchandise Stores	40	3.7%
Oil & Gas	34	3.2%
Transit and Ground Passenger Transportation	30	2.8%
Mining	28	2.6%
Administrative & Support and Waste Management & Remediation Services	28	2.6%
Ambulatory Health Care Services	28	2.6%
Retired	25	2.3%
Agriculture: Crop Production	19	1.8%
Finance: Monetary Authorities	18	1.7%
Miscellaneous Manufacturing	16	1.5%
Telecommunications	12	1.1%
Utilities	11	1.0%
Publishing Industries	8	0.7%
Social Assistance	8	0.7%
Religious, Grant-making, Civic, Professional, and Similar Organizations	8	0.7%
Insurance Carriers & Related Activities	6	0.6%
Arts, Entertainment & Recreation	6	0.6%
Paper Manufacturing	5	0.5%
Fishing, Hunting and Trapping	4	0.4%
Wood Product Manufacturing	4	0.4%
Real Estate	4	0.4%
Food Services & Drinking Places	4	0.4%
Private Households	4	0.4%
Wholesale Trade	3	0.3%
Management of Companies & Enterprises	3	0.3%
Personal and Laundry Services	3	0.3%
Unemployed	3	0.3%
Truck Transportation	2	0.2%
Accommodation	2	0.2%
Agriculture: Animal Production	1	0.1%
Warehousing and Storage	1	0.1%
Disability	1	0.1%

Respondents reported a range if household income levels (Table 55). The most frequently identified household income was $100,000 - $149,999.

Table 55. Question 14: Please check the category that best describes your household income before taxes. (n = 1,252; SD = 3.261; most frequently identified response in **bold**).

Household Income	Frequency	%
< $10,000	39	3.1%
$10,000 - $19,999	88	7%
$20,000 - $29,999	104	8.3%
$30,000 - $39,999	126	10.1%
$40,000 - $49,999	123	9.8%
$50,000 - $59,999	110	8.8%
$60,000 - $69,999	123	9.8%
$70,000 - $79,999	105	8.4%
$80,000 - $89,999	88	7%
$90,000 - $99,999	71	5.7%
$100,000 - 149,999	**184**	**14.7%**
> $149,999	91	7.3%

There was a significant difference between the four sample regions in terms of the proportion respondents indicating different levels of household income (χ^2 = 53.396, df = 33, p > 0.05; Cramer's V = 0.119). A higher proportion of respondents from the Southeastern BC sample region reported household incomes in the $40,000 - $49,999 and $60,000 - $69,000 categories than did respondents from other sample regions; a higher proportion of respondents form the Vancouver Island/Lower Mainland sample region reported household incomes in the $30,000 - $39,000 category than did respondents from other sample regions; a lower proportion of respondents form the Vancouver Island/Lower Mainland sample region reported household incomes in the $10,000 - $19,999 category than did respondents from other sample regions; a higher proportion of respondents form the Coastal BC sample region reported household incomes in the < $10,000, $70,000 - $79,000, $80,000 - $89,999, and $90,000 - $99,999 categories than did respondents from other sample regions; and a higher proportion of respondents form the Central/Northern sample region reported household incomes in the $50,000 - $59,999 and >$149,999 categories than did respondents from other sample regions. However, these differences are minimal.

On average, respondents' household size was 2.44 ±0.07 people (n = 1,157; SD = 1.278). Household size ranged from one to nine people.

There were statistically significant differences identified between the mean responses of the four sample regions identified for household size. Although the Levene statistic (4.667, $p < 0.05$) indicated that the variances of the mean responses among sample regions were not equal; and the Welch F Test (2.793, $p < 0.05$) confirmed the presence of the differences. However, the Games-Howell *post hoc* test did not reveal where these differences lay.

Of the twenty-one options presented to respondents about their main connection to the natural environment, the three most frequently cited were non-motorized recreation, motorized recreation, and education (Table 56). The moist frequently identified connection to the natural environment was non-motorized recreation (67.7%).

Table 56. Question14: What is your main connection to the natural environment? (n = 1,343; most frequently identified response in **bold**.)

Connection	%	95% CI	SD
Recreation (non-motorized)	**67.7%**	± 0.07	0.468
Recreation (motorized)	36.1%	± 0.07	0.481
Education	23.8%	± 0.06	0.426
Forestry	20.3%	± 0.06	0.403
Tourism	20.3%	± 0.06	0.403
Art	19.1%	± 0.06	0.394
Ranching/Agriculture	14.8%	± 0.05	0.355
Small Business	14.7%	± 0.05	0.354
Environmental Organizations	14.6%	± 0.05	0.353
First Nations	8.8%	± 0.04	0.283
Mining	7.0%	± 0.04	0.255
Local Government	6.2%	± 0.03	0.241
Provincial Government	6.1%	± 0.03	0.240
Oil & Gas Service Sector	5.0%	± 0.03	0.218
Organized Labour	4.9%	± 0.03	0.216
Non-timber Forest Products	3.7%	± 0.03	0.189
Oil & Gas Resource Extraction	3.1%	± 0.02	0.174
Value-Added Sector	2.8%	± 0.02	0.164
Utilities & Transmission	2.7%	± 0.02	0.162
Guide Outfitter	2.5%	± 0.02	0.155
Trapping	2.2%	± 0.02	0.148

Note: As respondents could identify multiple settings, the percentage of respondents preferring settings is greater than 100%.

4. DISCUSSION.

A comparison of respondents' age and gender with Provincial census data indicated that although respondents tended to be older than provincial residents, the proportion of men and women respondents was almost equal to Provincial gender proportions (BC Stats, 2010). Respondents were generally well educated, as more than three-quarters had completed high school. Respondents represented a range of occupational sectors and income levels; just more than one-third of respondents were retired. The 8.8% of respondents that indicated that their main connection to the natural environment was as First Nations (Table 56), was roughly double the percentage of British Columbians that identified themselves as Aboriginal[7].

Respondents tended to be biocentric in their overall attitudes and worldviews. However, respondents did not necessarily feel that limits to growth were absolute and that human ingenuity could serve to provide solutions to environmental problems. In particular, there was general agreement amongst respondents that the earth has plenty of natural resources if we just learn how to develop them; this suggests that community residents may be supportive of innovative management practices that help to extend current levels of energy consumption. However, given the overall biocentric leanings of respondents, another course of action could to highlight the practices that oil and gas exploration and development already employ to help maintain current levels of consumption; this could serve to demonstrate some of the successes of oil and gas regulation.

What is striking in the analysis of the responses of the four sample regions are the relatively few number of absolute differences in opinions and attitudes towards the exploration, development, regulation, and management of oil and gas resources within the province. Although there were several *statistically significant* differences between the mean responses of the sample regions, the differences appear to be differences of degree, *not absolute differences*. Many of the differences in responses between the four sample regions seem to be influenced by economic conditions. Thus, at the strategic level, there appears to be common themes for the sustainable management of oil and gas resources; this discussion will focus on these commonalities and make note of key differences of opinion or attitude between sample regions when present. The remainder of this section is loosely organized around the seven natural resource values that framed the trade-offs presented in Question 4. Three other areas of the management of oil and gas resources are addressed: priorities for sustaining natural resource values, trust and safety, and public participation.

[7] The 2009 population of BC was 4,530,960 (BC Stats, 2010); according to the 2006 Census (Statistics Canada, 2006), the total Aboriginal population of BC was 196,075, or 4.3% of the BC population.

4.1. Priorities for Sustaining Natural Resource Values.

The degree of importance attributed to the ecological natural resource management objectives did not vary substantively between the four sample regions survey waves, and there was general agreement among respondents that all these objectives were extremely or very important. This is supported by the rankings illustrated by the Thurstone Scales (*i.e.*, Question 4). In general, respondents indicated that ecological and social management objectives were more important than economic management objectives were.

The Thurstone Scales of respondents' priorities for sustaining natural resource values tended to cluster into three distinct groups. One natural resource value, *sustaining clean drinking resources*, occurred as the highest priority for managing natural resource values sustainably. In general, the second group was made up of five natural resource values (through the order of these values did differ between the four sample regions and three areas of interest): *sustaining biological richness*, *sustaining opportunities for a wide range of quality of life values*, *minimizing the amount of water used to retrieve oil and gas from the ground*, *sustaining economic benefits from other industries (e.g., agriculture, forestry, mining),* and *sustaining local job creation*. In each sample region (and in the combined provincial results), the lowest rated natural resource value to be sustained was *sustaining the benefits that First Nations receive from oil and gas exploration and development*. Comparisons between regions revealed that, overall, respondents from Vancouver Inland/Lower Mainland sample region differ statistically from those of the other three sample regions.

It is worthwhile to consider the natural resource value priorities of residents of the Peace River Development Region, where the majority of oil and gas exploration and development is currently occurring. Although the ranking of the seven natural resource values in the Peace River Development Region demonstrated a similar pattern of response compared to the other areas of interest, there were three statistical differences in the proportion of times a natural resource value was preferred over others when compared to the Central/Northern BC Sample Region with responses from the Peace River Development Region removed, and one for the remaining three sample regions in aggregate. First, the average preferred proportion for *sustaining economic benefits from other industries (e.g., agriculture, forestry, mining)* was statistically greater in the Peace River Development Region than in the areas of the province outside of the Central/Northern Sample Region. Second, the average preferred proportion for *sustaining the benefits that First Nations receive from oil and gas exploration and development* was statistically lower in the Peace River Development Region than in the areas of the province outside of the Central/Northern Sample Region. Lastly, when compared to the rest of the Central/Northern Sample Region, the average preferred proportion for *sustaining local job creation* was statistically lower in the Peace River Development Region.

The markedly low importance attributed to First Nations' benefits is consistent with other examinations of interior BC communities (*e.g.* Sheppard & Meitner, 2005; Harshaw, 2008; Kozak *et al*., 2008). However, the framing of this question that may have influenced this outcome as the "benefits that First Nations receive" was the only attribute that was associated with a distinct social or cultural group.

The Thurstone scales suggest a strategy for prioritizing natural resource values to be sustained. Sustaining clean drinking resources was the top priority for respondents in all sample regions, which suggest that the following two natural resource management objectives be prioritized at the strategic level:

1. The amount of water used to develop oil and gas resources is minimized; and
2. Drinking water quality is maintained.

However, it is important to recognize that despite the overall importance of a sustainable approach to the exploration, development, regulation, and management of oil and gas resources within the province among respondents, the provincial context of oil and gas resources may not be well understood, and this was reflected in the mean level of familiarity with different aspects of oil and gas in the province.

4.2. Sustaining Clean Water Drinking Resources.

Sustaining clean drinking water resources was ranked the number one priority for sustaining natural resource values. Almost all respondents indicated that it was important that drinking water quality is maintained. Most respondents agreed that there should be more research on below ground oil and gas related environmental issues, such as the maintenance of clean drinking water.

4.3. Sustaining Biological Richness.

Sustaining biological richness was the second highest ranked priority for sustaining natural resource values. Although most respondents indicated that they believed that "the earth has plenty of natural resources if we just learn how to develop them", respondents were generally biocentric in their worldviews; this is also reflected in the general agreement that was acceptable to sacrifice economic benefits to protect the environment. This sentiment is reflected in the high degree of importance given to the strategy that the area disturbed by oil an gas resource development is minimized; however, this was less important to residents of Central/Northern BC residents felt that this was less important than did residents of Vancouver Island/Lower Mainland and Coastal BC. There was general agreement that it was important that long-term soil fertility is maintained. Almost all respondents reported that it was important that slope stability is maintained and soil erosion is prevented, and that the ability of the landscape to recover from disturbance is maintained. Although there was a general sense that improvements to oil and gas development technologies will help to minimize environmental impacts, half of all respondents

disagreed that in general, the oil and gas industry is more environmentally sensitive than other industries in their area. Perhaps with an eye to minimizing (or perhaps containing) potential impacts to biological richness from oil and gas development, there was support for the strategy that oil and gas development activities should be concentrated in one area and only open other areas up to development when the initial area has been rehabilitated; Vancouver Island/Lower Mainland respondents were more agreeable than Central/Northern BC respondents. There was also support for the establishment of research related to above ground oil and gas related environmental issues, such as wildlife.

The establishment of parks and protected areas is one approach for sustaining biological richness. The majority of respondents disagreed that British Columbia has enough protected areas such as provincial and national parks; Vancouver Island/Lower Mainland respondents were less agreeable than Southeastern BC and Central/Northern BC respondents. Consistent with this perspective, the majority of respondents disagreed that British Columbia's existing network of parks and protected areas is sufficient to conserve environmental values. Respondents seemed to accept the potential trade-off between the establishment of new parks and protected areas and the maintenance of economic opportunities: the majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to increase the amount of land in parks and protected areas; however, there were some regional differences, as more Coastal BC residents indicated that they were willing to lose more provincial oil and gas revenues than did residents of Vancouver Island/Lower Mainland, and Southeastern and Central/Northern BC.

Biological richness entails having well distributed populations of native species; this includes species at risk of endangerment or extinction. There is general support for strategies to protect species at risk, and substantial agreement that the management of species at risk should be given priority over economic benefits. There was also considerable agreement among respondents that the management of species at risk, both in the areas where they lived and in areas outside where they lived, was important; in both instances, Coastal BC residents were more agreeable than were residents of Central/Northern BC. There was also recognition that the protection and recovery of species at risk included their habitat: it was seen as being generally important that rare and vulnerable habitat types be sustained in natural conditions, that habitat is maintained for the full range and diversity of native wildlife specie, and that the natural distribution of important species in their habitats is maintained. However, support for species at risk did have its limits, as most respondents expressed disagreement that it was acceptable to protect species at risk even if it harms other species. There was modest agreement that oil and gas exploration and development are the commercial activities that most affect species at risk; this sentiment was supported as half of respondents disagreed that oil and gas exploration and development does a good job of managing for species at risk. Lastly, there was substantial agreement that it is acceptable to limit oil and

gas exploration and development activities in areas that are important for species at risk. Coastal BC respondents were more agreeable than Central/Northern BC residents.

4.4. Sustaining Opportunities For a Wide Range of Quality of Life Values.

Sustaining opportunities for a wide range of quality of life values was ranked third in terms of priority for sustaining natural resource values. On the whole, respondents indicated that the social management objectives were important. It was important that oil and gas development conserves unique or special social, cultural, and spiritual places and features, and there was general agreement that the management of oil and gas resources focuses too much attention on economic outcomes and not enough attention on non-economic outcomes, including recreation and quality of life. For example, it is important that recreation resources, opportunities and experiences are maintained or enhanced. Participation in outdoor recreation activities is fairly ubiquitous; the average length of time spent participating in outdoor recreation activities was over thirty years, which is reflected in self-reported assessments of skill levels. Both non-motorized and motorized recreation activities played important roles in providing respondents with to the natural environment; respondents indicated that they prefer a range of outdoor recreation settings.

There was recognition of some of the benefits provided by oil and gas exploration and development. Almost half of respondents agreed that cutting back oil and gas activities would reduce the standard of living of communities; Coastal BC residents were less agreeable than Central/Northern BC residents. Although there was general agreement that overall, oil and gas exploration and development produce positive results for local communities, residents of Vancouver Island/Lower Mainland were less agreeable than Central/Northern residents, and Coastal BC residents were less agreeable than Vancouver Island/Lower Mainland, Southeastern BC, and Central/Northern BC residents. The majority of respondents indicated that were willing to lose provincial oil and gas revenue in order to ensure that the economic well-being of future generations is improved, or is the same as it is today (although Coastal BC residents were seemingly willing to lose more provincial oil and gas revenue than were residents from other areas).

The potential/possible effects of climate change were a concern for most respondents. Most respondents reported that they were aware of what the effects climate change may have on their community or its surrounding environment, and had noticed some effects of climate change in their communities. The majority of respondents indicated that they had personal plans to do something in response to climate change, and thought that oil and gas managers should be doing something in response to climate change. The majority of respondents indicated that they thought it was more important to start acting now on climate change with what we know, instead of continuing to monitor for climate change so we can learn more.

4.5. Minimizing the Amount of Water Used to Retrieve Oil and Gas From the Ground.

Minimizing the amount of water used to retrieve oil and gas from the ground was ranked fourth of the seven priorities for sustaining natural resource values. There was strong support for the management objective that the amount of water used to develop oil and gas resources is minimized. This was also reflected in the high level of agreement that in times of drought, water should be diverted to priority uses, such as agricultural resources and municipal/community uses.

4.6. Sustaining Economic Benefits From Other Industries.

Sustaining economic benefits from other industries was ranked fifth in terms of priority for sustaining natural resource values. There was considerable support for the diversification of economic benefits. There was little support or a strategy that would have the government prioritize oil and gas development over local projects that have smaller economic benefits. In fact, there was general agreement that it is acceptable for the government to receive less revenue from oil and gas activities if oil and gas activities are coordinated with other activities. The majority of respondents (particularly Coastal BC residents) indicated that were willing to lose provincial oil and gas revenue in order to ensure that the economic well-being of a lower revenue generating sector, such as forestry. Lastly, most respondents disagreed that the government should encourage a natural gas economy over other energy sources.

4.7. Sustaining Local Job Creation.

Sustaining local job creation was ranked 6th out of the seven priorities for sustaining natural resource values. It was important employment and income sources in the local economy are diversified. Respondents were not somewhat balanced in their views about the importance of economic management objectives for the development of oil and gas resources. Half of respondents reported that it was important that a competitive, diversified oil and gas sector exists; although respondents generally indicated that “it is OK to sacrifice short-term impacts to the environment for economic gain as long as the impact is rehabilitated”, Vancouver Island/Lower Mainland residents indicated that this was less important than did Southeastern BC residents. In a similar vein, there was broad agreement that there should be more research about above ground oil and gas related development issues, such as gas transportation, processing plants. Most respondents (especially those from Southeastern and Central/Northern BC) agreed that the government should encourage onshore gas development throughout the province, and the majority of respondents agreed that oil and gas processing should be done in BC. Central/Northern BC residents were more agreeable than residents of the rest of the province.

Although there was general agreement that it was important that oil and gas development continues to contribute to economic well-being, Coastal BC residents felt that this was less important than did residents of Southeastern and Central/Northern BC. Almost all respondents agreed that local communities should receive a fair share of locally generated government income; however, Vancouver

Island/Lower Mainland residents were less agreeable than Coastal and Central/Northern BC residents. Perhaps related to this, just fewer than half of all respondents disagreed that there will be sufficient oil and gas resources in British Columbia to meet our future needs.

4.8. Sustaining the Benefits That First Nations Receive From Oil and Gas Exploration and Development.

There was a sense among respondents that they understood how Aboriginal and First Nation treaty rights work; however, Vancouver Island/Lower Mainland residents were less knowledgeable than residents from Central/Northern BC, and Coastal BC residents indicated that they felt more knowledgeable than residents of Vancouver Island/Lower Mainland and Southeastern BC. There was a strong sense (particularly among residents of Vancouver Island/Lower Mainland) that it was important that oil and gas resource development plans recognize and respect First Nations and treaty rights. Although most respondents indicated that it was important that the provincial government receives economic benefits from oil and gas development, there was less support for extending these benefits to local First Nations.

4.9. Trust and Safety.

Although not included as an item for consideration as a priority for sustaining natural resource values, the issue of trust and safety was prevalent among survey respondents. More than half of all respondents disagreed that the oil and gas industry have earned the trust to manage oil and gas resources for the long-term; Coastal BC respondents were less agreeable than Southeastern BC respondents. There was general agreement that the oil and gas industry controls too much of British Columbia's oil and gas resources; most respondents disagreed that (that there are enough checks and balances in place, such as legislation, professional ethics, skill certification, to ensure responsible oil and gas management and development. Perhaps as a result of these concerns, there was general disagreement that providing long-term security of oil and gas resources to the oil and gas industry will promote the sustainable management of oil and gas, although Coastal BC residents were less agreeable about this than Southeastern BC and Central/Northern BC residents. The majority of respondents agreed that there should be more research on below ground oil and gas related development issues, such as the fracturing of shale.

Although almost all respondents indicated that it was important that community safety is maintained, there was widespread concern about the safety of oil and gas development in BC. However, most respondents disagreed that the economic benefits of oil and gas development in BC outweigh the potential risks. More than half of respondents disagreed that they would feel safe living near an oil and gas development (although residents of the Central/Northern BC were more agreeable than residents of other parts of the province), and that there were enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development (yet, Coastal BC residents were less agreeable than

residents of Central/Northern and Southeastern BC). There was general agreement that people could feel safer of they had more information about oil and gas development; however, there were regional differences as Coastal BC residents were less agreeable than residents of Vancouver Island/Lower Mainland and Southeastern BC, and Southeastern BC residents were more agreeable than residents of Central/Northern BC.

4.10. Public Participation.

Although not included as an item for consideration as a priority for sustaining natural resource values, the issue of public participation in decision-making was prevalent among survey respondents. There was general awareness of the BC Oil and Gas Commission as a government regulator; residents of Central/Northern BC reported being more aware of the BC Oil and Gas Commission than were residents of Vancouver Island/Lower Mainland and Southeastern BC. However, there was general disagreement among respondents that they have had opportunities to receive honest and accurate information about oil and gas from the government regulator.

Based on their responses to the knowledge questions that were posed to them, the majority of respondents were sufficiently knowledgeable about different aspects of oil and gas management in BC; residents of Coastal and Central/Northern BC were more knowledgeable than residents of Vancouver Island/Lower Mainland and Southeastern BC. However, respondents were less sure about whether their knowledge of oil and gas resources was sufficient to provide meaningful input into oil and gas management and planning decisions; there were some regional differences, as residents of Vancouver Island/Lower Mainland indicated that they did not feel as knowledgeable as Central/Northern residents, and Southeastern BC residents reported being less knowledgeable than did residents of Coastal and Central/Northern BC. Despite the lack of perceived awareness of oil and gas resources, more than three-quarters of respondents agreed that the citizens of British Columbia need to have more opportunities for input into the management of oil and gas resources. Although there was a sense that it was impotent that the public be given meaningful opportunities for expressing their opinions and concerns about the management of oil and gas resources, respondents indicated that they generally have not had previous involvement in natural resource decision-making; with the exceptions of letters/emails and surveys (which included the current survey), at least two in five respondents had never had prior involvement in natural resource decision-making. Public involvement mechanisms that require a higher level of commitment (*e.g.*, time, skills), such as public advisory groups, had the highest degrees of non-participation. Depending on their length, surveys can be public involvement mechanisms that do require a relatively high level of commitment; surveys have the advantage of focusing people's attention on specific issues.

Almost all respondents indicated that it was important that information is shared between the public and oil and gas companies about oil and gas resource development activities. In terms of who were

considered to be trustworthy sources of information about oil and gas development, universities and colleges were the highest rank source of information, followed by experts; environmental non-governmental organizations shared the same degree of trust as friends and the Internet. Roughly half of respondents trusted the national media, although local media was trusted less than national media. Politicians were the source of information that was trusted least (although local leaders were seen as more trustworthy), followed by Government; religious or spiritual leaders were also not generally seen as trustworthy sources of information about oil and gas development. Respondents were divided in their perceptions of whether oil and gas industry managers and government regulatory authorities are responsive to public concerns. While Coastal BC residents were less agreeable than Southeastern BC residents that local oil and gas industry managers are responsive to public concerns, Southeastern BC residents were less agreeable than Coastal BC residents that government regulatory authorities are responsive to public concerns.

5. CONCLUSION

Although there are some aspects of oil and gas exploration and development that respondents admitted to being uncertain about, respondents from all sample regions were generally aware and knowledgeable about many aspects of the management of oil and gas resources. The degree of concern for oil and gas resources expressed by respondents indicated that resource and economic stability are important; natural resources, including oil and gas, are also seen to be relevant and important. These are attributes that should be harnessed by oil and gas managers to support their continued stewardship of hydrocarbon resources.

As the vast majority of the ecological, social, and economic objectives presented in the questionnaire were important to respondents, it would seem that an approach that addressed these objectives would be suitable for achieving the sustainable management of oil and gas resources, and that these resonate with the public and are in-line with public opinion of what oil and gas resource management objectives are important. That so many aspects of oil and gas resource management were of significance to respondents suggests broad support for a sustainable management approach to oil and gas resources. However, understanding the overall importance of oil and gas resource management objectives does not help in establishing priorities for their implementation, it only suggests that oil and gas managers have identified objectives that resonate with British Columbians.

There is a strong sense that the public has a desire to provide input into oil and gas resource management decision-making through public involvement mechanisms and opportunities for communication with local oil and gas managers. This desired degree of public engagement by respondents demonstrates that oil and gas are relevant to residents in each of the four provincial regions, and that the public wants to be engaged. Communication of all oil and gas resource management activities should be a priority for oil and gas managers.

Respondents tended to hold pro-environmental views and attitudes. However, there was also a sense that limits to growth were not absolute, and that human ingenuity and technological improvements could serve to provide solutions to many environmental issues. Most respondent were willing to trade-off economic benefits associated with oil and gas development in order to preserve ecological and social conditions; although there were some regional differences, there were remarkably few absolute differences among the four provincial regions investigated with regard to the exploration, development, regulation, and management of oil and gas resources in BC. Although there were some regional differences in terms of management priorities for sustaining natural resource values, this ranked list of priorities is reflective of provincial priorities:

1. Sustaining clean drinking water resources.
2. Sustaining biological richness.
3. Sustaining opportunities for a wide range of quality of life values.
4. Minimizing the amount of water used to retrieve oil and gas from the ground.
5. Sustaining economic benefits from other industries.
6. Sustaining local job creation.
7. Sustaining the benefits that First Nations receive from oil and gas exploration and development.

Trust and safety issues are of particular concern for British Columbians. This may stem from well-publicized media reports about oil and gas management (*e.g.*, oil spills, pipeline leaks, and civil disobedience in Northeastern BC). In particular, there was a general lack of awareness about existing legislation/regulations/rules, professional ethics, skill certification, and monitoring and oversight that serve as checks and balances for oil and gas exploration, development, and management; these concerns may be diminished if information about these checks and balances was made available – however, the public is wary of government and industry as trustworthy sources, so it is important that such information presentation be transparent. There does seem to be an appetite for information about the management of oil and gas resources, particularly to help people be more confortable participating in decision-making about oil and gas management.

Although there is concern about the management of these resources, and of exploration and development activities, the public is generally willing to provide their input into oil and gas decision-making, and there is a sense that promoting mechanisms for public involvement would lend themselves to opening up oil and gas management to the public, which may serve to address some of the trust issues that exist. Oil and gas resources are generally seen as important and relevant to British Columbians.

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APPENDIX A

BC Oil & Gas Resource Management Public Opinion Survey Questionnaire

British Columbia Oil and Gas Resource Management Public Opinion Survey

We would like to thank you for participating in this study. Please remember that your identity will remain completely confidential, and the answers you provide will remain anonymous. If you feel uncomfortable with any question(s) you need not answer it (them). Your participation is purely voluntary.

Please do not write your name on this questionnaire.

INSTRUCTIONS

1. You consent to participate in this research by completing and returning this questionnaire.

2. This questionnaire is not a test of your knowledge - there are no right or wrong answers. To ensure the quality of the results, we urge you to answer the questions as completely as possible. If you want to add more information about any question please feel free to do so.

3. The questionnaire is printed on BOTH sides of the paper - please be careful not to skip any pages.

4. When you have completed the questionnaire, please return it in the self-addressed pre-stamped envelope. You do not need to attach postage.

Q2 This question asks about your opinions and beliefs about sustainability issues.

Listed below are statements expressing different views about the environment. For each one, please indicate whether you **STRONGLY AGREE, MILDLY AGREE, PARTLY AGREE/DISAGREE, MILDLY DISAGREE** or **STRONGLY DISAGREE** with it. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

	Strongly Agree	Mildly Agree	Partly Agree/Disagree	Mildly Disagree	Strongly Disagree	Don't Know/ No Opinion
We are approaching the limit of the number of people the earth can support.	☐	☐	☐	☐	☐	☐
Humans have the right to modify the natural environment to suit their needs.	☐	☐	☐	☐	☐	☐
When humans interfere with nature it often produces disastrous consequences.	☐	☐	☐	☐	☐	☐
Human ingenuity will insure that we do NOT make the earth unlivable.	☐	☐	☐	☐	☐	☐
Humans are severely abusing the environment.	☐	☐	☐	☐	☐	☐
The earth has plenty of natural resources if we just learn how to develop them.	☐	☐	☐	☐	☐	☐
Plants and animals have as much right as humans to exist.	☐	☐	☐	☐	☐	☐
The balance of nature is strong enough to cope with the impacts of modern industrial nations.	☐	☐	☐	☐	☐	☐
Despite our special abilities humans are still subject to the laws of nature.	☐	☐	☐	☐	☐	☐
The so-called "ecological crisis" facing humankind has been greatly exaggerated.	☐	☐	☐	☐	☐	☐
The earth is a closed system with very limited room and resources.	☐	☐	☐	☐	☐	☐
Humans were meant to rule over the rest of nature.	☐	☐	☐	☐	☐	☐
The balance of nature is very delicate and easily upset.	☐	☐	☐	☐	☐	☐
Humans will eventually learn enough about how nature works to be able to control it.	☐	☐	☐	☐	☐	☐
If things continue on their present course, we will soon experience a major ecological catastrophe.	☐	☐	☐	☐	☐	☐

Q3 The following questions ask about your involvement in natural resource management.

In British Columbia, we try to manage natural resources in the public's interest — it is important that natural resource management reflects the public's values and goals. There are several different ways that people can make their views and opinions known to decision-makers and natural resource managers — some of these are listed below. How often have you used each of ways listed below of being involved in natural reosurce decision-making?

	Never	Only when I am affected	Once in a while	Regularly
Public meeting/town hall meeting	☐	☐	☐	☐
Letter/email	☐	☐	☐	☐
Phone call	☐	☐	☐	☐
Survey (including this one)	☐	☐	☐	☐
Public advisory group	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐

Q4 This question asks for your opinions about priorities for sustaining natural resource values.

You may be unfamiliar with some of the terms used in this question. For consistency, please refer to the following definitions.

Biological richness: Well distributed productive populations of native species.

Quality of life: Those qualities of natural resources that contribute to the overall enjoyment of life (*e.g.* recreation, aesthetics, clean water, *etc.*).

The following list of natural resource values has been arranged in pairs. For each pair, check the box beside the value that you think is a higher priority for managing our natural resources sustainably. In the example below, if you think that clean water is a higher priority than maintaining historic features, you would check the box on the left:

Clean drinking water	☑ ☐	Maintaining historic features.
Minimizing the amount of water used to retrieve oil and gas from the ground.	☐ ☐	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	☐ ☐	Sustaining biological richness.
Minimizing the amount of water used to retrieve oil and gas from the ground.	☐ ☐	Sustaining clean drinking water resources.
Sustaining biological richness.	☐ ☐	Sustaining opportunities for a wide range of quality of life values.
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	☐ ☐	Sustaining biological richness.
Sustaining biological richness.	☐ ☐	Minimizing the amount of water used to retrieve oil and gas from the ground.
Sustaining clean drinking water resources.	☐ ☐	Sustaining local job creation.
Sustaining clean drinking water resources.	☐ ☐	Sustaining biological richness.
Minimizing the amount of water used to retrieve oil and gas from the ground.	☐ ☐	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	☐ ☐	Sustaining local job creation.
Sustaining local job creation.	☐ ☐	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).
Sustaining biological richness.	☐ ☐	Sustaining local job creation.
Sustaining the benefits that First Nations receive from oil and gas exploration and development.	☐ ☐	Sustaining clean drinking water resources.
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	☐ ☐	Sustaining clean drinking water resources.
Sustaining clean drinking water resources.	☐ ☐	Sustaining opportunities for a wide range of quality of life values.
Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).	☐ ☐	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Sustaining local job creation.	☐ ☐	Sustaining opportunities for a wide range of quality of life values.
Sustaining opportunities for a wide range of quality of life values.	☐ ☐	Minimizing the amount of water used to retrieve oil and gas from the ground.
Sustaining opportunities for a wide range of quality of life values.	☐ ☐	Sustaining the benefits that First Nations receive from oil and gas exploration and development.
Sustaining local job creation.	☐ ☐	Minimizing the amount of water used to retrieve oil and gas from the ground.
Sustaining opportunities for a wide range of quality of life values.	☐ ☐	Sustaining economic benefits from other industries (*e.g.*, agriculture, forestry, mining).

Q5 This question asks about different sources of information about oil and gas development.

We can get our information about oil and gas development from many different sources. How much do you trust the following sources of information about oil and gas development? If you feel that you don't know enough about a particular information source, or don't have an opinion about a source of information, select the **DON'T KNOW/ NO OPINION** box.

	Strongly distrust	Somewhat distrust	Neither	Somewhat trust	Strongly trust	Don't Know/ No Opinion
Internet	☐	☐	☐	☐	☐	☐
Local leaders	☐	☐	☐	☐	☐	☐
Local media	☐	☐	☐	☐	☐	☐
National media	☐	☐	☐	☐	☐	☐
Politicians	☐	☐	☐	☐	☐	☐
Friends	☐	☐	☐	☐	☐	☐
Universities and colleges	☐	☐	☐	☐	☐	☐
Government	☐	☐	☐	☐	☐	☐
Religious or spiritual leaders	☐	☐	☐	☐	☐	☐
Experts	☐	☐	☐	☐	☐	☐
Environmental non-governmental organizations	☐	☐	☐	☐	☐	☐
Other: _____	☐	☐	☐	☐	☐	☐

Q6 This question asks your opinions about the safety of oil and gas development in BC.

Please indicate your level of agreement with the three statements below. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

	Strongly Agree	Mildly Agree	Partly Agree/Disagree	Mildly Disagree	Strongly Disagree	Don't Know/ No Opinion
I would feel safe living near and oil and gas development.	☐	☐	☐	☐	☐	☐
There are enough checks and balances in place (*e.g.*, rules, regulations, monitoring, oversight) to ensure safe oil and gas development.	☐	☐	☐	☐	☐	☐
The economic benefits of oil and gas development on BC outweigh the potential risks.	☐	☐	☐	☐	☐	☐
I could feel safer if I had more information on oil and gas development.	☐	☐	☐	☐	☐	☐

Do you have any safety concerns about the development of oil and gas in BC? ☐ Yes ☐ No ☐ Not sure
Please explain your answer.

Q7 This question asks about the importance of local ecological, economic, and social management objectives

Listed below are statements about different oil and gas development objectives. For each statement, please indicate the level of importance that you feel that objective should have in your area. If you don't feel that you have enough knowledge to respond to a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

	Extremely Important	Very Important	Moderately Important	Slightly Important	Not Important At All	Don't Know/ No Opinion
Ecological Objectives						
Rare and vulnerable habitat types are sustained in natural conditions.	☐	☐	☐	☐	☐	☐
Habitat is maintained for the full range and diversity of native wildlife species.	☐	☐	☐	☐	☐	☐
The natural distribution of important species in their habitats is maintained.	☐	☐	☐	☐	☐	☐
Long-term soil fertility is maintained.	☐	☐	☐	☐	☐	☐
Area disturbed by oil and gas resource development is minimized.	☐	☐	☐	☐	☐	☐
Slope stability is maintained and soil erosion is prevented.	☐	☐	☐	☐	☐	☐
The ability of the landscape to recover from disturbance is maintained.	☐	☐	☐	☐	☐	☐
The amount of water used to develop oil and gas resources is minimized.	☐	☐	☐	☐	☐	☐
It is OK to sacrifice economic benefits to protect the environment.	☐	☐	☐	☐	☐	☐
Economic Objectives						
Oil and gas development continues to contribute to economic well-being.	☐	☐	☐	☐	☐	☐
Employment and income sources in the local economy are diversified.	☐	☐	☐	☐	☐	☐
The provincial government receives economic benefits from oil and gas resource development.	☐	☐	☐	☐	☐	☐
Local First Nations receive economic benefits from oil and gas resource development.	☐	☐	☐	☐	☐	☐
A competitive, diversified oil and gas sector exists.	☐	☐	☐	☐	☐	☐
It is OK to sacrifice short term impacts to the environment for economic gain as long as the impact is rehabilitated	☐	☐	☐	☐	☐	☐
Social Objectives						
The public are given meaningful opportunities for expressing their opinions and concerns about the management of oil and gas resources.	☐	☐	☐	☐	☐	☐
Information is shared between the public and oil and gas companies about oil and gas resource development activities.	☐	☐	☐	☐	☐	☐
Oil and gas resource development plans recognize and respect First Nations and treaty rights.	☐	☐	☐	☐	☐	☐
Recreation resources, opportunities and experiences are maintained or enhanced.	☐	☐	☐	☐	☐	☐
Drinking water quality is maintained.	☐	☐	☐	☐	☐	☐
Oil and gas development conserves unique or special social, cultural, and spiritual places and features.	☐	☐	☐	☐	☐	☐
Worker and community safety is maintained.	☐	☐	☐	☐	☐	☐

Q8 The following question ask about some local oil and gas resource development issues.

Below seven statements about local-level oil and gas resource development. Please indicate your level of agreement with each statement. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

	Strongly Agree	Mostly Agree	Partly Agree/Disagree	Mostly Disagree	Strongly Disagree	Don't Know/ No Opinion
Local oil and gas industry managers are responsive to public concerns.	☐	☐	☐	☐	☐	☐
Government regulatory authorities are responsive to public concerns.	☐	☐	☐	☐	☐	☐
Cutting back oil and gas activities would reduce the standard of living of communities.	☐	☐	☐	☐	☐	☐
Overall, oil and gas exploration and development produce positive results for local communities.	☐	☐	☐	☐	☐	☐
I have had opportunities to receive honest and accurate information about oil and gas from the government regulator.	☐	☐	☐	☐	☐	☐
In general, the oil and gas industry is more environmentally sensitive than other industries in my area.	☐	☐	☐	☐	☐	☐
In times of drought, water will be diverted to priority uses (*e.g.*, agricultural resources, municipal uses).	☐	☐	☐	☐	☐	☐
Oil and gas processing should be done in BC.	☐	☐	☐	☐	☐	☐
Improving oil and gas development technologies will minimize environmental impacts.	☐	☐	☐	☐	☐	☐
Local communities should receive a fair share of locally generated government income.	☐	☐	☐	☐	☐	☐
I am aware of the BC Oil and Gas Commission as a government regulator.	☐	☐	☐	☐	☐	☐

Q9 This question asks your opinions about the management of rare plants and wildlife.

Below are a set of statements about oil and gas resource development and *species at risk*. *Species at risk* is a term used to describe plants and animals in British Columbia that face global or local extinction, or are considered threatened or of special concern. Once a species is identified as being *at risk*, a management plan is developed to guide the recovery of that species. Please indicate your level of agreement for each statement. If you feel that you don't know enough about a particular statement or don't have an opinion about a statement, select the **DON'T KNOW/NO OPINION** box.

	Strongly Agree	Mostly Agree	Partly Agree/Disagree	Mostly Disagree	Strongly Disagree	Don't Know/ No Opinion
The management of *species at risk* should be given priority over economic benefits.	☐	☐	☐	☐	☐	☐
Oil and gas exploration and development does a good job of managing for *species at risk*.	☐	☐	☐	☐	☐	☐
Oil and gas exploration and development are the commercial activities that most affect *species at risk*.	☐	☐	☐	☐	☐	☐
It is acceptable to protect *species at risk* even if it harms other species.	☐	☐	☐	☐	☐	☐
It is acceptable to limit oil and gas exploration and development activities in areas that are important for *species at risk*.	☐	☐	☐	☐	☐	☐
The management of *species at risk* in the area where I live is important to me.	☐	☐	☐	☐	☐	☐
The management of *species at risk* outside of the area where I live is important to me.	☐	☐	☐	☐	☐	☐

Q10 The following questions ask about climate change.

Climate change (also known as global warming) refers to the change in average weather conditions affecting different areas as a result of global greenhouse gas emissions. Canada has committed to decreasing the effects of global warming – and natural resource management can play a role in decreasing greenhouse gases.

On a scale of 1 to 5 with **1 being NOT CONCERNED AT ALL** and **5 being VERY CONCERNED**, how concerned are you about the effects of climate change?

Not concerned at all ① ② ③ ④ ⑤ Very concerned

Have you noticed any effects of climate change in your community? Please explain below. ☐ Yes ☐ No ☐ Not sure

On a scale of 1 to 5 with **1 being I HAVE ABSOLUTELY NO IDEA** and **5 being I HAVE A VERY CLEAR IDEA**, do you know what effects climate change may have on your community or its surrounding environment?

I have absolutely no idea ① ② ③ ④ ⑤ I have a very clear idea

Do you personally plan to do anything in response to climate change? Please explain your answer. ☐ Yes ☐ No ☐ Not sure

Do you think oil & gas managers should be doing something in response to climate change? Please explain your answer. ☐ Yes ☐ No ☐ Not sure

Of the two statements below, which one best describes your opinion about how oil & gas development should prioritize their response to climate change? **Select one only.**

- ☐ It is more important to start acting now on climate change with what we know.
- ☐ It is more important to continue monitoring for climate change so we can learn more.

Q11 This question asks about your familiarity with different aspects of oil and gas in BC.

Below are 7 statements about oil and gas in general and about oil and gas management. For each one, please indicate whether you think the statement is **TRUE** or **FALSE**. If you feel that you don't know enough about a particular statement, select the **DON'T KNOW** box.

	True	False	Don't Know
Hydrocarbons are created from organically rich deposits that have been subjected to tremendous heat and pressure.	☐	☐	☐
Natural gas is not a greenhouse gas.	☐	☐	☐
Oil and gas deposits take millions of years to form.	☐	☐	☐
Currently, there is a ban on the development of off-shore oil and gas resources in BC.	☐	☐	☐
The oil and gas produced in BC is mainly for use in BC.	☐	☐	☐
The majority of BC's active oil and gas development is in the Peace region, in the northeast part of the province.	☐	☐	☐
Government revenue from oil and gas development is higher than any other natural resource industry	☐	☐	☐

Q12 The following questions ask about your participation in an outdoor recreation activity.

Outdoor recreation is the pursuit of a pleasurable activity during your spare time that takes place outside in the natural environment. Each question on this page asks about your experiences with ONE outdoor recreation activity. Of all the outdoor recreation activities that you do, identify the one that you have done most recently and refer to it when answering all of the questions on this page.

What outdoor recreation activity have you done most recently? **Identify only one activity.** _____

How many years of your life have you done this activity? _____ years.

I would rate my skill level in this activity as... ☐ Beginner ☐ Novice ☐ Intermediate ☐ Advanced ☐ Expert

What setting(s) do you prefer for this activity? **Check all that apply.**

- ☐ Large, undisturbed wilderness areas
- ☐ Large wilderness areas with limited trails and camp-sites
- ☐ Semi-wilderness areas with limited motorized access
- ☐ Easily accessed natural areas with some facilities
- ☐ Rural areas
- ☐ Urban areas

Listed below are statements about different aspects of your participation in the outdoor recreation activity that you have identified above. Please indicate your level of agreement with each statement.

	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
If I stopped this activity, an important part of my life would be missing.	☐	☐	☐	☐	☐
I would rather do this activity than do most anything else.	☐	☐	☐	☐	☐
Participation in this activity is a large part of my life.	☐	☐	☐	☐	☐
Most other recreation activities do not interest me as much as this activity does.	☐	☐	☐	☐	☐
This activity is becoming a more central part of my life each year.	☐	☐	☐	☐	☐
Given the skills I have developed in this activity, it is more important that I continue to participate in it.	☐	☐	☐	☐	☐
I feel that I am more skilled in this activity than any other people in general.	☐	☐	☐	☐	☐
Testing my skills in this activity is very important to me.	☐	☐	☐	☐	☐
In general, I am becoming more skilled in at this activity each year.	☐	☐	☐	☐	☐
I have accumulated a lot of equipment for this activity.	☐	☐	☐	☐	☐
I have invested a lot of money in equipment for this activity.	☐	☐	☐	☐	☐
I feel that I have more equipment for this activity than other people that do this activity in general.	☐	☐	☐	☐	☐
I often spend time learning about the newest equipment available for this activity.	☐	☐	☐	☐	☐
In general, I am obtaining more equipment for this activity each year.	☐	☐	☐	☐	☐

Which statement best describes your experiences and involvement with the activity that you have identified? **Select only one.**

- ☐ This is an enjoyable, but infrequent activity that is incidental to other travel and outdoor interests. I am not highly skilled at this activity, rarely read magazine articles about it, and do not own much equipment beyond the basic necessities.
- ☐ This is an important, but not exclusive outdoor activity. I occasionally read magazine articles about it and purchase additional equipment to aid in it, my participation in this activity is inconsistent, and I am moderately skilled at it.
- ☐ This is my primary outdoor activity. I purchase ever-increasing amounts of equipment to aid in this activity, do this activity every chance I get, consider myself to be highly skilled in it, and frequently read magazine articles about it.

Q13 This question asks your opinions about the economic contributions of oil and gas in British Columbia.

The development of oil and gas resources makes many contributions to British Columbia's economy, including jobs, health care, education, and road maintenance. We would like to ask you about oil and gas revenues, specifically how we might balance possible oil and gas revenue losses against possible long-term outcomes. How much oil and gas revenue would you be willing to lose provincially in order to...

	None of the revenue	Some of the revenue	About half of the revenue	Most of the revenue	All of the revenue
... ensure that the economic well-being of future generations is the same as it is today?	☐	☐	☐	☐	☐
... ensure that the economic well-being of future generations is improved?	☐	☐	☐	☐	☐
... increase the amount of land in parks and protected areas?	☐	☐	☐	☐	☐
…ensure the economic well being of a lower revenue generating sector (*e.g.*, Forestry)?	☐	☐	☐	☐	☐

Q14 The following questions ask about you. Your answers to these questions will not identify you in any way. Please remember, your answers will be kept confidential.

How old were you on your last birthday? _____ years old. Gender: ☐ Male ☐ Female

What community do you live in? _____ How many years have you lived here?_____

What is the highest level of education that you have completed? **Please check one**.

☐ Some High School ☐ Some University/College ☐ Graduate degree
☐ High School ☐ University/College Degree ☐ Other (specify):_____

What is your occupation? If you are a homemaker or a student, please state this. If you are retired or unemployed, please state this and list your former occupation.

_____

What industry or sector do you work in (*e.g.* forestry, oil & gas, mining, government, education, services, tourism, *etc.*)?

_____

Please check the category that best describes your household income **before taxes** last year.

☐ < $10,000 ☐ $30,000 - $39,999 ☐ $60,000 - $69,999 ☐ $90,000 - $99,999
☐ $10,000 - $19,999 ☐ $40,000 - $49,999 ☐ $70,000 - $79,999 ☐ $100,000 - $149,999
☐ $20,000 - $29,999 ☐ $50,000 - $59,999 ☐ $80,000 - $89,999 ☐ >$149,999

How many people live in your household? _____ people.

What is your main connection to the natural environment? **Check all that apply to you.**

☐ Art ☐ Mining ☐ Recreation (motorized)
☐ Education ☐ Non-timber Forest Products ☐ Recreation (non-motorized)
☐ Environmental Organizations ☐ Oil & Gas Service Sector ☐ Small Business
☐ First Nations ☐ Oil & Gas Resource Extraction ☐ Tourism
☐ Forestry ☐ Organized Labour ☐ Trapping
☐ Guide Outfitter ☐ Provincial Government ☐ Utilities & Transmission
☐ Local Government ☐ Ranching/Agriculture ☐ Value-Added Sector

Please use this space for any comments that you have.

OG-xxx

APPENDIX B

Telephone Recruitment Script

BC Oil & Gas Resource Management Public Opinion Survey

Initial Phone Contact Script (random digit dialing)

Initial Introductory Script

Hello, my name is _____ from Mustel Group Market Research, a professional research firm in Vancouver. I am calling on behalf of Dr. Howie Harshaw at the University of British Columbia, in the Department of Forest Resources Management. We are calling you about a research project that is investigating public attitudes, beliefs, and perceptions about the management of oil and gas resources in British Columbia. Could I please speak to an adult in the house who is 19 years of age or older and who had the most recent birthday. Is that you? If not, could I speak to that person?

[If person on phone is at least 19 years of age and had the most recent birthday, proceed with the Instructions and Consent section below; otherwise repeat introductory script with appropriate adult OR ask when is a good time to call back the appropriate person.]

May I ask you a few quick questions?

[If yes:] Thank you. Continue.
[If no:] Thank you. Goodbye.

Instructions and Consent

First, I will provide some more details about the study. This research is funded by the Provincial Governments' *Oil and Gas Commission*, an agency that regulates oil and gas development and operations in the province. Your phone number was randomly selected. We have no information about your identity.

We are looking for people to complete a mail-in or Internet-based questionnaire that will take approximately 20-30 minutes of your time. The responses you provide will be anonymous, and your identity will remain confidential. When you receive the questionnaire, you are under no obligation to answer any question that you do not want to. Would you be interested in taking part in this research?

~~[Read persuaders if necessary]~~

[If yes:] Thank you. Continue.
[If no:] Thank you. Goodbye.

In order to send you the questionnaire we need to know your current mailing or email address. Providing your address only allows us to send you the survey materials; it does not commit you to participating in the research study. We do not expect you to decide whether you will consent to participate in the study until you have reviewed the questionnaire and the consent information that will accompany it – you provide your consent to participate in the study by completing and returning a questionnaire; there is no penalty if you decide not to return your questionnaire or indicate that you do not wish to receive other study materials. How would you like to receive the survey?

- Mail-based survey (paper-based)
- Internet-based survey

If mail-based…	**If Internet-based…**
Name: _____	Name: _____
Address: _____	Address: _____
Postal Code: _____	Email address: _____
Phone #: _____	Phone #: _____

Thank you for your time. The questionnaire should be mailed to you in the first week of ***month*** 2010.

If you have any questions about the study you can call Dr. Howie Harshaw at (604) 822-3970, or contact him by e-mail at: howie.harshaw@ubc.ca.

Scripted Replies to Potential Respondent Questions

How was I selected?

We used random digit dialing to select residential phone numbers from across British Columbia. We do not have information about either your name or address.

How long will it take?

The questionnaire takes about 20 minutes. In some cases it may be several minutes longer, in some cases it may take less time. It depends on how much you have to say.

Will it be confidential and anonymous?

When we write reports and other publications results will be presented using summary statistics (*i.e.* percentages and averages, *etc.*) which prevents the identification of individuals.

How do I know you are who you say you are?

I can give you the telephone number of Dr. Howard Harshaw and you can call him directly to confirm who he is at (604) 822-3970. You can also contact Dr. Harshaw by e-mail at: howie.harshaw@ubc.ca.

Who can I contact if I have questions about my participation as a research subject?

If you have any concerns about your treatment or rights as a research subject, you may telephone the Research Subject Information Line in the UBC Office of Research Services at the University of British Columbia, at 604-822-8598.

How will the information be used?

The information will be analyzed and results will be used to inform the development of provincial oil and gas policy. Results will also be used in writing academic journal articles, and for reports that will be available to the general public in summary format on the Internet (http://www.hd-research.ca).

APPENDIX C

Initial Contact Letter

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Dr. Howard Harshaw
Research Associate
Faculty of Forestry
University of British Columbia
Phone: (604) 822-3970
Email: howie.harshaw@ubc.ca

Day, Month Date, Year

Greetings,

You recently provided your name and address to receive more information about a research study about the management of British Columbia's oil and gas resources. A few days from now, you will receive in the mail a request to fill out a questionnaire for an important research project being conducted by the *Faculty of Forestry* at the *University of British Columbia*. I am writing in advance because I have found many people like to know ahead of time that they will be sent a survey.

The study seeks your opinions about the management of oil and gas resources in British Columbia. This study is important because it will help government agencies and oil and gas companies better understand people's perceptions of oil and gas management. We do not expect you to decide whether you will consent to participate in the study until you have reviewed the questionnaire – you provide your consent to participate in the study by completing and returning a questionnaire; there is no penalty if you decide not to return your questionnaire or indicate that you do not wish to receive other study materials.

Thank you for your time and consideration. It is only with the generous help of people like you that our research can succeed.

Sincerely,

Howard Harshaw

APPENDIX D

Survey Cover Letter

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

BRITISH COLUMBIA OIL AND GAS RESOURCE MANAGEMENT PUBLIC OPINION SURVEY CONSENT INFORMATION

Dr. Howard Harshaw
Research Associate
Faculty of Forestry
University of British Columbia
☎ (604) 822-3970

Greetings,

I am writing to ask your help in an important study about the management of oil and gas in British Columbia. You recently provided your name and address to receive more information about a research study about the management of BC's petroleum resources.

PURPOSE

The purpose of the attached survey is to obtain general information on public opinions and preferences for the management of oil and gas resources and related land-use planning issues from British Columbia residents. This research project is being conducted in partnership with UBC researchers, the *British Columbia Oil and Gas Commission*, and the *Science and Community Environmental Knowledge Fund*. The intent of this survey is to:

- Identify the range of opinions about the management of oil and gas resources in British Columbia; and
- Provide objective information about local concerns and people's understanding of particular oil and gas issues.

This survey is one of the first research studies conducted in BC about the perceptions of local citizens about oil and gas development and management in their area. Based on the community input received, overall results will be shared with your community and may be used to guide decisions about how British Columbia's oil and gas resources are managed. It is anticipated that the survey results will contribute to a better understanding of the resource management priorities of communities in different parts of British Columbia. The results and analysis of this study will be publicly available in the late Spring of 2011 on the Internet at:

www.bc-oil-and-gas-survey.ca

STUDY PROCEDURES

The survey will take about 20 to 30 minutes to complete. Please take your time as you consider your answers to the questions. Remember, there are no right or wrong answers. If not enough space is provided for your answer, feel free to use the extra pages at the end of the questionnaire. Please return the completed survey and other material used for your answers in the stamped return envelope provided.

CONFIDENTIALITY

Your identity will be kept strictly confidential. You will not be identified by name in any reports of the completed study. All documents will be identified only by a code number and kept in a locked filing cabinet and a password protected computer file. The data that is collected in this research project will be kept for future use regarding public opinions and beliefs about natural resources management. **Please do not write your name anywhere on the questionnaire. Individual responses will not be made available to anyone outside the UBC research team.**

CONTACT INFORMATION

If you have any questions about the research, or would like further information, please do not hesitate to contact me (Dr. Harshaw) at the phone number listed at the top of the first page. If you have any concerns about your rights or treatment as a research subject, you may contact the Research Subject Information Line in the UBC Office of Research Services at (604) 822-8598.

CONSENT

Participation in this study is completely voluntary, and you may refuse to participate at any time without penalty. You may skip any question if you do not feel comfortable answering it, though we encourage you to complete all questions if possible. By completing and returning this survey, you grant your consent to participate in this study. Please keep a copy of this consent form for your records.

Thank you very much for helping with this important study.

Sincerely,

Howard Harshaw

APPENDIX E

Postcard Reminder

POSTCARD REMINDER

Front

[Name]
[Street Address]
[Community], British Columbia
[Postal Code]

Back

Month Date Year

Last week a questionnaire seeking your opinions about the management of oil and gas in BC was mailed to you. Your name was randomly selected, and you provided your name and mailing address to us.

If you have already completed and mailed the questionnaire, please accept my sincere thanks. If not, please do so today. I am especially grateful for your help because it is only when people like you share your opinions that we can understand how people think BC's oil and gas resources should be managed.

If you did not receive a questionnaire, or if it was misplaced, please call me collect at (604) 822-3970 and I will get another one in the mail to you today.

Dr. Howard Harshaw
Faculty of Forestry
University of British Columbia
Vancouver, BC
V6T 1Z4

APPENDIX F

Replacement Questionnaire Cover Letter

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Dr. Howard Harshaw
Research Associate
Faculty of Forestry
University of British Columbia
Phone: (604) 822-3970
Email: howie.harshaw@ubc.ca

Month Date Year

Greetings,

About two weeks ago, I sent a questionnaire to you that asked about your opinions about the management of oil and gas in the province. The feedback from people that have already responded have included a range of comments and ideas about the planning and management of oil and gas in British Columbia. I think that the results are going to be helpful to land-use managers.

The study is drawing to a close. I am writing again because of the importance that your questionnaire has in helping us to get accurate results. I need to hear from more people in your community so that I can be sure that the study results will fairly represent your community.

I would like to reiterate the confidential nature of your response. Your identity will be kept strictly confidential. You will not be identified by name in any reports of the completed study. All documents will be identified only by a code number and kept in a locked filing cabinet and a password protected computer file. Ensuring your confidentiality is very important to me.

I hope that you will complete and return the questionnaire soon. If you have any questions, please don't hesitate to contact me collect at: (604) 822-3970.

Sincerely,

Howard Harshaw