Prince Rupert Community Report:

Climate Change Adaptation Planning for Northwest Skeena Communities

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COMMUNITY ACKNOWLEDGEMENT

This report authored as much by the community of Prince Rupert as by the researchers listed above. In particular we thank the people who gave generously of their time to participate in interviews and other meetings and engagement related to the project.

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1.0 INTRODUCTION

The Skeena Community Adaptation Project (SCAP) is a joint venture between the University of British Columbia, Coast Tsimshian Resources, Ecole Polytechnique Fédérale de Lausanne, University of Victoria, BC Ministry of Environment, Environment Canada, World Wildlife Fund, ESSA Technologies Ltd., Cortex Consultants Ltd., Brinkman Forest Ltd., and BC Ministry of Forests, Lands and Natural Resource Operations. The goal of this project is to combine biophysical modelling, sociology and community engagement in a shared learning approach to build regional adaptive response capacity.

Social science researchers from the University of British Columbia were charged with the task of examining current community issues related to natural resources and the environment, collective understandings of environmental change, relationships with the resources important for community well-being, and the ability of communities and local institutions to respond and adapt to future challenges. The purpose of the sociological study was to provide a basis of social context for scientific modellers and external researchers. The information contained in this report is provided to support the rest of SCAP research team by placing scientific studies within the context of observations of the localized changes, relationships between residents and the environment, and relationships between various key groups and institutions. This serves the overall purpose of strengthening the relationship between the community and agencies that produce scientific knowledge about the environment and the local resource base.

The study region included the municipalities of Prince Rupert and Terrace, and the First Nations community of Lax Kw 'alaams (Port Simpson). Fifty people were interviewed in each community, with a focus on persons involved in resource management, community leadership and development, and forestry and other natural resource industries, along with community elders and long time residents. The responses contained in this report are derived from a purposive sample that is intended to explore and present the opinions, perspectives, and understandings of community members that occupy key positions in the community in order to better understand how scientific knowledge and specialized tools may be used for planning around resource use and potential future scenarios.

This report summarizes data collected by the sociology team in Prince Rupert. Respondents included town councillors, business owners, educators, workers, and members of local non-governmental organizations. Each respondent participated in a semi-structured interview lasting between one and two hours, answering questions regarding various topics that included:

- Identification of key community and natural resource issues.
- Assessment of the impact of climate change on natural resources and the community.
- The adequacy of information on climate change and the environment.
- Their job and its relationship to environmental and natural resource issues.
- The relationships between their organization and other groups, institutions, and communities.
- The ability of the community to cope with climate change.
- Their vision of the community's future.

Respondents also filled out a set of charts (matrices) that assessed their opinions on the condition of natural resources and community resources, changes in the condition of the resources, the importance of the resources to community well-being, and the importance and influence of key factors of change in shaping community futures.

Section Two of this report outlines the general characteristics of the respondents contributing to this study. Respondents were asked about their natural resource usage, and their history of living and working in the area in order to provide a background to the perspectives they brought to the interviews.

Section Three examines what is valued within the community and the main issues facing the community today. This information is reviewed to determine which resources are most important to the community and how these resources may have changed over the past 20 years. The findings provide a general sense of change in the community and the environment, the direction of such changes, and direct assessments of specific natural and community resources.

Section Four explores understandings of potential linkages between climate change and the key issues that define life in the community. Perceptions of change are explored in more detail, and

the role of climate change is highlighted and placed into context with other forces that may influence the current and future shape of the community and region.

Section Five of the report focuses specifically on climate change, and the sources of information that shape localized understandings of this issue. Attention is paid to the perceived trustworthiness of scientific information and other sources, and the adequacy and applicability of climate change information to the local area. These findings assist in understanding the context of potential working relationships between members of the scientific team and the community, and help identify specific issues and resources about which more information and research is desired.

Section Six explores competing visions for the future of the community, and examines the various pathways that local leaders and resource leaders see for the community in future years. This section explores both critical and optimistic assessments of community futures, as well as ideas about the courses of action that should be taken by community leaders.

Section Seven looks at local institutions and organizations, and their individual and collective abilities to deal with the potential impacts of climate change and other environmental challenges. This section examines institutional arrangements and perceptions of organizational efficacy. Information is presented regarding the ability of local agencies to deal with key natural resource and environmental issues, and the relationships and arrangements that either enable them to act or present obstacles to their progress in dealing with current challenges and their ability to move towards their visions of their community in the future.

2.0 **RESPONDENT CHARACTERISTICS**

Respondents were sought out based primarily on their occupation, and according to input from other respondents regarding which people in the community should be consulted during the research project. Letters describing the research project, its members, and its purpose were sent to respondents in advance of the interviews, along with permission forms that outlined the use of their information and steps taken to ensure the confidentiality of their responses.

	Table 1	
Age of Respondents		
Less than 25 years	1	
25-40 years	8	
40-55 years	19	
55-70 years	18	
More than 70 years	4	

A total of 36 men and 14 women were included in the final pool of respondents. Respondents ranged from 24 to 75 years of age. One person of First Nations ancestry was included in the Prince Rupert sample with the rest of the respondents coming from settler backgrounds. The majority of respondents (74%) were identified as very long term residents who had lived in Prince Rupert for 20 or more years. Smaller percentages of respondents had lived in the area for ten to twenty years, and for one to five years (12% in each group). Only one respondent was identified as being newly arrived to the community. This sample provided a collection of well-established perspectives on the community in its present and past forms, without excluding important viewpoints of people that were born elsewhere and moved to Prince Rupert later in life.

The sample covered a wide range of people in various positions within the community (see Table 2). A strong effort was made to seek out individuals at different levels of responsibility within the many different occupational sectors involved in natural resource usage and the management of environmental issues (see Table 3). The sampling process utilized a snowball methodology, in which respondents were asked to help identify other community members that are directly involved in dealing with or managing resource and environmental issues, and people who are directly affected by such issues. Multiple starting points were selected for the snowball process in order to ensure that a wider range of the community was included. As the interviews progressed and the same names continued to be mentioned as potential interview candidates, the researchers were able to confirm the breadth of the sample and the depth of coverage.

			Table 2	
Occupational Sector of Respondents			Level of r	
Primary job sector		Secondary job sector		Community
Government	16	Government	2	Councillor
Forestry	2	Forestry	3	High level n
Fisheries	1	Fisheries	4	Mid level m
Education	2	Education	5	Small opera
Health	1	Health	1	manager
Tourism	5	Tourism	1	Administrat
Community NGO	1	Environmental NGO	2	Sole proprie
Environmental NGO	2	Retail	2	Resource w
Retail	1	Service	1	Other work
Service	1	Real estate	1	Retired
Shipping	4	No secondary role	28	
Finance	1			Job
Media	1			Public secto
Environmental Research or consulting	2			Private sect
Transportation	1			Retired
Retired	9			Non-govern

Table 3 esponsibility 2 leader 4 3 nanager 12 anager tion 6 3 or 5 etor 2 orker 4 er 9

Table 4

	IUN	10 1
Job Sector		
Public sector		23
Private sector		15
Retired		9
Non-government organization		3

Respondents included 23 members of the public sector, 15 members of the private sector, three members of non-governmental organizations, and nine retirees (based on primary occupational sector) (see Table 4). The majority of respondents engaged in a moderate to high level of community participation and volunteerism, with 30% of respondents being heavily involved in numerous leadership roles and devoting more than 10 hours per week to these activities (see Table 5). A larger portion (48%) spent between two and ten hours per week participating in various community and volunteer activities with some leadership roles. Only 16% of

1	Table 5
Volunteerism and Community Participation	
High level of involvement	15
Moderate level of involvement	24
Low level of involvement	8
No involvement	3

respondents held no involvement in community or volunteer roles, and 6% of respondents played a minor role of less than two hours per week. This range of respondents provided input from people deeply involved in community and social development. Respondents also provided information regarding their level of resource usage based upon their personal and occupational reliance upon fish, forest resources, berries, and other non-timber forest products (see Table 6). Only four respondents were identified as high resource-users with their reliance upon the mentioned natural resources exceeding 25% of their personal income and/or food sources. Six respondents were identified as medium-level resource-users who make heavy personal use of the resources but derive less than 25% of income from the resources. The majority of respondents (34) were identified as low-level resource-users that

derive only a small amount of food or income from fish or forest resources, and six respondents reported no resource usage at all. These characteristics show a wide spectrum of the community leadership being included in the sample, without deference to any specific user group.

	Table 6
Natural Resource usage	
High resource users	4
Medium level resources users	6
Low level resource users	34
No resource usage	6

In summary, the people included in this study were able to provide a wide range of input on natural resource usage and associated issues in the community and the region, along with varying perspectives on the future of Prince Rupert and the ability of the community to manage potential future challenges.

3.0 VALUED RESOURCES AND COMMUNITY ISSUES

Key Messages

- Small business development and natural resource trade are the most highly valued community resources.
- Sharp declines are believed to have occurred in small business, forest industry, and local infrastructure over the past 20 years
- Some community resources are believed to have improved, including environmental protection, access to skills training and education, and heritage and local culture
- The community resource with the highest level of importance to regional well-being, is also the resource that is believed to have endured the greatest decline in conditions.
- Salmon is the most highly valued natural resource, followed by rivers and waterways, drinking water, and forest health and diversity.
- There is a perception of declining conditions in salmon resources and other ocean resources, as well as in timber supply and forest health.
- Economic matters (specifically employment challenges) dominate the issues that are seen as most critical to Prince Rupert and its future.
- Employment is seen as a problem both as a lack of opportunities for workers, but also in a reduced workforce capacity due to the loss of skilled labour.
- Employment losses are connected with population shrinkage, and a shrinking municipal tax-base that threatens the ability to fund repairs to failing infrastructure.
- Fisheries are the most commonly cited environmental concern.
- Among forestry concerns, organization of the industry and log market are the most commonly cited issues, with forest health being of concern to few respondents.
- Climate change is seldom identified as a key issue to the community and its future.

Community-Level Resources

Respondents were asked to provide input on the social (or community-level) resources that they feel are most important to the well-being of the community (see Figure 1). Small business development was the most highly ranked item in the list of presented resources, and was

identified among the three most-valued resources by 48% of all respondents. Natural resource trade and exporting is the second most highly-ranked community resource, with 44% of all respondents placing it among the three most important resources for community well-being. Moderately high levels of importance were also attached to local infrastructure, environmental protection, access to education and skills training, and local government and city administration.



Heritage and local culture, and tourism received the lowest rankings, and were rated among the top three most important resources by only 6% and 14% of respondents respectively. It is important to note that lower rankings do not correspond with a lack of importance to community well-being. All of the listed resources were presented to respondents as items that hold importance to the community, and the rankings are meant to be relative to each other rather than represent absolute levels of importance. If an item was believed to lack importance to community well-being, respondents had the option of removing it from the list. The most important aspect of the data is the identification of the items deemed most important to the well-being of the community.

Respondents also identified additional community-level resources that were not explicitly included in the survey. The additional community resources included fisheries and the fishing industry (included by 14% of respondents), funding for social services and health care (12%), and the container port (8%).¹

Respondents were asked to rate community resources on a scale of 'one to ten', with 'one' representing poor conditions in which the resource is under threat and 'ten' representing very good conditions in which the resource is flourishing (see Figure 2). Respondents were asked to rate the resources on their current state, as well as the state they were in 20 years ago or around the early 1990s. This provided the opportunity to assess perceived changes in the condition of community resources over the past 20 years.

Small business development (the community resource identified as most important) showed a substantial decline in respondents' assessments, falling from an average rating of 8.8 in the past, to only 4.5 today. Substantial declines were also apparent in the forest industry (falling from 8.4 to 4.9) and local infrastructure (falling from 6.9 to 5.1).² These differences were found to be statistically significant, which means that the findings are highy unlikely to have occurred as a result of mere chance, and it is safe to assume that there is a very real perception of declining conditions in the forest industry and local infrastructure. Less sizeable decreases were reported in natural resource trade and exporting, local government and city administration, and outdoor recreation.³ Changes in the condition of community resources were not universally negative, however, and small improvements were reported in the perceived conditions of environmental protection, access to education and skills training, tourism, and heritage and local culture.⁴

infrastructure, and forest industry were statistically significant (p<.001, paired samples t-test) ³ Difference (decline) between assessments of past and current state of local government and city

¹ Community resources added to the list by smaller numbers of respondents included Employment Opportunities; Industry; First Nations Provincial and Fed Government; Local area accessibility; Aquaculture sustainability; Large Business Development; Sustenance fishing/hunting; Parks; Population; Municipal infrastructure; and Arts community ² Differences (declines) between assessments of past and current states of small business development,

administration was statistically significant (p<.001, paired samples t-test). Differences in natural resource trade and outdoor recreation were not statistically significant.

⁴ Differences (improvements) between assessments of past and current states of environmental protection and in heritage and local culture were statistically significant (p<.01, paired sample t-test). Improvements in tourism and in access to education and skills training were not statistically significant.



Figure 2

Among items that respondents added to the list of resources, sharp declines were reported in the state of the fishing industry and funding for health and social services, contrasted with a substantial improvement in conditions related to the container port.⁵ The changes in the conditions of community resources is overlaid with their importance ranking in Figure 3. Figure 3 demonstrates the substantial nature of the perceived decline in small business, forestry, and local infrastructure in comparison with other community shifts.

⁵ Changes in the conditions of resources added to the list cannot be expected to provide meaningful data. The resources were only rated by a small number of respondents, and the scores for these items thus posses a wider confidence interval.



Figure 3

Environmental Resources

Respondents were asked to provide input on the environmental or natural resources that they feel are most important to the well-being of the community (see Figure 4). Salmon was the most highly ranked item in the list of presented resources, and was identified among the three most-valued resources by 74% of all respondents and as the number one important resource by 32%. Rivers and waterways was the second most highly ranked community resource, with 64% of all respondents placing it among the three most important resources for community well-being. Drinking water along with forest health and diversity were also ranked highly, being placed among the three most valued resources by 54% and 48% of the respondents respectively. Mushrooms (which are of significant value in other parts of the northwest region) were ranked lowest among the listed resources, and were left unranked or excluded from the list altogether by 32% of respondents, indicating the specificity of some resources to specific areas or communities.





Respondents also identified additional environmental resources that were not explicitly included in the survey. A full 36% of all respondents added at least one specific marine resource to the list of valued resources. The additional resources included groundfish, shellfish, and halibut (each included by 8% of respondents), and herring and other fisheries (each included by 6% of respondents). The frequent reference to marine resources, and the wide range of items mentioned, indicates the importance and diversity of marine resources in Prince Rupert.⁶

Respondents were asked to rate environmental resources on a scale of 'one to ten', with 'one' representing poor conditions in which the resource is under threat and 'ten' representing very good conditions in which the resource is flourishing (see Figure 5). Respondents were asked to rate the resources on their current state, as well as the state they were in 20 years ago, or around the early 1990s. This provided the opportunity to assess perceived changes in the

⁶ Additional items added to the list of environmental resources important to well-being included Halibut; Ground Fish; Shellfish; Other Fisheries; Herring; Mineral Resources; Seaweed; Islands to Use; Ocean; Grain Shipping opportunities; Medical/Edible Vegetation; Wind Energy; Whales; Oil/Gas; and Youth.

condition of environmental resources over the past 20 years. As with community resources, the most important environmental resource was perceived as having deteriorated substantially over the past 20 years, with salmon falling from a rating of 8.7 to 5.⁷



Substantial declines were also apparent in timber supply (falling from 8.7 tp 6.5), oolichan (falling from 9.3 to 6.7), and forest health and diversity (falling from 8.0 to 6.3).⁸ Less sizeable decreases were reported in the conditions of all remaining resources, and no perceived improvements were indicated in the resource ratings.⁹ The perception of declining environmental conditions was mirrored among the items added to the list by the respondents, with nearly universal perceptions of decline in the condition of environmental and natural

⁷ Difference (decline) between assessments of past and current state of salmon significant (p<.001)

⁸ Differences (declines) between assessments of past and current states of timber supply, oolichan, and forest health and diversity were significant (p<.001). Although mushrooms were not deemed as important as other resources, they shared a distinct deterioration within the perceptions of the respondents (p<.001).

⁹ All remaining differences were not significant (p>.05), except for animals and wild game (p<.05).

resources. The rankings of environmental resources are overlaid with the perceived changes in their respective conditions in Figure 6.



The distinct perceptions of declining environmental conditions is readily apparent in Figure 6, with three of the five most important resources exhibiting sharp declines over the past two decades. Highly valued marine resources and forest resources are both believed to be in a state of decline.

General Community Issues

Without reference to the resources that were ranked and rated, respondents were asked to identify the three main issues that they see as facing the community and its future. Economic issues were by far the most frequently mentioned issues, with 98% of all respondents identifying economic matters among critical community issues. Within these reports, 60% of all respondents identified a recent decline in employment and/or an ongoing need for new job opportunities as one of the most pressing local issues. Numerous respondents pointed to job

losses in pulp milling and fishing as key factors in the depression of employment opportunities. Opportunities in expansion of the port facility were often mentioned as a potential way of bouncing back from these losses. However, the prevailing tone of the employment issues in the community was negative, and the second most frequently identified issue (population loss) was often tied directly to the lack of employment. More importantly, the perceived lack of employment opportunities and associated population loss suggests that local industrial and business capacity has been compromised by as a result of losses in key segments of the population.

"The skilled tradespeople have left town, a lot of them. My-- a lot of my friends have left to go find work elsewhere, right, usually in Alberta or similar industry or got into oil and gas, type of thing. So with them leaving, that obviously took their families and their skill and education with them."

This statement resonates with the views of business owners who reported difficulties in finding appropriate new hires, and 18% of respondents mentioned a loss of a skilled workforce as a key community issue. Respondents also tied population and employment loss to the third most frequently mentioned issue; deterioration of local infrastructure, which is mentioned explicitly by 24% of respondents. The declines of employment and population were seen as being linked to a weakened municipal tax-base that compromises the ability to repair essential infrastructure. This pattern of community issues points towards important challenges for the community to manage if and when infrastructure improvements are required to deal with future environmental issues such as climate change impacts. Challenges within the fishing and forest industry, and depressed general economic conditions were placed among critical community issues. The remainder of key community issues revolved around topics such as the need for future economic development, industrial decline, and obstacles to growing new opportunities.

Social issues figured prominently in the responses of 72% of respondents, with population loss as the defining issue. A wide range of social issues was mentioned as important for the community, including problems with health care and education. Although First Nations treaty settlements were deemed to be important drivers of future change (see Chapter 6, Figure 9), only 16% of respondents pointed to making progress in relationships with neighbouring First Nation communities as one of the keys to enabling repair of the economic and social fabric of the region.

A diverse array of environmental issues accounts for the third largest group of issues identified as critical for Prince Rupert and its future, with 34% of respondents identifying specific fishing, forestry, or other resource issues as being highly important. Some respondents identified positive resource opportunities such as expansion of mineral exploration as keys to the future. Only 6% of respondents identified climate change as one of the three most important issues for the community and its future, but specific environmental problems such as pollution and waste management were identified as important by 18% of respondents. A full list of issues deemed important to the community and its future (in general order of their frequency of being mentioned) is contained in Appendix 1.

Environmental Issues

When asked to identify specific environmental or natural resource issues, fisheries and ocean issues were identified by 62% of respondents. Oil and gas activities were the second most frequently mentioned environmental issue, with 22% of respondents reporting concerns about the potential risks that projects such as the Enbridge pipeline may pose to the environment and fisheries. Other environmental concerns covered a wide range of topics, including waste management, access to natural resources, and various forest issues. Climate change was mentioned by only 18% of respondents as one of the most critical environmental issues for the community and its future.¹⁰ A full list of environmental issues deemed important to the community and its future (in general order of their frequency of being mentioned) is contained in Appendix 2.

Forestry Issues

If respondents did not mention forestry issues among the key community or key environmental issues, they were asked to identify specific forestry issues that may be important to the community and the future. The majority of respondents (76%) identified issues related to the organizational and structural features of forestry, most notably the export of raw logs. Log exports were generally identified in a critical light, but some respondents expressed mixed opinions about the economic trade-offs inherent in the immediate economic use of the timber versus the value of secondary processing.

¹⁰ This figure remained low despite the mentioning of climate change as an integral aspect of the wider research project in the introductory literature provided to the respondents prior to the interview.

"It's creating some employment, but...obviously people would like to be working here in the community. But when you export the logs that's not necessarily an option."

Loss of pulp mill jobs and general forestry employment also figured prominently among key forestry issues (mentioned by 24% and 20% of respondents respectively), along with a slate of other less-frequently mentioned issues such as declining wood quality, indirect impacts of forestry on other industries, and closure of the local ministry office. A full list of forest-related issues deemed important to the community and its future is contained in Appendix 3.

Specific forest management issues were identified by 38% of respondents, with ownership and control of forest resources being the primary concern within this topic area. Concerns about control of resources sometimes focused on division of resources between First Nations and settler communities, but also included desire for access to useable timber for secondary processing regardless of which local groups benefit. The environmental impact of forestry was seldom mentioned, corresponding with beliefs that environmental protection has improved over the past 20 years (as indicated in Figure 3). However, forest health issues were still identified by 30% of respondents, with occasional references to topics such as downstream impacts of logging and changes in hydrology that may negatively affect fisheries. Only one respondent identified climate change as a forestry concern, but there was a wider sense of other environmental challenges to the health of forestry as illustrated by reference to the pine beetle infestation by eight respondents. Overall, concerns related to the overall management and allocation of forest resources were more prominent than concerns about the general health of the forests and impacts associated with human activity and/or climate change.

4.0 CONTEXT OF CHANGE

Key Messages

- Half of all respondents believe there are definite connections between climate change and key community issues. Many respondents remain uncertain if such linkages exist, while only a small number feel that there is no relationship between climate change and the most important issues in the community.
- Climate change is often perceived to pose a threat to salmon and fisheries, but there is a lack of clarity and causal logic regarding the exact nature of potential impacts, and explaining potential climate change impacts must compete with other important issues that capture the attention of the community.
- Potential climate change impacts on forestry are perceived by few respondents as forests holds less overall importance in the community that other natural resources. However, perceptions of forest impacts appear to revolve around a more clearly defined set of causes and effects.
- Respondents expressed uncertain expectations towards both climate change impacts on the environment and potential policy shifts that may occur in response to climate change.

Although climate change was seldom identified as a key issue for the community and its future, more than half of respondents (54%) believe there are connections between climate change and the issues deemed critical to Prince Rupert and its future. In keeping with the resources identified as most important to the community, potential impacts on fisheries figured prominently among perceptions of climate change impacts. In *Section Three*, it was shown that respondents perceived distinct changes in the conditions of many highly valued natural resources, with fisheries (particularly salmon) exhibiting the greatest decline. Thus, it appears that concerns related to climate change revolve primarily around impacts on the natural resource (salmon) believed to play a keystone role in regional well-being, and these concerns are accompanied by a sense of significant decline in the condition of the resource. However, most respondents were uncertain about the exact nature of potential climate change impacts on salmon. Respondents tended to express questions and general concerns regarding effects from temperature changes and other shifts on salmon and their habitat rather than specific beliefs about the causal linkages between climate change and fisheries (or distinct negative or positive aspects thereof).

Understanding relationships between climate change and salmon appears to compete with other contentious changes occurring in relation to fisheries relating to catch allocations, licensing, and concerns of over-fishing. When attempting to discuss climate change impacts on this resource, one must acknowledge that community concerns may already be dominated by other more prominent issues.

"So, you know, Mother Nature, I don't know, I mean, it's a big funny world. And the only things I can relate to is, like, the Fraser River, the sockeye run, like, where did all those fish come back last year?"

"You just-- you don't know, like, how much temperature-- they say that the fish are very sensitive to any kind of temperature changes. And so you see that, you know, maybe they're not coming back 'cause they don't recognize the water. I don't know. So, I mean, that's a possibility."

Fisheries issues tended to dominate the issues identified as critical for the community, and in turn dictated much of the discussion of potential climate change impacts. This indicates that the topic of fisheries may be one of the most open channels of discourse for engaging Prince Rupert residents in climate change discussions. Linkages between forestry and climate change were also reported within the interviews, and form a secondary area of concern regarding environmental change. Potential challenges to the survival of specific tree species (yellow cedar) were mentioned along with implication of climate change in the mountain pine beetle infestation.

"We don't have the cold winters that we had. We can't kill off the pine beetles in a natural process. We can't get two or more seasons of extreme sub-zero temperatures that would kill off the pine beetle. We need-- we have to kill-- we have to have two successive years before we can see any result in it."

Climate change impacts on forests tend towards more concrete specific impacts than on fisheries, but are less likely to figure prominently in the overall context of perceived changes in the region.

Several respondents related an ambiguous sense of concern regarding new energy policies and fuel shortages either stemming from oil depletion or from higher prices produced from policies aimed at mitigating the climate change impacts of fossil fuels. Some respondents suggested

that these possibilities pose challenges to the ability of the local area to maintain linkages with other parts of the world, thus affecting travel of goods both to and from the community.

"I guess with global warming and peak oil...just sort of being in isolation and not being able to depend on maybe shipments of food or anything...I think it has to happen and eventually there'll be probably more carbon taxes and... how is that going to affect people in a rural community...?"

In general, specific climate change impacts were seldom identified as holding clear causal linkages with current natural resource issues. Respondents often expressed climate change related concerns about issues such as salmon stocks and the pine beetle. However, they seldom expressed confidence in their articulation of the specific linkages between specific climate shifts and distinct corresponding impacts on the resources. The political and policy implications of responding to and adapting to climate change were expressed with similar degrees of uncertainty, and direct causal linkages were seldom established.

Among the small number of respondents that believe climate change is not related to the key community issues, about half expressed explicit doubt of climate change as a veritable phenomena, or believed that climate change would not produce noticeable impacts within their lifetimes. The remainder simply did not perceive distinct connections between climate change and the issues they mentioned.

Many respondents expressed doubts regarding anthropocentric (human-caused) versus natural cyclical explanations for both climate change, and other forms of human interference (such as mismanagement or overuse and depletion) were commonly implicated in the declines of important resources. The specific nature of the perceived relationship between climate change and the condition of natural resources and key community issues appears to be tied to the understandings that people hold regarding climate change and the sources they rely upon for information on these topics. These issues are discussed in the following section, and discussion of potential ongoing future changes in the region are explored in *Section Six* of this report.

5.0 CLIMATE CHANGE KNOWLEDGE

Key Messages

- Trust in information regarding climate change varies greatly across the wide range of sources relied upon by respondents, but only a small number are explicitly distrustful of general climate change information.
- Trust in scientific sources of climate change information is higher than trust in generic sources.
- There are clear points of doubt regarding climate change information, and the objectivity of the researchers and the agencies presenting the findings figure prominently in the willingness to trust both generic and scientific information.
- Nearly half of all respondents feel that current climate change data is not specific enough to be useful for the local area. However, belief in the applicability of the data does not correspond with belief in the ability to plan for climate change. Other factors (such as political will and beliefs about the scope and scale of change) appear to influence assessments of planning potential.
- Computer-based modelling is generally held in high regard, and respondents frequently mentioned ocean-based issues as sites where more model-based information is desired.
- Forestry-based models do not figure prominently among the areas where additional information is desired. However, respondents that do identify forestry as an area of inquiry express interest in understanding changes in non-timber resources and overall socio-economic impacts of forestry changes, rather than specific timber-based changes.

Respondents identified a wide range of sources from which they obtained information regarding climate change and environmental issues, including internet, newspapers, television, scientific journals, government agencies, and radio. There was general trust expressed towards a wide range of climate change information among 36% of respondents, with 44% reporting more discretion regarding which specific sources they chose to trust. Only 12% of respondents express a basic distrust of generalized climate change information. The local newspaper was generally identified as a poor source of information on climate change.

These assessments shifted when respondents were asked about their feelings toward scientific sources of information that assert climate change is occurring, as opposed to the broader range of sources identified previously.

"I think [scientific information is] very trustworthy at this point, all right. I mean, we've been at this now for two decades at any rate and I think that the scientific community is fairly unanimous in its assurance that climate change is taking place. What's driving it may be debated, but it is happening and I don't think there's any argument there."

When asked to provide their opinion toward scientific information supporting the existence of climate change, 68% of respondents expressed high levels of trust in scientific sources. Trust in scientific information related to climate change is based in observations of prevailing opinions, confidence in scientific methodology, and congruence between scientific claims and personal observations of the environment.

Only 18% expressed uncertainty regarding scientific sources, and 14% of respondents were highly critical of scientific claims supporting climate change. Doubt and mistrust towards scientific data is often based in tendencies to embed scientific sources within other sources, and many respondents referred to scientific sources only through their appearance in media and other sources. Other respondents, however, express clear concerns about biases in the selection and presentation of data, and/or inability to assimilate a vast and incomprehensible range of conflicting and complex perspectives.

"But there's stuff on both sides, and-- it's good or bad, and if it's a cycle and all this and that, I don't know what to make of it half the time, to tell you the truth."

"Well, and again, it depends where it's coming from and who's funding those sources. So if it's an environmental bent, again, or if it's corporation driven there is-- that's just a natural bias that happens, right."

Respondents that place high levels of trust in scientific information are more likely to identify computer-based models as useful ways of making sense of climate change and environmental issues. Nearly 80% of respondents that expressed trust in scientific information also expressed trust in computer-based models, indicating a strong relationship between scientific methodology and trust in information.

One of the strongest critiques of scientific information is the perception that existing and available data are not specific enough for the local area. While 38% of respondents feel that available climate change information is well tailored to local scales of analysis, 46% feel there is a poor fit, and 18% believe there is only partial compatibility between current data and local

needs. Correspondence (or lack of correspondence) between personal observations of local conditions and belief in wider climate shifts appears to play an influential role in confidence towards the applicability of climate change information to the local area.

"Yeah, I think that we see, in Prince Rupert, the effects of climate change on-- it's easy to see the impacts of climate change. Foolish to say that you didn't see them. So, I mean, I think that there are huge impacts of climate change already that we're seeing in Prince Rupert."

"...they hear that the world's heating up, but here we're not. We get-- we're still cold, we're still rainy. We don't see a change in our climate."

Respondents were divided in regard to the ability of the community to plan for climate change. Only 36% believe that the community can plan for climate change based on the currently available information and a similar percentage believe that planning cannot occur. However, the belief that climate change information is specific enough for the local area does not clearly correspond with the belief that Prince Rupert can effectively plan for climate change based on the information that it possesses. Among respondents that felt that existing information is specific to the local area, only 42% also feel that the community can in turn plan for climate change. Interviews indicate that information alone is seen as insufficient for planning. Some see climate change as too vast or overpowering of a force to plan for, while others see other factors (such as political will) as more important to the planning process.

When asked what types of information on climate change and the environment they are missing (and would like to have access to), ocean changes were the most frequently mentioned with 44% of respondents expressing a desire for increased data in this area, and 24% of respondents requesting models that examine sea level change. Only four respondents mentioned salmon or fish stocks as sites where increased modelling is desired. This limited interest is surprising given the importance of fisheries to well-being and the perceived declines in the state of marine resources. It is unclear if there is already sufficient modelling currently available around fishing, or if respondents are unsure of how such tools may apply to fisheries investigations. However, other answers indicate that many respondents hold at least a rudimentary understanding of what computer-based models can provide. A total of 28% expressed interest in specific outputs related to weather and climate (including rainfall, seasonal

shifts, snowmelt, and slide activity), and 20% indicated a desire for forestry-specific models focusing on topics such as berries, invasive plants, and other vegetation. Desire for specific forestry-based models rarely focused on timber impacts, and tended to touch on non-timber resources or impacts on the overall economic viability of forest industry activity on a wider regional scale. These responses suggest that specific (tree-based) forestry changes do not figure prominently among the issues that most respondents are interested in learning more about, and making such data relevant to local actors will require careful consideration of the delivery of the information and its relationship with community needs. Appendix 4 contains a full list of topics or resources (in general order of their frequency of being mentioned) that respondents felt modellers should attended to.

Respondents also provided input related to the general content and format of computer models, with 18% indicating a desire for socio-economic dimensions to be incorporated into future models, and 12% requesting models based on local conditions. A more commonly mentioned topic for adaptation modelling revolved around understanding future challenges to local infrastructure (which was earlier identified as being a valued resource that has deteriorated in the past 20 years).

6.0 VISIONS OF THE FUTURE

Key Messages

- First Nation treaty settlements are perceived as the most important and influential driver of change in the region, and are seen as critical to enabling beneficial development.
- The influence of the global economy and Prince Rupert's role as a shipping nexus for natural resources forms the core of future community visions.
- Endorsement of resource trade is strongly tempered by clear desires for increased localized access to, control over, and processing of natural resources.
- Environmental protection plays a secondary, but nonetheless noticeable and important, role in visions of the future.
- Climate change is not perceived as an influential or important driver of change. However, it is generally perceived as a negative influence on the region.
- Although some respondents expressed confidence in the ability of the global economy and increased trade to solve local problems and bring prosperity back to the community, positive outcomes were more likely to be visualized when effective and influential local leadership was seen as a key force in future development.

Respondents were asked to identify the factors (or drivers of change) that they believe will have the strongest influence on the future of the community (see Figure 7). First Nations treaty settlements were identified as the most important factor in determining the future of the region, with 67% of respondents placing it among the three most important drivers of changes and 37% identifying it as the single most important driver of change in the future of the region. First Nation treaty settlements were also perceived as portending positive change for the region, and were among the issues with the most positive ratings as drivers of future change (see Figure 9).

"Because having viable, mutually beneficial partnerships with those individuals, having a real partnership, is absolutely key to moving those initiatives forward. And until that happens in earnest, there's no way for that economic impact to be flooding back into the community....So-- and I'm not saying that that's a bad thing, that that's there, because it needs to be there for the Aboriginal peoples of this area to become self-sustaining, which is what everyone wants to have happen. There needs to be a true partnership there, but it's difficult to get to that partnership. So the end goal is great, but it makes the process take longer." The global economy was the second most influential factor, with 65% of respondents placing it among the three most important driver of change and 20% rating it as the single most important driver in the region. Although the global economy was generally perceived as a source of positive change, many respondents expressed reservations about the impact that increased global demand for local resources may have on other resource values such as personal resource usage for sustenance and non-consumptive resource values such as aesthetics and recreation. Natural resource policies were perceived as the third most important factor, with 44% of respondents placing it among the three most influential drivers of change and 14% identifying it as the most important driver in the region.



Respondents expressed a moderate balance of optimism and pessimism in relation to the nature of changes produced by natural resource policies. However, in concert with the global economy, changes to transportation (and shipping), and availability of resources, respondents generally perceived Prince Rupert as facing a future of ascension based on increased global

trade and passage of natural resources through the community. Optimism about Prince Rupert's future, however, is preceded by a belief that First Nations treaty settlements represent a critical step toward ensuring future prosperity for all residents of the region.

"Okay, well, I think the future of Prince Rupert is bright, even though I said all that negative stuff that we've gone through and we have gone through that. Prince Rupert has had a very, very tough time in the last ten years. If only we could market the products that we have for sale in Canada, to China and India better, that port would flourish even more. And I believe that's going to happen."

"If only we could get settlement around First Nations' concerns or First Nations' agreements, I think we could be in a much better place. Where they just-- it's not good nor bad, it's just whatever it is, it's an agreement so that we know the rules and just trying to let everyone be-- play on a level playing field, right. No one--we need to know, we need to be able to make plans and how my plans on this is impacting somebody else, is just-- I don't know. So if we could only get that settled, I think we would be much further ahead, 'cause that has aspects around our city, to the port, to everything, right."

There was a general sense of optimism that the most important drivers of change not only tended towards positive influences (as indicated previously), but that they also will exert the most powerful influences. Climate change was rated among the least important, and least influential drivers of change in the region (see Figure 8). However, it was also perceived to be one of the most negative sources of change (see Figure 9). Perceptions about the negative impact of climate change as a future factor was comparable only to the anticipated impact of population loss, which was earlier implicated as one of the primary reasons for regional depression.





A small group of respondents (15%) reported the belief that climate change would have a positive overall impact on the region. However, the majority perceived it as a slightly to strongly negative influence (52%) or as neither negative nor positive (33%). Additional drivers of change were added to the list of sources of future change, but individual items were seldom mentioned by more than one respondent.¹¹

The low ranking (in importance) and low rating (in influence) of climate change provides helpful insight to perceptions of change when combined with the earlier observation that the majority of respondents place high trust in scientific research asserting the reality of climate change. Simply speaking, although most respondents acknowledge climate change as an actual phenomenon that is occurring, they do not see it as having immediate or significant impacts on the local region, relative to other forces of change.

¹¹ Added drivers of change included energy policies; quality and affordability of life; peak oil, container port development; Tsimshian access project; national trade policy; new business policy; tourism; environmental protection policies; social and health services; internet media; recreation; education; and general government policy.





"We're not living up in the Arctic where-- we're seeing-- receding icepacks, not coming in, we're not seeing that sort of stuff. All we see are declines in the fish stocks, which are probably impacts in land on the-- in the spawning beds and that sort of stuff. But here, we still get rain 300 days a year. We don't see any climate change. We don't have great summers; we have horrendous weather. We're not getting warmer; we're moderate because we're beside the ocean. So we don't have spikes in our temperatures."

There is a clear vision and shared optimism among respondents regarding the future of the community as a transit point for natural resources in the global economy, and a belief that settlement of First Nations treaties and positive resource policies will fuel the success of the region.

When asked what they believe local leaders should do to provide the best possible future for the community, the most common recommendation was to enable economic growth and business development. This general prescription for action was accompanied by more specific strategies for achieving this goal, including the assertion of local access to natural resources required for

industrial activity, development of the port, promotion of the community to attract population growth, and creation of long term jobs and opportunities. These recommendations generally correspond with the vision of Prince Rupert as a hub for future resource trade and transit. However, these recommendations are also accompanied by a clear desire for increased local control and processing of natural resources, and the belief that export of raw materials alone is insufficient as a basis for positive community development.

"I think they-- well, I think they should really try to actively pursue-- more actively pursue industry, the right kind of industry. And I think they-- the leaders of Prince Rupert should really try to encourage the small business growth in this community as well and open up the doors for that and try to get this town strong, almost from the inside out, you know."

"Just have, you know, to have to have creative thinking, you know, we just-- they can't sit back on business as usual type approach. You have to look at Prince Rupert entirely differently, like, you know, how do we bring people here and keep people here."

Environmental protection was a secondary theme in future courses of action. Environmental protection was ranked as the fourth most important resource for ensuring well-being in the community (see *Part Three, Figure 1*), following business development, resource trade, and infrastructure. When asked what should be done to protect the future, environmental protection occupied a similar position in the hierarchy of priorities with 16% of respondents singling it out for special attention by community leadership. The need for environmental protection was tied to maintaining the liveability of the community, rather than an explicit commitment to conservationist values.

"Promote the community the best way they can for all kinds of industry: light, small business, light industrial and heavy industrial. And at the same time be sure that we're getting industries that are compliant to the environmental regulations. You don't want big plants with big smokestacks blowing out black smoke, you know. We want to keep our environment clean and free of pollutants in the air. I mean, nobody wants to live in Vancouver up here."

The majority of respondents (62%) reported that the future of Prince Rupert and the ability to achieve their visions of progress is dependent upon external factors that are largely outside local control. Rationale for believing in the prominence of external factors revolved around the vision of the community as a prospering contributor to a beneficial global economy.

"...it's all tied up with strategically where we are, here on the North Coast, and, you know, how we relate to the whole global scheme of things in the world economy."

"I would actually say it's more external factors that may be outside of local control. The reason being a lot of what Prince Rupert sees as an optimistic future is dependent on global demand for product. We've sort of gotten ourselves as the gateway to the Asia Pacific-- for instance, Ridley terminals eventually looking at doubling capacity."

Endorsement of external factors does not always follow positive visions of community development, and often reflects feeling of geopolitical isolation and inequities in the division of power between urban heartland and rural hinterland areas of the province.

"Unfortunately, the latter and, again, this pertains primarily to the whole impetus around globalization and the move to disconnect communities from resource."

"External factors. Local hasn't got a snowball's chance. The sport fishing industry is controlled by a handful of people down in Victoria, so they're going to control that. The logging industry, controlled out of Vancouver."

Some respondents (14%) insisted that external and internal influences will play equal roles in determining the future of the community, but 24% believe that local leaders will play the greatest role in determining the future of the community. Respondents that endorsed the ability of local leaders to determine the future of the community, or that spoke about more of a balance between internal and external factors, tended towards more positive assessments than respondents that focused on external factors alone.

"I think it's going to be affected by both, but I think that for it to be a positive, it's going to have to come from within the local community."

"I would say a combination. You can't have a community grow unless you have the locals who would have a vested interest or ability to be able to contribute to the needs of what needs to happen."

"Quality of life and development of the community will be determined by local leaders. Development of the port and development of port and port-related facilities, the expansion or the enhancement of those, will be determined by the Prince Rupert Port Authority, the Government of Canada and to a lesser extent, the City of Prince Rupert working with companies whose interest is to be involved in such enterprises and entities." Although some respondents expressed confidence in the ability of the global economy and increased trade to solve local problems and bring prosperity back to the community, positive outcomes were more likely to be visualized when effective and influential local leadership was seen as a key force in future development.

7.0 INSTITUTIONS AND ADAPTATION

Key Messages

- Respondents expressed mixed opinions regarding the ability of the community to adapt to climate change, with 48% providing optimistic assessments of adaptive capacity compared to 35% providing pessimistic assessments.
- Numerous factors are seen as determining the ability to cope with climate change, including willingness to recognize and understand climate change as a problem, and availability of funding to engage in adaptive responses.
- Financial resources are seen as important factors in the ability of organizations to deal with environmental and natural resource issues.
- Direct involvement in local issues is often offered as proof of efficacy in dealing with environmental and natural resource issues. However, adoption of smaller measures to mitigate fuel use or carbon footprints are often cited as being insignificant in relation to the larger scale of environmental challenges.
- Respondents seldom work in isolation on environmental issues, and frequently draw on support from within their own organizations and from outside agencies.
- Relationships within organizations and between organizations and other communities are generally characterized in a positive manner.
- Relationships with NGOs (specifically environmental NGOs) and government agencies show wider ranges of success in achieving collaboration.
- Geopolitical isolation is a commonly cited barrier to establishing and maintaining healthy relationships with provincial and federal government agencies. However, such linkages are deemed to be beneficial when effective steps are taken to build them.

The preceding sections provide insight to the value placed upon various resources, understandings of changes affecting these resources, and the visions of the way that various changes may influence the shape of future community development. This final section explores perceptions of the community's ability to successfully adapt to changing conditions, and highlights some of the prominent relationships and institutional features that may enable or inhibit the ability to respond and adapt.

As indicated in the previous section, active involvement of local leaders balanced with external forces is associated with more optimistic assessments of community futures. When asked about

the ability of the community to successfully deal with potential climate change impacts, respondents expressed a mixed response, with 48% reporting optimistic assessments of community coping and adaptive capacity and 35% reporting pessimistic assessments. The ability to cope with climate change was often perceived to be contingent on various factors, such as the willingness to understand climate change as a problem relevant to the local region, and to grant it a higher level of prioritization than it currently holds relative to other issues. This belief was most often conveyed in a pessimistic manner, with respondents expressing doubts about the likelihood of climate change receiving greater consideration within the community.

"I think it's next to zero...when you're trying to struggle to put food on the table, the last thing you're concerned about is whether the ocean comes up another foot, you know, and that's kind of our concerns, right. Our concerns are job creation, so that the less fortunate people that are staying in the community, that are on E.I. or welfare or social assistance, can actually get jobs and have meaningful work every day so that they can create economy."

Availability of funding was another commonly cited key factor in the ability of the community to cope. This consideration echoed concerns about the influence of depressed economic conditions on adaptive capacity, including the lack of a municipal tax base to support adaptive modifications to critical infrastructure. Optimistic respondents cited the need for cooperation to support adaptation, but belief in the ability to respond to climate change was often based in the expectation that actual impacts will be minimal or at least far less significant than in other areas.

"See-- but this whole thing of this climate change isn't happening immediate, or at least that's my understanding of it. So for the short term, they're doing what they need to be doing."

Respondents were also asked about the ability of their own organization to deal with environmental issues. Again, optimistic assessments outnumbered pessimistic assessments with 46% of respondents seeing their organization as strong versus only 21% seeing it as weak. As with community capacity, availability of financial resources was a key factor in determining the ability of organizations to deal with environmental issues. Respondents that perceived their organization as strong often cited direct involvement in local environmental issues as evidence of their strength. In contrast, respondents perceiving their organization as weak often pointed to smaller environmental initiatives within their own agency (such as recycling), and conceded that their efforts were insufficient given the nature of the larger scale of challenges associated with the environment. The vast majority of respondents reported that they work with others within their organization when dealing with environmental or natural resource issues. Respondents also reported a reliance on a wide range of internal departments and external organizations for knowledge regarding natural resource and environmental issues. These findings suggest that information on environmental issues forms a common area of discourse within and between organizations, and people often seek the assistance of others when seeking to understand environmental issues. However, based on earlier critiques on the trustworthiness of sources and the limited applicability of climate change information to the local area, there is reason to doubt whether individuals are able to access high-quality information or if it provides support to them in building adaptive capacity.

Relationships with other departments within organizations were generally characterized in a positive manner, and were often cited as being key factors in supporting the efficacy of the organization. In contrast, relationships with other groups and organizations were described in both positive and negative terms, and reflected varying levels of success in working together. Environmental NGOs were sometimes cast as instigating polarization of issues, but were also cited as being valuable partners in many situations. Compatibility of agendas was a common factor in enhancing collaboration with NGOs, and narrowly confined sets of values and objectives were identified as presenting obstacles to collaborating with these groups.

"There-- sometimes the NGO's are-- that we've worked with, have been sort of more single-value focused and that creates difficulty when you're looking at a multi-value approach to things. So the balance between certain opportunities are constrained by other opportunities and what the group may not be willing to bend at all, if they have a single value 'cause, you know..."

Relationships between organizations and other communities outside Prince Rupert were generally characterized in a favourable manner, and respondents made numerous references to improving linkages with First Nations communities. There was also a strong sense of regional solidarity expressed by many respondents.

"Coastal communities work together. And in some ways there-- certainly work together on larger environmental issues with-- down the Skeena." However, the same geographic features that seemed to bind communities together within a regional identity also presented challenges as respondents spoke about the challenges of getting representatives to attend meetings and the difficulties of bringing a wide geographic area together when transportation routes often include combinations of boat, plane, and highway travel. Another geographic feature that affected inter-community collaboration is the impact of geo-political isolation combined with the depressed economic conditions that are seen to pervade the northwest.

"One, we can't come together as often as we'd like. Two, we're all scrambling and competing for the same small pot of grants that exist out there. It's actually-we're more fractured now than we were ten years ago, because of the economic constraints that our communities are feeling. So we become competitive rather than cooperative and that has always bothered me."

The challenges of geo-political isolation were also expressed in assessments of respondents' ability to collaborate with various levels of government. The lack of regionally elected representatives belonging to the party in office was identified as an obstacle to fostering governmental relationships. Access to government agencies (such as Department of Fisheries and Oceans) and the ability to obtain cooperation from government officials was also cited as an obstacle to organizations achieving their goals in many situations. However, assessments of linkages with government agencies (provincial and federal) were not universally criticized. Respondents that reported strong governmental relations often cited the need to work to maintain such linkages and stated that maintaining such relations was very beneficial to achieving their organizational goals.

Appendix 1: Issues important to the community and its future		
Economic Issues		
Infrastructure		
Fishing Industry		
Forest Industry		
General Economy		
Skilled workforce		
Opportunities for future development		
Mindset shift from previous industries		
Economic impact of First Nations rights and title		
Industrial decline		
Benefit of resource extraction not staying in community		
Retail sector decline		
Economic impact of policy uncertainty		
Balancing economy and the environment		
Managing growth		
Barriers to efficiency		
Lack of government investment		
Economic development in isolated area		
Social Issues		
Population decline		
Collaboration and communication with outside (First Nations) communities		
Lack of youth opportunities		
Healing the past		
Community leadership		
Education		
Collaboration and communication within the community		
Alcohol and drugs		
Welfare dependency		
Racism		
Adaptive capacity		
Necessary social resources not located in community		
Social fragmentation		
Brain drain		
Housing		
Fear of change		
Arts and music		
Recreation facilities		
Environmental Issues		
Sustainable growth and development		

Mining and exploration
Climate change
Pollution
General environmental conditions
Water quality
Air quality
Invasive species
Potable water
Community dependence on natural resources

Appendix 2: Environmental Issues important to the community and its future	
Fisheries and Oceans	
Fisheries management	
Fish farms and aquaculture	
Ocean resources	
General fish stocks	
Pollution	
Salmon	
oolichan	
Mining and Exploration and Oil	
Enbridge pipline	
Climate Change	
Mitigation	
Decreased river flow	
Sea level rise	
Ocean temperature change	
Waste Management	
Liquid waste	
Recycling	
Littering	
Resource access and control	
Transportation and fuel	
Forestry	
Balancing environment and economy	
Pine beetle	
Air quality	
Port development	
Water quality and availability	
Green energy	
Agriculture and local food	
Eco tourism	

Sustainable growth and development Maintenance of local food resources

Pesticide use

Global scope of problems

Weather changes

Appendix 3: Forestry Issues important to the community and its future

Porest industry and organization Secondary processing of materials Prince Rupert pulp mill closure Employment General economic issues Low end wood Impact on other industries Prince Rupert forest office closure Prince Rupert port Information for the community Beachcombing Waste management Wood pellet plant Selective logging Environmental stewardship
Secondary processing of materials Prince Rupert pulp mill closure Employment General economic issues Low end wood Impact on other industries Prince Rupert forest office closure Prince Rupert port Information for the community Beachcombing Waste management Wood pellet plant Selective logging Environmental stewardship
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Beachcombing Waste management Wood pellet plant Selective logging Environmental stewardship
Waste management Wood pellet plant Selective logging Environmental stewardship
Wood pellet plant Selective logging Environmental stewardship
Selective logging Environmental stewardship
Environmental stewardship
Accountability to community
Questioning economic benefit to community
Movement away from forestry
Forestry infrastructure
Decadent wood
Forestry as positive for the community
Forestry management
Resource ownership
Government consultation and regulation
Adaptive capacity
License management
Roads
Stream protection
Forestry administration
Cultural protection
Lack of reforestation
Deforestation and clearcutting
Forest health
Pine beetle

Downstream impacts of logging
Cedar issues
Health of trees
Aesthetics
Hydrology
Wildlife
Non-timber forest resources: berries, bark, greens
General forest health
Climate change
Urban forestry
Erosion

Appendix 4: Topics for future modelling.		
Ocean Changes		
Sea level		
Fish stocks		
Model formats and applications		
Socio-economic impacts		
Specific models of local area		
Mitigation related modelling		
Models easy to understand		
Identification of opportunities		
Weather patterns		
Rainfall changes		
Changes in seasons		
Snowfall and snowmelt		
Slides		
Flooding		
Forests		
Impacts on plants		
Berries		
Invasive species		
Impact on infrastructure		
Rivers and waterways		
Earthquakes and tsunamis		
General global models		
Groundwater		
UV health related issues		