



## Chapter 3: Valued Resources

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Jordan Tesluk, Ralph Matthews, Georgia Piggot, Robin Sydneysmith

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### 3.1 Sociological Research Approach

Between the fall of 2010 and the summer of 2011, interviews were conducted with 150 people in the towns of Lax Kw'alaams, Prince Rupert, and Terrace. A total of 50 interviews were conducted in each community, with a focus on people in position of community leadership and resource management. The people included in the sample represent a specific and important segment of the population, and the sample was not intended to represent the views of average residents. The interviews dealt with various topics, with a heavy emphasis on key community issues, resources valued in the community, and opinions about what will shape the future of the region (See Interview schedule Appendix 3.3).

In addition to direct interview questions, respondents were asked to complete a set of 3 Sustainability Matrices, dealing with: community resources, environmental resources, and drivers of change (See Appendix 3.1). The community resources and environmental resources matrices listed a number of resources chosen based on previous research in the region. Respondents were asked first to rate the relative importance of these values to the well-being of the region, and subsequently to identify the condition of these resources compared to twenty years ago. In this way, the sustainability matrix exercise served as a vulnerability assessment to identify values in perceived critical condition. The third matrix provides insight into those issues which communities and individuals feel will be most influential in the future. In the context of climate change adaptation, it is important to understand these issues so that barriers can be addressed and capacities increased.

The development of the Sustainability Matrix was based on a concept introduced to Dirk Brinkman by Minister Virgilio Viana, State Secretary of Environment in Amazonas, Brazil, at the 2006 Conference of the Parties for the United Nations Framework Convention on Climate Change in Nairobi, Kenya. Minister Viana, a former university professor, shared with Brinkman his experience of decreasing deforestation in Amazonas by over 50 % through community based, participatory projects. In order to ensure widespread engagement and a clear understanding of goals, Viana used colour coded charts to identify community values and services, and to track their condition over time. Viana's success inspired Brinkman to share this methodology with Dr. Matthews' research team at UBC and together the CCAP group devised a matrix to pilot in the Skeena region. This tool can be used to assess the perceived condition and vulnerability of community and environmental values. The results also provide baseline data to track changes in community wellbeing as indicated by the relative condition of community values.

The full details of the sampling methodology and the characteristics of the people interviewed are outlined in Appendix 3.2. Additional information about the 'Sustainability Matrix' and Virgilio Viana are included in Appendix 3.1.

### 3.1.1 Community selection

As described in the introductory chapter, the study included the communities of Terrace, Prince Rupert, and Lax Kw'alaams. These communities comprise three of the most prominent population centres in the study area. They also represent the central hubs of resource management, administrative, economic, and governmental activity in the region.

Terrace serves as host to a large number of municipal, regional, provincial, and federal government offices, corporations, and NGOs that are relevant to the field of resource management. The community also serves as a service and retail hub for surrounding communities, and has historically played a central role in the regional forestry industry and other resource-based activities. Prince Rupert has also played a large role in resource harvesting, processing, and exporting (for both fishing and forestry industries), and plays a key role as a service and retail hub for numerous communities on the central and north coast. Lax Kw'alaams was crucial to this study in order to provide input from First Nations, and as the primary timber forest license holder in the study region. Lax Kw'alaams also offered a very different perspective on resource industries and the environment due to the positioning of the community on the ocean, and detached from major land transportation routes.

While Terrace occupies a pivotal inland location between major routes west and north from the centre of the province, Prince Rupert sits in a key position at the end of western highway and rail routes. These geographic features form an important role in shaping the relationships between these communities and resource industries and the rest of the province. Lax Kw'alaams, meanwhile, is more isolated from major routes of shipping, commerce, and tourism, but remains directly involved key resource management activities in the region. In addition to geography, the communities differed in terms of the natural resources immediately surrounding the communities, and the types of environmental issues posed by the geography (such as proximity to rivers, slopes, and ocean) and local climatic characteristics (such as temperature variations and average rainfall).

This chapter describes the findings in a general regional framework. A series of community reports have been completed that provide a more detailed and contextualized summary for each of the included communities.

## 3.2 General Community Issues

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 group of issues, with 85% of all respondents identifying economic matters among critical community issues. Within these reports, 45% 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. The downturn in the forestry industry was identified as a key issue by 33% of respondents, and 19% mentioned challenges in the fishing industry as a key issue for their community and its future. Challenges in employment were also linked with population loss as a

key community issue by 18% of respondents.

Social issues figured prominently in the responses of 73% of respondents, with the aforementioned population loss as the defining issue. Social problems were also linked with job shortages, particularly among Lax Kw'alaams respondents where shutdowns in fishing and fish processing had left few jobs available within the community. Meanwhile in Prince Rupert and Lax Kw'alaams, the declines of employment and population were seen as being linked to weakened municipal tax-bases that compromise the ability to repair essential infrastructure. These patterns of community issues points towards interconnected social and economic challenges for the communities to manage as they grow into the future.

Environmental issues were identified as being important for the community and its future by 48% of respondents. Environmental concerns were most likely to be identified among key community issues in Lax Kw'alaams, where attention was focused on ocean resources and the ability to harvest food for local needs.

### **3.2.1 Environmental Issues**

Respondents were asked to identify specific environmental or natural resource issues if they did not already identify such items among the key community issues. Fisheries and ocean issues were identified by 64% of respondents. Oil and gas activities were the second most frequently mentioned environmental issue, with 26% 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, water quality, and resource access and control.

Climate change was mentioned by 17% of respondents as one of the most critical environmental issues for the community and its future. 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, and despite clear concern in all three communities about the condition of natural resources. Climate change was mentioned more frequently in Lax Kw'alaams, where potential impacts on food resources were commonly mentioned. However, in Prince Rupert and Terrace, climate change remained secondary to other environmental issues such as access to and abundance of natural resources important to economy and industry.

### **3.2.2 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 in all three communities (76%) identified issues related to the organizational and structural features of forestry, with the export of raw logs forming a touch point in Prince Rupert and Terrace. 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.

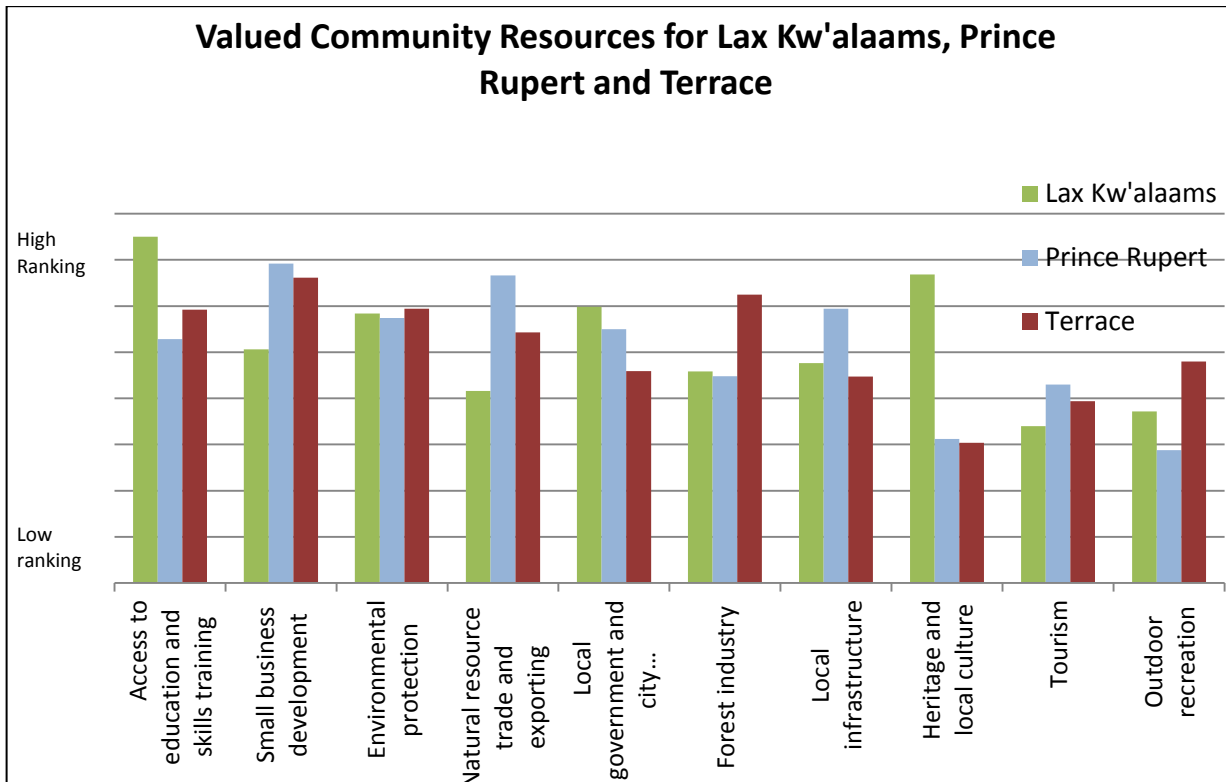
Loss of pulp mill jobs and general forestry employment also figured prominently among key forestry issues in both Prince Rupert and Terrace, along with a slate of other less-frequently mentioned issues such as declining wood quality and indirect impacts of forestry declines on small business and other industries. The potential promise of new forest industries such as wood-based fuels and new approaches to secondary processing formed an optimistic cluster of less-commonly mentioned issues. Respondents in Lax Kw'alaams identified a similar set of forestry issues, but on a less frequent basis. In contrast, Lax Kw'alaams respondents sometimes questioned the value of the industry to the community when the economic benefits of timber license ownership are weighed against the potential environmental costs and the lack of jobs in the actual community.

Lax Kw'alaams respondents were also more likely to question clearcutting practices when discussing forest management practices, while Prince Rupert and Terrace residents focused more upon division of access to and control over timber resources between First Nations and settler communities, accompanied by the desire for access to useable timber for secondary processing regardless of which local groups benefit.

However, forest health issues were identified by 43% of respondents, including various topics that ranged in frequency according to community. Prince Rupert respondents emphasized issues such as downstream impacts of logging and changes in hydrology that may negatively affect fisheries. Lax Kw'alaams mentioned forestry issues surrounding tree and forest health, and the importance of non-timber forest products for local dietary, medicinal, and cultural needs. Climate change was seldom identified as a key forestry issue, except in Terrace where several respondents emphasized the survivability of specific tree species and vulnerability of forests to pest infestations under changing environmental and climatic conditions.

### 3.3 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 (Figure 3.1). This included evaluating the condition of the resources, and ranking them in terms of their respective importance for well-being in the community. 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.



**Figure 3. 1: Comparative rankings of valued community resources in each of the three communities.**

The two most highly ranked community resources were access to education and skills training, and small business development. These resources were placed among the top three most important resources for well-being in the community by 40% and 41% of the respondents, respectively.<sup>1</sup> Access to education and skills training was ranked particularly highly in Lax Kw'alaams, where the importance of this community resource is seen as a key to both preserving culture and for increasing employment opportunities. Small business development was more highly valued in Terrace and Prince Rupert, where retail and service operations have played a stronger role in the communities as support centres for local industry and smaller communities in the region. Environmental protection was ranked third, with 39% of respondents placing it among the top three community resources.

Environmental protection held a similar ranking in all three communities, demonstrating a shared understanding of the resource as a key for well-being in all three communities. The value attached to environmental protection was grounded in mutual concern for rivers and waterways and fish resources in the region. However, there were also specific emphases that distinguished the dimensions of environmental protection that were seen as most important in each community. Protection of food resources and ocean product harvesting opportunities was a primary concern in Lax Kw'alaams, where there was a higher level of natural resource use for personal sustenance reported among respondents. In Terrace, environmental protection was

<sup>1</sup> There was a negligible difference between the rankings of the two resources. Access to education and skills training was ranked number one overall due to a slightly higher number of first place rankings.

often linked to protection of sport fishing habitat, and with the preservation of outdoor recreation opportunities which are seen as part of the community's shifting identity. In Prince Rupert, environmental protection often revolved around ensuring the health of the natural resources that fuel jobs and natural resource industries that support employment and economic activity in the region.

Natural resource trade and exporting was more highly valued in Prince Rupert, where port expansion forms an important part of the current economy and of the visions that respondents have of the community in the future. Forest industry was ranked more highly in Terrace than in other communities. This finding largely reflects an attachment to the historical importance of forestry to the economy of the community, and hopes that recovery and diversification in the forest industry will play a key role in improving future opportunities. Heritage and local culture was more highly ranked in Lax Kw'alaams, where community identity is more closely tied to the cultural heritage of the people that live there. Tourism and outdoor recreation were ranked eighth and ninth overall. However, these resources were still ranked among the top five most important resources by 31% and 26% of the respondents (respectively), indicating the range of perspectives among respondents and the overall importance of all the listed items.

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. In Prince Rupert, 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%). In Terrace, health care and social services was the resources that was most frequently added to the list of important community resources, and was included by 22% of respondents. Other additional community resources various industrial development issues (such as mining and industrial manufacturing) were included by 10% of respondents. In Lax Kw'alaams, the most commonly added resources included Band Council and community health care, with the latter forming an important point due to the isolation of the community from many essential services.

In addition to ranking resources based on importance to well-being, 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. 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 (see Figure 3.2). It

is important to acknowledge that the resource ratings do not necessarily reflect the true condition of the resources, but instead show perceptions of the resource based on the opinions of a key segment of the population. While these opinions may be subjective in nature, they nonetheless hold valuable insights due to the key role that of the respondents in community leadership and resource management.

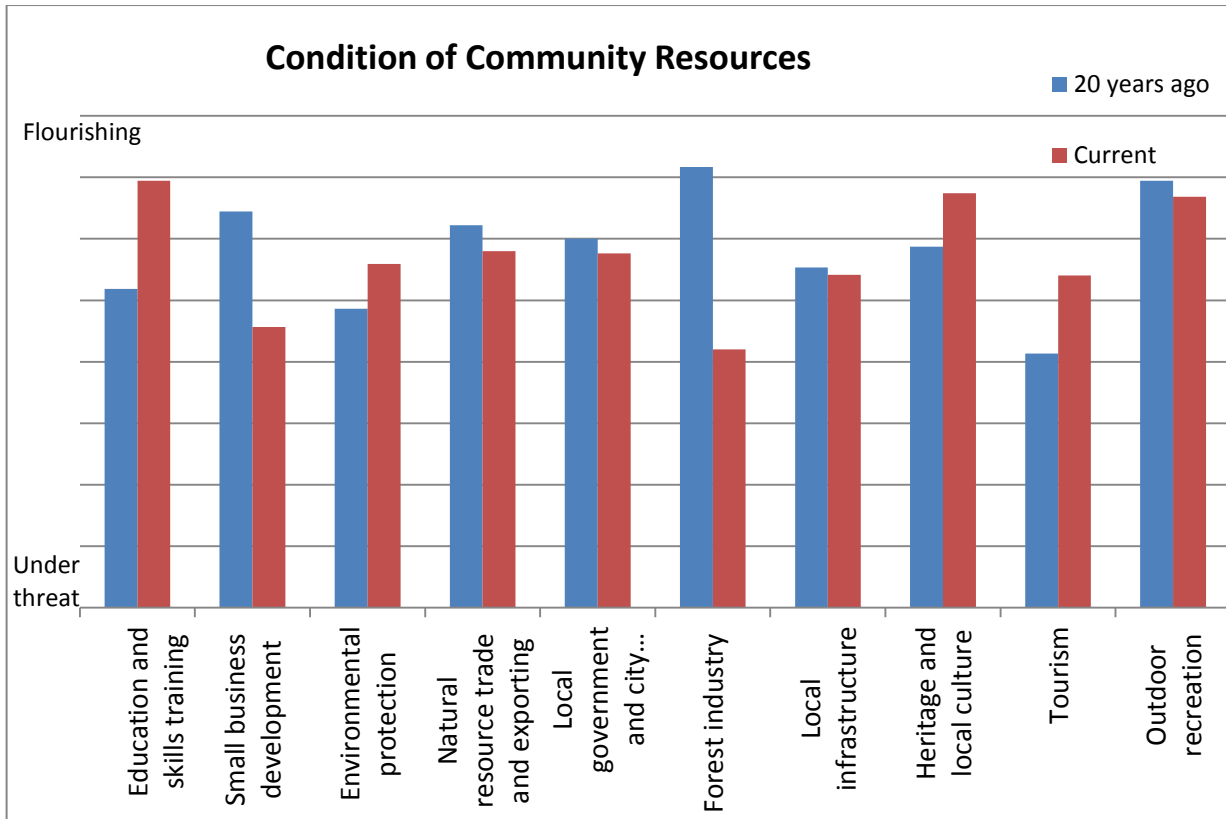


Figure 3. 2: Combined perception of condition of community resources.

The forest industry showed a substantial decline in respondents' assessments, falling from an average rating of 7.2 in the past, to only 4.1 today. A substantial declines was also apparent in small business development, falling from 6.5 to 4.6.<sup>2</sup> These differences were found to be statistically significant, which means that the findings are highly 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. Meanwhile, access to education and skills training was seen to have improved from a rating of 5.2 to 7.0.<sup>3</sup> The identified declines in community resources reflect general regional trends of declining forestry and small business development, with the latter decline being connected with both the industrial recession and loss of population in the region and in the communities. Meanwhile, the improvement in access to education and skills training reflect greater access to post-secondary

<sup>2</sup> Differences (declines) between assessments of past and current states of forest industry and small business development were statistically significant ( $p < .001$ , paired samples t-test)

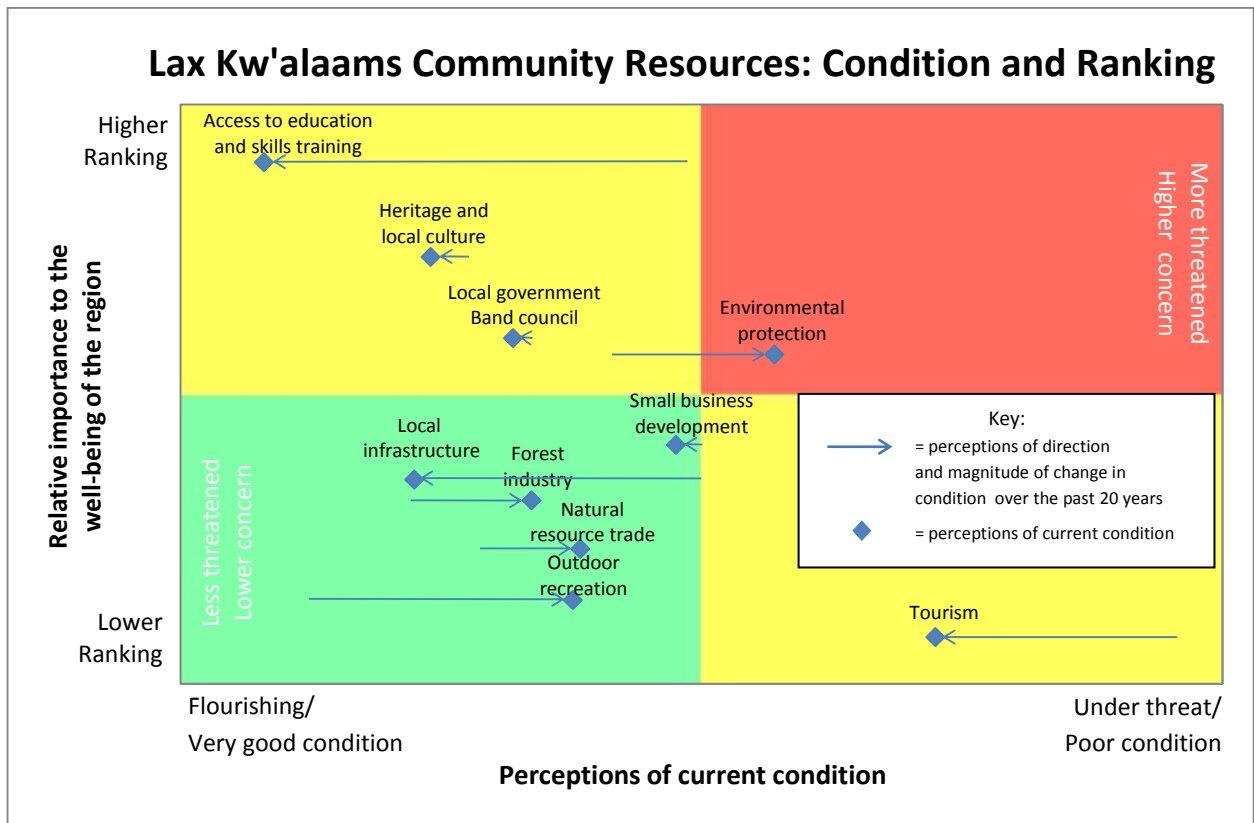
<sup>3</sup> Difference (improvement) between assessments of past and current states of access to education and skills training was statistically significant ( $p < .001$ , paired samples t-test)



training in Prince Rupert and Terrace, and improved funding and administration of education in Lax Kw'alaams.

More complex patterns of decline and improvements in community resources are evident on a single community level of analysis. The following series of charts help identify some of the pressing issues in each of the communities. The red quadrants of the charts indicate resources that are both highly important, and believed to be in poor or declining condition.

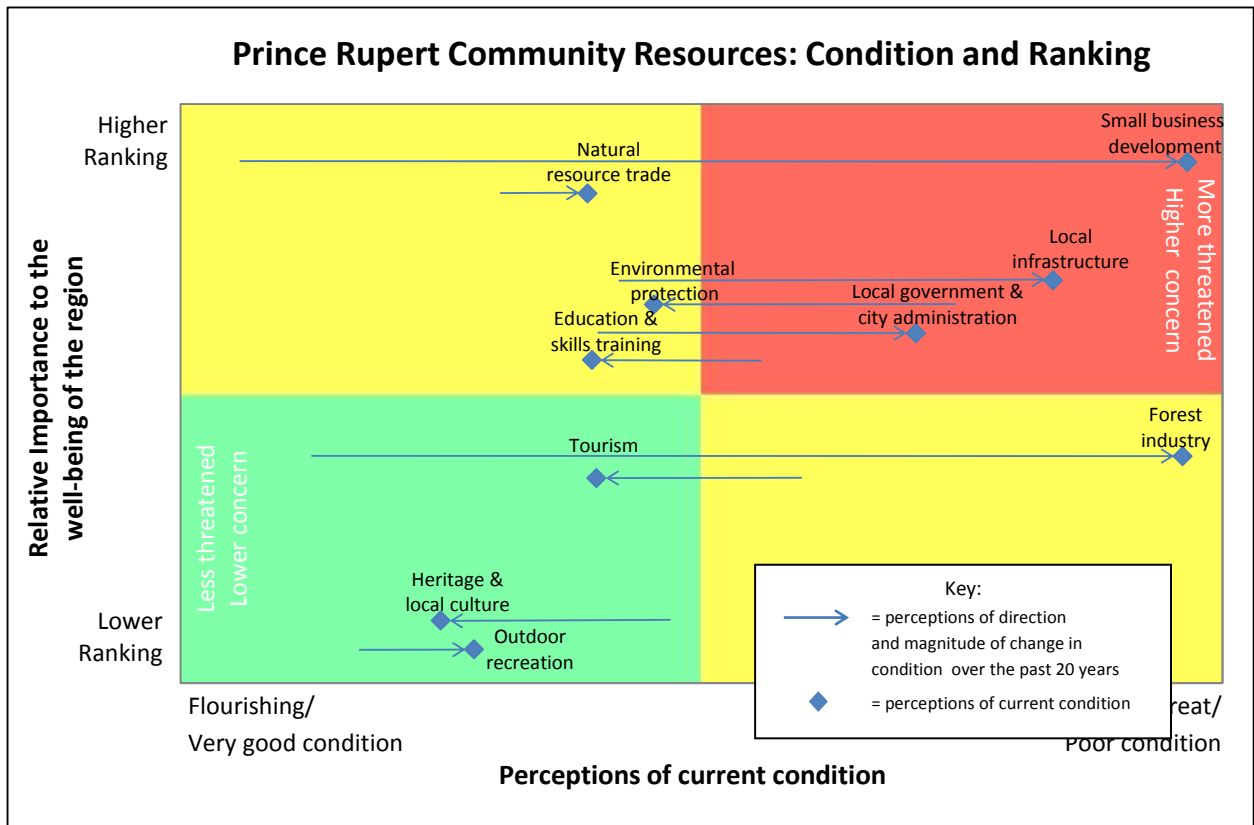
In Figure 3.3, the position of environmental protection indicates a high level of concern with the protection of food resources and other natural resources that are considered vital for the well-being of the community. The ascendant position of access to education and skills training demonstrates a key area of progress in the community.



**Figure 3. 3: Resources in the top right corner are considered to be of high importance and under threat. The direction of the arrow represents the perceived direction of change over the past 20 years.**

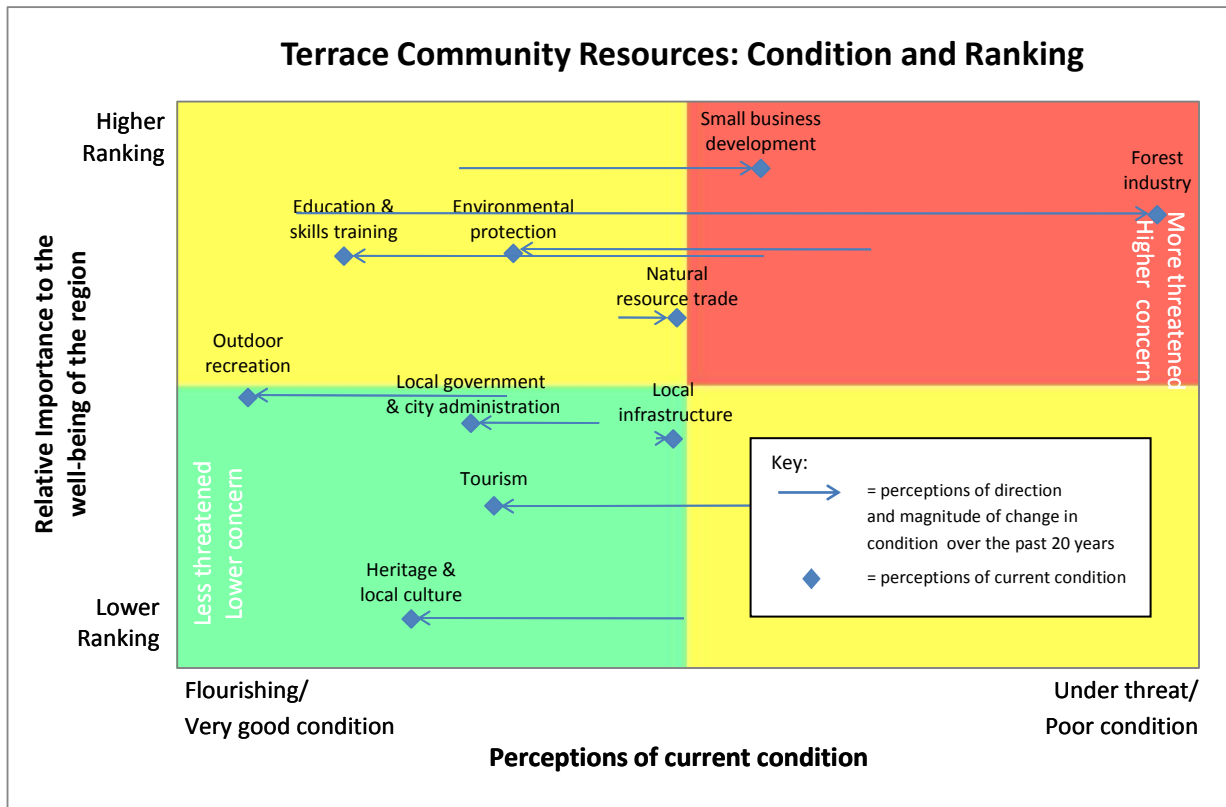
In Figure 3.4, the threatened position of small business development and local infrastructure points to a set of interrelated concerns in Prince Rupert about the health of the local urban centre and the ability to fund essential infrastructure improvement projects with a limited municipal tax base. Meanwhile, the decline of local government and city administration is based primarily on the closure of key government offices (including the departure of forestry ministry personnel from the community) and the decreased level of government service west of Prince George. Improvements in access to education and skills training reflect the growth of the local college. Improvements in environmental protection, meanwhile, are based in complex

combinations of positive perceptions of improved industrial practices and negative perceptions of environmental regulations forming barriers to economic expansion.



**Figure 3. 4: In Prince Rupert rankings suggest decline of a number of important community resources, highlighting potential areas of focus for leaders and decision makers.**

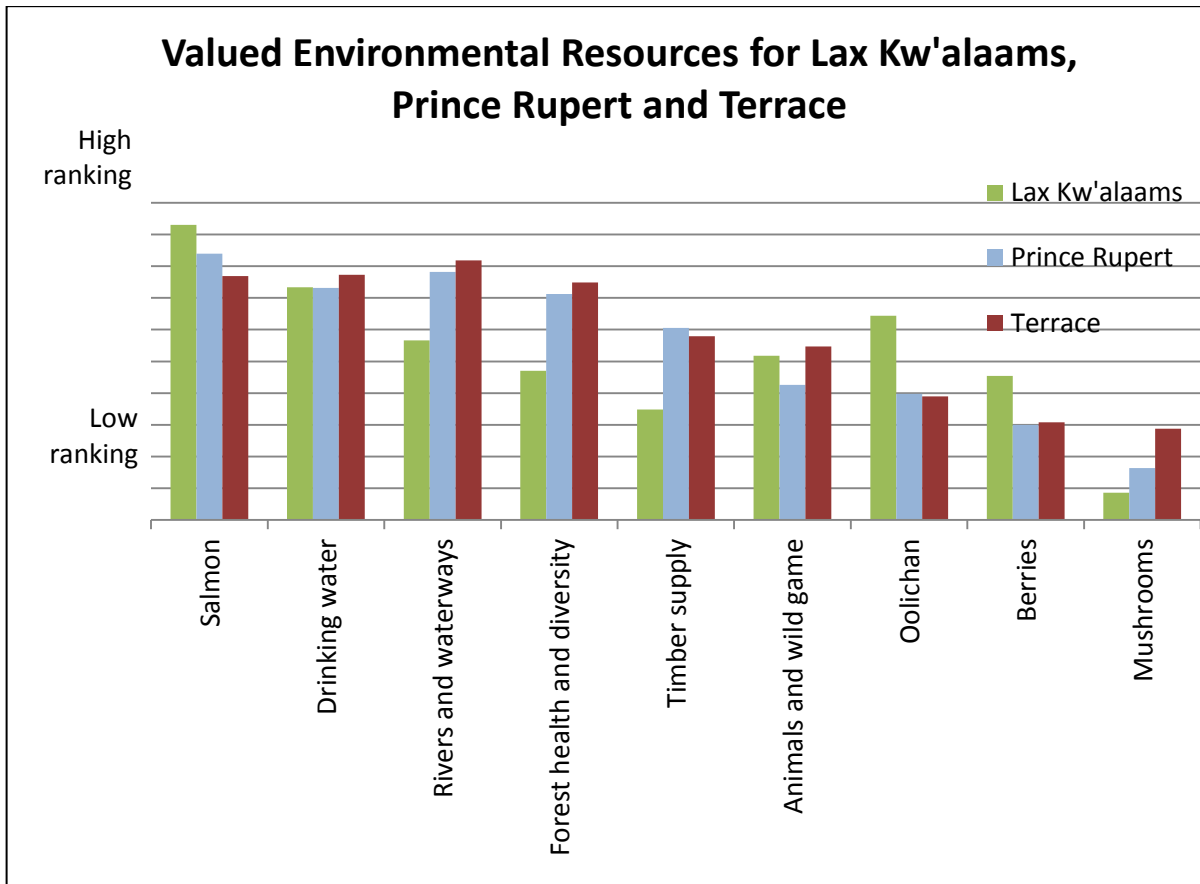
In Figure 3.5, the decline of small business development is paired with the decline of the forestry industry in Terrace due to the key role that the two resources play in supporting each other. Meanwhile trends of improvement in education and skills training and environmental protection closely reflect patterns of opinion in Prince Rupert. However, the improvement of environmental protection is based also in the belief of non-governmental organizations and environmental groups playing a more active role in resource management and local development. Improvements in local government and city administration run counter to the declines in Prince Rupert, as respondents view their community as playing an increase role as a government service provider to surrounding areas, and generally positive views about improvements made to local leadership in recent decades.



**Figure 3. 5: Terrace respondents highlighted the decline of the forest industry and small business development over the last 20 years, but significant positive development of a number of other sectors and resources.**

### 3.4 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 (Figure 3.6). 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 39%. Drinking water was the second most highly ranked community resource, with 55% of all respondents placing it among the three most important resources for community well-being, and 29% ranking it number one. Rivers and waterways, along with forest health and diversity were also ranked highly, being placed among the three most valued resources by 57% and 39% of respondents respectively. Mushrooms (which are of significant value in other parts of the northwest region) were ranked lowest among the listed resources. Mushrooms received higher rankings in Terrace, but were left unranked or excluded from the list altogether by 32% of all respondents, indicating the specificity of some resources to specific areas or communities.



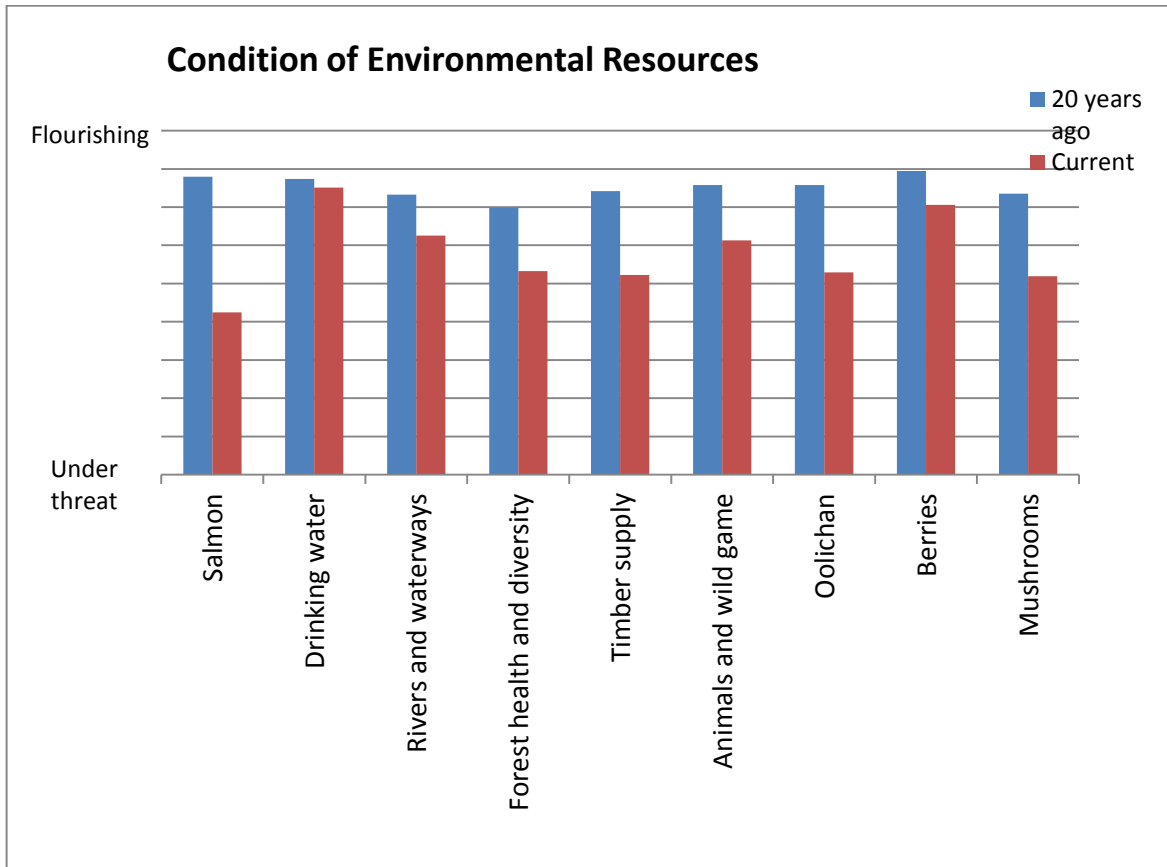
**Figure 3. 6: Comparative ranking of environmental resources, note the significance of salmon and water resources across all of the communities.**

Forest resources were ranked more highly in Prince Rupert and Terrace, where they play more central roles in the local economy and employment structures. Meanwhile Oolichan and berries were ranked more highly in Lax Kw'alaams, reflecting the more central role of both land and ocean-based food resources in local diets.

Respondents also identified additional environmental resources that were not explicitly included in the survey. In Prince Rupert, 36% of all respondents added at least one specific marine resource to the list of valued resources. In Lax Kw'alaams, 64% of respondents added at least one marine resource to the list. The additional resources included groundfish and halibut, shellfish and seaweed, and herring and other fisheries. The frequent reference to marine resources, and the wide range of items mentioned, indicates the importance and diversity of marine resources in Prince Rupert, but especially in Lax Kw'alaams where a diverse array of ocean resources provides a large portion of the local food supply.

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 3.7). 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 environmental resources over the past 20 years.



**Figure 3. 7:** Combined regional results depicting the perceived condition of environmental resources. Note that every single one is perceived to have declined.

All of the listed environmental resources were perceived as having declined in condition over the past 20 years. All of the perceived declines were statistically significant<sup>4</sup>, with the exception of drinking water which was perceived as remaining relatively stable partly due to improvements in water treatment. Salmon, which is the most highly ranked environmental resources, exhibited the greatest decline with a shift from 7.8 to 4.2. This decline was equally evident in all three communities. Drinking water, and rivers and waterways exhibited the smallest perceived declines. Forestry health and diversity, and the timber supply were seen as having declined substantially throughout all three communities, indicating a regional concern with the health of land-based resources as well as water-based resources.

<sup>4</sup> Differences (declines) between assessments of past and current states of environmental resources were statistically significant ( $p < .001$ , paired samples t-tests).

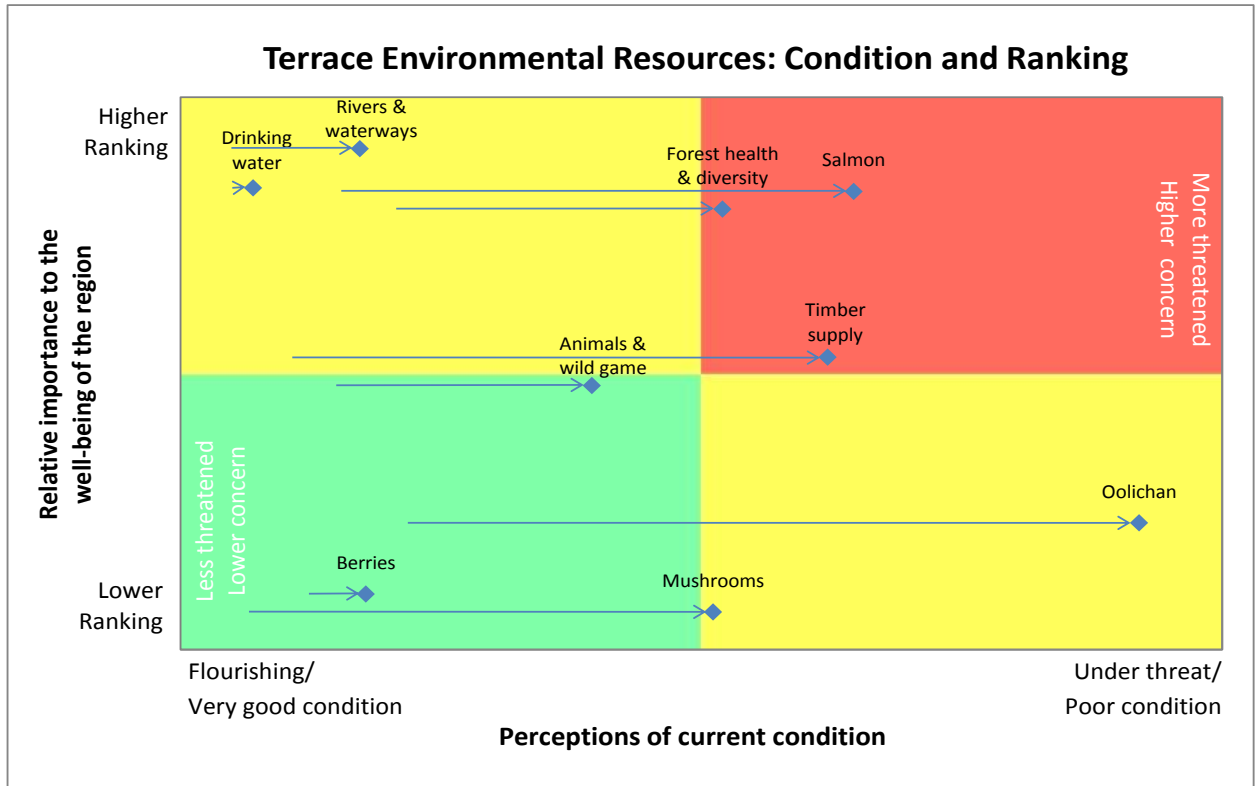


Figure 3. 8

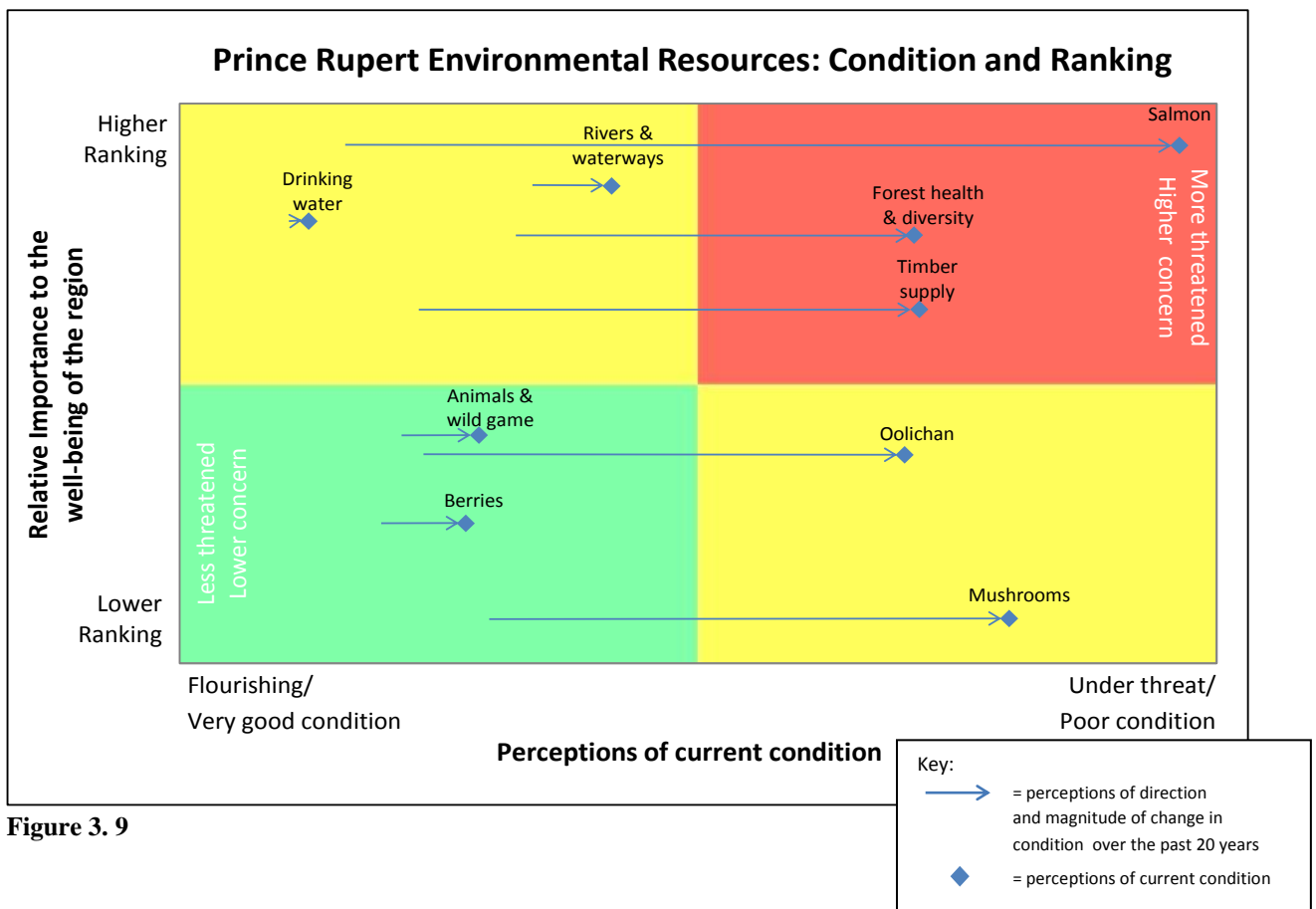
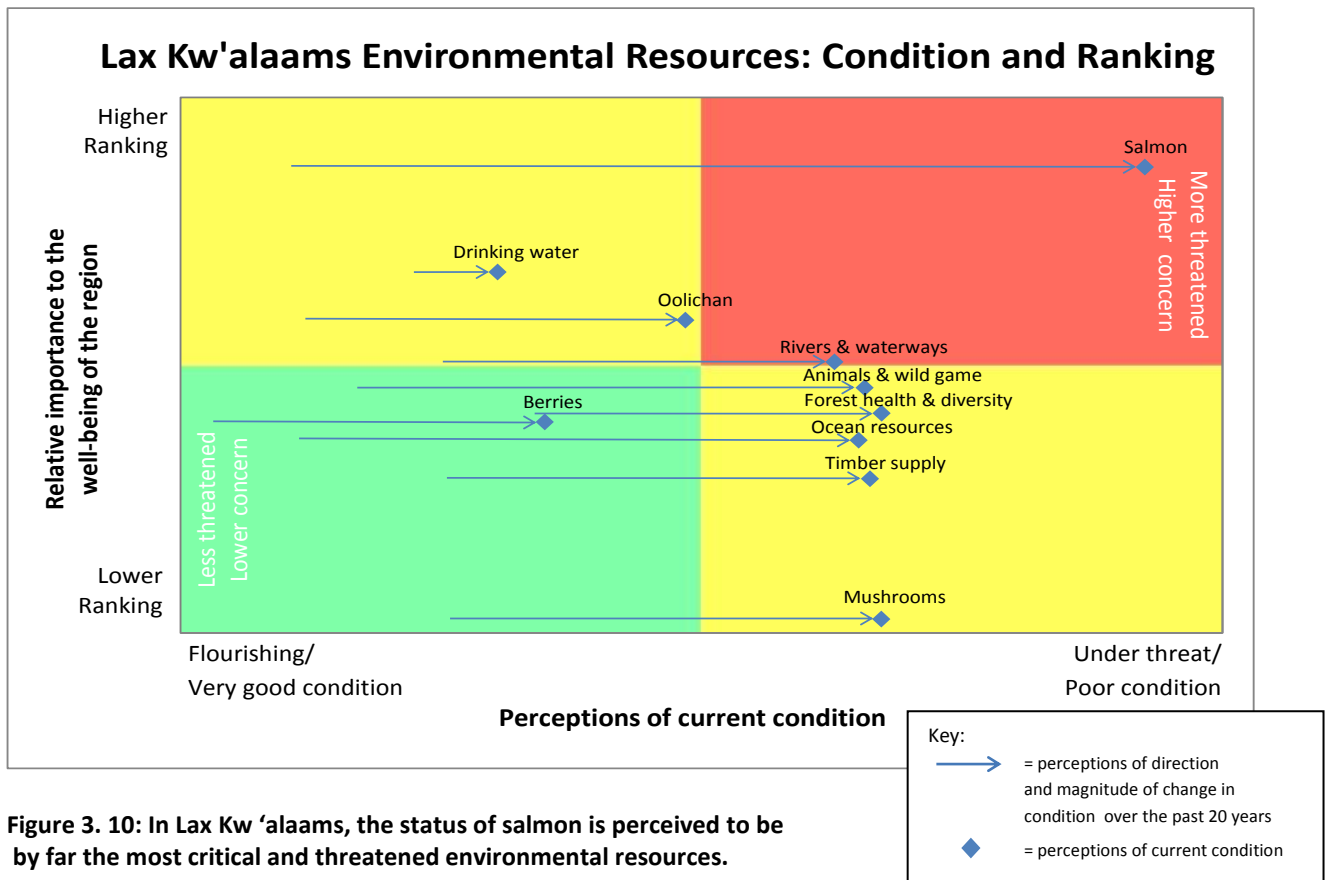


Figure 3. 9

Figures 3.8, 3.9, and 3.10 show the perceived decline in environmental resources among respondents in each of the three communities. Terrace and Prince Rupert (Figures 3.8 and Figure 3.9, respectively) show similar patterns of perceived declines overlaid with the rankings of environmental resources. Both communities show a high level of concern in regard to salmon stocks, followed closely perceived declines in the forest resources that support the local economic and recreational activities.



**Figure 3. 10: In Lax Kw 'alaams, the status of salmon is perceived to be by far the most critical and threatened environmental resources.**

In Lax Kw'alaams (Figure 3.10), the perceived declines are more dramatic, and there is a tighter clustering of food-based and ocean-based resources near the high priority (red) quadrant, with forest resources reflecting a secondary (but still important) set of concerns.

In summary, respondents in all three communities perceive a generalized decline in the condition of environmental resources. These declines focus around a broad foundation of mutual concerns for environmental conditions, as well as distinct issues connected with the well-being of residents in each community. In Prince Rupert, decline of environmental resources is seen as a problem due to direct degradation of fisheries resources, and of land-based resources (such as forests) that have linkages to fisheries habitat. Decline of natural resources is also perceived as posing challenges to the viability of natural resource industries that fuel resource trade and other economic activity related to Prince Rupert's role as a centre of

commerce and shipping. In Terrace, decline of fish stocks and habitat is seen as posing challenges to a valued sport fishing industry, as well as to valued water-resources that surround the community. Decline in forests is seen as a challenge that complicates the recovery of a highly valued, but greatly reduced forest industry. In Lax Kw'alaams, the decline of environmental resources primarily focuses around immediate subsistence issues and the ability of the community to obtain adequate food resources from the ocean and rivers.

In contrast, community resources are seen as improving in several ways. Improvements in education and skills training is perceived throughout the region. Environmental protection is seen as improving in Terrace and Prince Rupert, but not in Lax Kw'alaams where perceptions of decline in environmental resources were strongest. Small business development and the forestry industry are perceived as being in decline throughout all communities, reflecting a generalized decline one of the primary historical economic drivers in the region (forestry), and the associated impact this decline has had on other business. However, improvements in new areas of activity, such as outdoor recreation in Terrace and tourism in Prince Rupert indicate that there are multiple community identities competing for space with a regionally robust natural resource trade and export sector.