ASSESSING THE SPATIAL AND RESOURCE MANAGEMENT IMPLICATIONS OF CRUISE SHIP TOURISM ON BRITISH COLUMBIA'S NORTH COAST

by

Rahul Edward Ray

B.Sc. Simon Fraser University, 2000
DEIA Concordia University, 2001

RESEARCH PROJECT SUBMITTED
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF RESOURCE MANAGEMENT

in the

School of Resource and Environmental Management

Report No. 348

SIMON FRASER UNIVERSITY

December 2003

Approval

Name: Rahul Edward Ray

Degree: Master of Resource Management

Title of Research Project: Assessing the Spatial and Resource Management Implications of Cruise Ship Tourism on British Columbia's North Coast

Report No.: 348

Examining Committee:

Dr. Peter W. Williams
Senior Supervisor
School of Resource and Environmental Management
Simon Fraser University

Dr. Murray Rutherford
Committee Member
School of Resource and Environmental management
Simon Fraser University

Date Approved: Dec 3 2003

Abstract

This research examined the potential spatial and management implications of cruise ship passenger activity in mid and back-country regions of the North Coast of British Columbia. Research efforts included case study reviews of three prominent Alaskan cruise ports. Geographic Information System (GIS) mapping was used to display shore excursion spatial patterns, while land and resource management challenges were compiled and categorized. This information was used as a guide for examining potential development patterns on the North Coast land and resource base.

Discussions with key North Coast informants, a review of current cruise ship development plans, and examination of spatial tourism data provided an understanding of regional conditions. Through the integration of existing tourism information for the North Coast with Alaskan findings, the potential spatial patterns of cruise ship passenger activity were developed. In addition, the range of management challenges related to cruise passenger activity outside of front-country regions were presented in a North Coast context. Research findings indicated most potential shore excursion activity would be concentrated within relatively close proximity to the port destination. However, tours to unique or charismatic destinations at significant distances from the port could be expected.

This study revealed that a high quality land and resource base will need to be maintained to support a viable cruise ship industry in the North Coast. The identified spatial patterns highlight probable use zones, while the discussion of management challenges and potential mitigation highlight potential challenges for mid and back-country locations. This information, when considered in land use planning processes, should enable more sustainable forms of development.

Acknowledgements

This work would not have been possible without the support of a broad cast of characters. First, I would like to thank my supervisor Dr. Peter Williams. Your guidance, positive outlook, and never-ending energy were appreciated more than you probably realize. Dr. Murray Rutherford, your comments and supportive suggestions were extremely helpful. I would also like to thank the rest of the REM professors, whose passion for their research and teaching is contagious. To the supporting REM staff, Rhonda, Bev, Anissa, Sarah, Mary-Anne and Laurence, thank you for your dedication and finely-tuned problem-solving abilities. A special thanks to Butch Morningstar and other Ministry of Sustainable Resource Management (MSRM) staff for your valuable input and willingness to share experiences. Funding for this project was made available through MSRM. Finally, thank you to all of those individuals in Alaska, the North Coast, and beyond who provided invaluable information for this research

I would like to express my deepest gratitude to my family and friends for their love and guidance. Your insightfulness and unique interests keeps life interesting. A special thanks to Dominique, whose devotion and eternal support were a source of strength throughout. And to Lou, though you may never realize the true value of your canine contribution, know that it is immeasurable.

Thanks to REM for providing a comfortable and diverse environment in which to learn. Diane Wilson, Jodi Stark, and the rest of the REMMERS, thanks.

Table of Contents

List of Tables

List of Figures

List of Maps

Glossary of Key Terms

AK: Abbreviation for Alaska

Best Management Practices: A technique, action, tool, or process designed to mitigate an adverse impact or demonstrate a particularly effective method of dealing with an issue.

Flightseeing: An excursion experience where cruise passengers participate in helicopter or floatplane flight tours to view natural and physical resources.

Front, Mid and Back-country areas: see definitions on page 18-19.

Land and Resource Management Plan (LRMP): A sub-regional integrated resource plan that seeks to create a vision and management strategy for public provincial lands and resources (see Section 2.9).

Large Vessel Cruise Ships: Cruise ships typically carrying between 1200 and 2600 passengers.

Maximum Distance: The maximum one-way geographical distance travelled from the port of call during a shore excursion tour.

Mean Maximum Distance: The average of the maximum distances travelled for all shore excursion tours within a specific excursion type.

North Coast LRMP Area: The geographical area under consideration by the North Coast Land and Resource Management Planning table.

Port of Call: A port visited by a cruise ship during its voyage.

Port of embarkation / disembarkation: The port where cruise passengers initially board the vessel (embarkation) or leave the ship for the final time (disembarkation).

Resource Area: One of 17 areas of the North Coast Forest District delineated in the Forest and Fisheries Tourism Opportunities Study (2000).

ROS: Recreation Opportunity Spectrum. A land-classification framework developed by the United States Forest Service to manage recreation and tourism on National Forest Land.

Shore Excursion: An organized tour purchased by a cruise passenger in a port destination. Shore excursions may be land, water, or air-based. Examples include activities such as kayaking, wildlife viewing, or cultural interpretation. In this report, "shore excursion" and "shore tour" are used interchangeably.

- **Cruise line excursions:** Passengers are able to purchase shore excursions from the cruise lines before the voyage begins, during the cruise, or at the port destination. The major cruise lines offer shore excursions through subsidiaries of the parent company or through service agreements with tour operators at the port destination.

- **Independent excursions:** Tours offered by tour operators who do not have service agreements with the cruise lines. Tour participants can purchase tours through the independent operators either before their voyage or at the port destination.

Spatial: Refers to geographical space. In the context of this work, the term "spatial" refers to the geographical extent of shore excursions within specific geographic areas.

Tourism Capability: Tourism capability is a measure of the ability of the land base to support specific forms of tourism activity. Assessment criteria typically include the presence of physical resources that are considered necessary for a specific form of tourism experience or activity (e.g. beaches and shoreline access for kayaking).

Tourism Suitability: Tourism suitability is a measure of the ability of the land base to support specific forms of tourism activity. Beyond tourism capability, suitability assessments account for the constraints on development that may exist (e.g. private land, extensive industrial activity).

25% Extended Travel Range: This is an estimate of the potential increase in shore excursion travel distances that may be generated by future improvements in transport technology.

Chapter 1: Introduction

1.1 Background

The global tourism industry generated an estimated $477 billion in international receipts during 2002 (WTO 2002), making it one of the world's most significant economic sectors. Included within this industry is a broad spectrum of activities, from African wildlife safaris, to Australian sun and surf getaways, to Alaskan cruises. The estimated 715 million international tourist arrivals serviced by this industry in 2002 (WTO 2003), provided many communities, countries, and regions with opportunities to capitalize on its potential benefits. However, it has also forced these same locations to confront a range of planning and management challenges.

The province of British Columbia, Canada has developed a vibrant tourism industry centred on "Super, Natural British Columbia" products. The majority of the province's tourism revenues are generated in the greater Vancouver and Vancouver Island regions (Tourism BC 2003). However, other areas throughout this physically diverse province are actively seeking to increase their portion of tourism's benefits through the development of new products or the expansion of existing offerings.

The introduction or expansion of tourism in a region is typically motivated by the pursuit of economic gains (Kariel 1989). In many cases, significant benefits have been derived from tourism- an industry considered relatively benign in comparison to other resource-based industries such as forestry, mining, and agriculture. However, evidence suggests that tourism also has the ability to negatively affect the environmental, social and economic fabric of communities and the surrounding land and resource base (Pearce

1995). While front-country tourism can introduce complex shifts in community dynamics and structure (Thomas 1991), tourism impacts on mid and back-country areas are especially relevant for British Columbia. These areas form a significant component of the "Super, Natural British Columbia" experience. Protecting the integrity of these regions is paramount, as the long-term viability of tourism is dependent on maintaining the natural, cultural and historical attractiveness of such areas (Manning and Dougherty 1995).

Planning for tourism can help to mitigate many of the negative land and resource impacts resulting from tourism development activities (Gunn 1994). However, unlike the situation for other resource industries such as forestry and mining, tourism planners do not typically have a comprehensive spatially-linked land and resource information base from which to plan. The development of relevant tourism information can support resource decisions that accommodate a wide range of stakeholder interests.

Geographic Information Systems (GIS) have developed over the past two decades to become a useful tool for managing spatially-linked information (McAdam 1999). Diverse fields such as business (Foust, Botts, and Engert 1994), agriculture (Nizeyimana, Petersen, and Looijen 2002), and general land use planning (Senes and Toccolini 1998) have developed GIS applications to increase the spatial analysis abilities of planners. Tourism applications of this technology have thus far been limited in scope (McAdam 1999). However, significant potential exists for applications that can increase the effectiveness of land and resource decisions (Culbertson et al. 1994).

As British Columbia pushes to complete its remaining Land and Resource Management Plans (LRMPs), the need for the development of relevant and accessible tourism information for critical land use decisions is recognized[1]. The North Coast region of British Columbia is in the process of developing an LRMP. This sub-regional integrated resource plan seeks to create a vision and management strategy for public provincial lands and resources (see Section 2.9). This sector-based model provides a collaborative decision-making forum that attempts to incorporate all interests into the land and resource decision-making process for the plan area. At the same time, the region is planning for a significant increase in tourism activity. This increase is expected to occur as a result of the accommodation of the large vessel cruise industry. It is anticipated that this sector's activities in the North Coast will begin in earnest during the May to September 2004 cruising season (NWCA 2002).

Cruise vacations allow travellers the opportunity to experience new destinations and participate in a wide range of activities. Managing tourist flows in ports of call, protecting ocean passages and harbours, and planning for the tourist-based activities of cruise passengers in mid and back-country regions are all critical components in ensuring the integrity of destinations.

The strong linkages between cruise ship tourism and the maintenance of a high quality natural resource base suggests that GIS technologies can significantly enhance the analytical abilities of stakeholders to plan for cruise ship development. Indeed, the ability to visualize spatial cruise tourism patterns can support efforts to mitigate some of the adverse impacts resulting from the use of the land and resource base for such activity.

Recent advances in GIS-based tourism land use modelling have significantly enhanced the ability of tourism stakeholders to participate more fully in land and resource planning processes. Through the integration of digital tourism resource information with cruise industry development patterns and activity trends, increasingly refined information can be produced which supports efforts to sustainably plan for tourism.

1.2 Study Rationale

This study's rationale is derived from three major premises:

1. Current Land and Resource Management Plans (LRMPs) demand relevant information about tourism's land and resource requirements;

2. Cruise ship development is currently being planned in the North Coast region. Such activity has the ability to impart a range of land and resource management challenges for host regions;

3. Spatial planning tools such as Geographic Information Systems (GIS) represent a valuable tool for tourism planners to use in identifying the spatial linkages between cruise ship tourism activities and their land and resource management implications.

Planning for sustainable tourism seeks to manage the development of this industry, while maintaining a range of economic, social and environmental benefits. Strong linkages between natural resource data and geographically referenced locations, which can be captured via GIS systems, suggest that this technology can play an important support role in tourism planning processes.

1.3 Research Context

The North Coast region of British Columbia is characterized as largely mountainous, with many narrow inlets, spectacular wilderness features and abundant natural resources (NCTOS 2000). The population and economic centre of this region is the City of Prince

Rupert. Approximately 85 percent of the region's 20,000 inhabitants live in this community (NCTOS 2000). Over the past decade, a series of economic downturns has negatively affected the area. In response, community leaders have decided to pursue expanded tourism development as part of their economic diversification strategy (PREDC 1998). The region currently receives a significant volume of visitors, primarily as a result of Prince Rupert's role as a port in both the British Columbian and Alaskan ferry systems. Many of these visitors utilize Prince Rupert as a transit point, rather than as a final destination.

Figure 1.3-1: North Coast LRMP Plan Area

Source: MSRM 2002
Used with permission.

A large vessel cruise ship dock is currently being constructed in Prince Rupert in order to facilitate the community's more active involvement in the growing coastal cruise industry. Vessels participating in this industry carry between 1200 and 2600 passengers. Desired economic benefits may be generated through port dues and supply fees, passenger spending and shore excursion purchases by arriving passengers (Dwyer and Forsyth 1998). However, a significant challenge will be managing the land and resource impacts of cruise passengers within the broader North Coast region that surrounds the port of call. The potential negative effects of this form of tourism development on areas outside of Prince Rupert may be exacerbated by the pulse-like character of cruise ship arrivals during a relatively short time duration.

At the same time as the region prepares for the introduction of the cruise ship industry, the North Coast Land and Resource Management Plan (NCLRMP) is being developed. Many stakeholders at this shared decision-making planning table realize the need to protect critical viewscapes and other key resources to support existing and potential tourism activity. However, there is uncertainty as to the potential spatial spread of cruise passengers and their activities across the region's land base. Consequently, there are questions about those areas in need of protection in the NCLRMP planning area.

The spatial development patterns and management implications of cruise passengers in Alaskan destinations provide a guide as to potential development patterns and management challenges in the mid and back-country areas of the North Coast. Many of the cruise destinations in Southeastern Alaska have been participating in this industry for over 20 years. The total cruise passenger capacity on Alaskan bound ships has undergone

tremendous growth during this 20-year period (KPMG 2002). The cruise industry has created benefits for the region, while also introducing a range of management challenges. The experiences of the Alaskan destinations provide a useful source of information concerning visitor activities, tourism product preferences, and the land and resource management requirements of the shore excursions generated by these cruise tourism markets. The Alaskan experience provides a snapshot of potential spatial and resource management issues for British Columbia's North Coast. The patterns of land use and the mitigation strategies developed to address related land use impacts provide a valuable source of planning information for neighboring jurisdictions such as Prince Rupert and proximate areas.

This research informs North Coast stakeholders of the potential spatial spread of cruise ship passengers across the region as a result of shore excursion activity. In addition, it highlights possible management challenges for the land and resource base as demonstrated by experiences in neighboring Alaskan communities. Overall, this work applies GIS-based spatial planning techniques to an existing tourism planning situation with the goal of developing useful information for land use planning stakeholders in an emerging cruise ship host destination.

1.4 Research Objectives

The overriding objectives of this research are:

1. To provide an overview of British Columbia's Land and Resource Management Plan process and identify the information needs of tourism stakeholder groups.

2. To investigate the spatial mid and back-country land use patterns and resource management issues related to cruise passenger activity that have been addressed in cruise ports participating in the Alaskan cruise industry that Prince Rupert hopes to join.

3. To discuss how digital spatial tourism data can be used to provide relevant information to an LRMP planning table.

4. To demonstrate an application of spatial tourism information through a case study of land and resource planning for cruise ship development in the North Coast of British Columbia.

1.5 Research Questions

The primary research questions that will guide this research include:

1. What are the existing spatial patterns and resource management implications of cruise passenger activity in the mid and back-country areas of Alaskan cruise ports?

2. What are the potential spatial patterns of cruise passenger activity on the mid and back-country land and resource base of British Columbia's North Coast?

3. What are the potential resource management implications of cruise tourism for British Columbia's North Coast mid and back-country regions?

4. How can GIS be used to integrate existing Alaskan cruise industry trends and shore excursion development patterns with North Coast tourism inventory information to identify potential travel patterns and management implications in the mid and back-country areas of the North Coast LRMP plan area?

Approaches to answer these questions include: a targeted literature review; Alaska port community case studies including site visits and interviews; GIS mapping; a review of existing North Coast tourism resource inventories; and the application of Alaskan information, derived from the preceding phase of this research, to a planning situation in the North Coast region of British Columbia.

1.6 Report Organization

Chapter 2 provides a review of four general areas of literature that are relevant to this study. The topics discussed include: 1) tourism planning and development; 2) the cruise ship industry; 3) Geographic Information Systems (GIS); and 4) land use planning, especially in the context of Land and Resource Management Plans (LRMPs).

Chapter 3 discusses the methods used for the Alaskan and North Coast research phases of this work. The primary research techniques described include document reviews, face-to-face and telephone interviews, and GIS mapping. Chapter 4 provides the results of case study research conducted in three prominent Alaskan cruise destination communities. The existing spatial patterns of cruise passengers are presented, in addition to the management challenges from the use of the land and resource base by cruise ship passengers. This chapter also discusses the potential shore excursion spatial patterns resulting from the development of the large vessel cruise ship industry in Prince Rupert and the surrounding area. Trends from Alaska and North Coast tourism opportunities studies are used to inform these findings. Chapter 5 presents a set of potential management implications emanating from cruise ship tourism development in the North Coast region. Finally, Chapter 6 presents the conclusions of the study and recommends further areas of research.

Chapter 2: Literature Review

2.1 Tourism Demand

Tourism is unofficially the world's largest industry (Tourism Concern 1992). In the year 2002, an estimated 715 million individuals participated in international travel activities (WTO 2003). Globally, tourism revenues in 2002 were estimated to be US $477 billion (WTO 2002).

The breadth of activities undertaken by tourists is diverse. Tourists may decide to travel domestically or internationally, by road, airplane, rail, ship, or any other means available. The types of experiences desired by travellers also differ, from sun and surf vacations, to wine tours, to cultural explorations, to arctic cruises. Travellers desire a range of experiences, from high cost, fully catered excursions to more cost-effective, independent travel adventures. Over the past 50 years, tourism has expanded from an activity reserved solely for those of significant wealth, to a mass phenomenon, which impacts the economies, cultures and environments of host destinations around the world (Twining-Ward 1999).

The inherent complexity of tourism demand is reflected in the challenges of tourism planning and development. Planning may involve accommodating the preferences, interests, abilities and expectations of a broad spectrum of individuals, or dealing solely with those of a few targeted groups.

Tourism development brings together a diverse set of individuals, land, and resources in order to offer products and services to travellers. Unique issues are associated with these relationships and related development initiatives.

2.2 Tourism Development

Due to the perceived economic benefits of tourism, many communities around the world are promoting the industry as a way to boost local and regional economies and diversify existing industrial bases (Kariel 1989). While some regions have been able to generate significant economic, social and environmental benefits through tourism development, many have also had to address a range of challenges, from minor environmental concerns to major social changes. This reality provides a context for discussions concerning potential cruise ship tourism development in the North Coast region of British Columbia.

2.2.1 The Impacts of Tourism

Tourism has the ability to alter the existing environmental, social, and economic conditions of a region, both positively and negatively. The following tables highlight some of the positive and negative impacts of tourism. These tables are adapted from Ap and Crompton (1998), who compiled a list of common issues discussed in the academic literature. While not all of these factors will be realized on B.C.'s North Coast, the table identifies issues that may need to be addressed in future tourism planning efforts in the region.

Table 2.2.1-1 Select Economic Impacts of Tourism Development

Positive Impacts	Source
• Contributes to income and standard of living	Pizam (1978); Belisle and Hoy (1980); Liu and Var (1986); Milman and Pizam (1988)
• Supports improvements in the local economy	Tyrrell and Spaulding (1984); Perdue, Long and Allen (1990); Bystrzanowski (1989)
• Increases employment opportunities	Rothman (1978); Belisle and Hoy (1980); Tyrell and Spaulding (1984); Sheldon and Var (1984); Liu and Var (1986); Milman and Pizam (1988); Ross (1992)
• Increases infrastructure development and investment	Belisle and Hoy (1980); Sheldon and Var (1984); Milman and Pizam (1988)
• Increases tax revenues	Rothman (1978); Broughham and Butler (1981); Tyrell and Spaulding (1984); Milman and Pizam (1988)
• Improves funding for public utilities development	Rothman (1978); Sethna and Richmond (1978)
• Improves transport infrastructure	Belisle and Hoy (1980)
• Increases retail opportunities	Liu and Var (1986)
Negative Impacts	**Source**
• Increases prices and can cause shortages of necessities	Pizam (1978); Belisle and Hoy (1980); Brougham and Butler (1981); Liu and Var (1986); Liu, Sheldon and Var (1987); Husbands (1989); Ross (1992)
• Increases land and residential property costs	Pizam (1978); Var, Kendall, and Tarakcioglu (1985); Perdue, Long and Allen (1990); Bystrzanowski (1989); Ross (1992)
• Increases overall cost of living, including property taxes	Liu and Var (1986); Perdue, Long and Allen (1990); Ross (1992)
• New employment opportunities require flexible working patterns	Crompton and Sanderson, (1990) in Brunt and Courtney (1999)

Source: Based on Ap and Crompton 1998

Table 2.2.1-2 Select Social and Cultural Impacts of Tourism Development

Positive Impacts	Source
• Improves the overall quality of life for residents	Pizam (1978); Milman and Pizam (1988); Perdue, Long, and Allen (1990); Bystrzanowski (1989)
• Increases availability of recreation facilities / opportunities	Pizam (1978); Belisle and Hoy (1980); Sheldon and Var (1984); Liu and Var (1986); Liu, Sheldon and Var (1987); Ross (1992)
• Improves understanding and image of different communities or cultures	Pizam (1978); Sheldon and Var (1984); Liu and Var (1986); Liu, Sheldon and Var (1987); Milman and Pizam (1988)
• Promotes cultural exchange	Belisle and Hoy (1980); Brougham and Butler (1981); Sheldon and Var (1984); Liu and Var (1986); Liu, Sheldon and Var (1987)
• Preserves cultural identity of host population	Liu and Var (1986)
• Increases demand for historical and cultural exhibits	Liu and Var (1986)
Negative Impacts	**Source**
• Increased prostitution, alcoholism, and smuggling	Pizam (1978); Belisle and Hoy (1980); Liu and Var (1986); Liu, Sheldon and Var (1987); Milman and Pizam (1988)
• Cultural change: loss of native dialects, demonstration effects	Murphy (1985) and Ryan, 1991 in Brunt and Courtney, 1991
• Increasingly hectic community and personal life; elevated community tension	Rothman (1978)
• Creation of a phony folk culture	Brougham and Butler (1981)

Source: Based on Ap and Crompton 1998

Table 2.2.1-3 Select Environmental Impacts of Tourism Development

Positive Impacts	Source
• Preservation of the natural environment	Sethna and Richmond (1978); Belisle and Hoy (1980); Liu and Var (1986); Liu, Sheldon and Var (1987)
• Protection of historic buildings and resources	Sethna and Richmond (1978); Sheldon and Var (1984); Liu, Sheldon and Var (1987)
• Aesthetic improvement of an area	Perdue, Long and Allen (1990); Bystrzanowski (1989)
Negative Impacts	**Source**
• Increased traffic congestion	Liu and Var (1986); Liu, Sheldon and Var (1987); Perdue, Long and Allen (1990); Caneday and Zeiger (1991)
• Overcrowding	Brougham and Butler (1981); Var, Kendall, and Tarakcioglu (1985); Liu and Var (1986)
• Increased noise pollution and litter	Pizam (1978); Rothman (1978); Caneday and Zeiger (1991)

Source: Based on Ap and Crompton 1998

There is a general lack of recognition that tourism is similar to other industries in the impacts that it can cause to communities and the surrounding land and resource base. Butler (1992) notes "tourism is extremely dynamic, constantly changing and causing change." Garrod and Fyall (1998) go further, stating, "tourism should be regarded as an extractive industrial activity."

The Organization for Economic Co-operation and Development (OECD) identified seven broad impacts of tourism on the environment. Many of these concerns are of particular importance for mid and back-country areas. They include increased pollution (air, water,

noise, littering); loss of natural landscapes; destruction of flora and fauna; degradation of historic sites and monuments; congestion and crowding, and increased resource conflicts (OECD 1980, in Ap and Crompton 1998). The OECD states that "environment is an important input into tourism, therefore the maintenance of a 'good' environment is essential to further growth of tourism."

Whether all of the impacts listed previously will occur in a destination is uncertain. However, through effective planning and subsequent management, some of the adverse effects related to tourism can be mitigated. In order for the industry to remain viable, the capacity of the environment, the ability of the local population to sustain the development, and the attractiveness of a locale must be maintained (Manning and Dougherty 1995; Butler 1992). Overall, tourism planning can help to support the goal of ensuring that tourists, host populations, and investors reap the long-term benefits of a vibrant and healthy tourism industry.

2.2.2 Tourism's Resource Base

The tourism resource base is especially sensitive to alteration. Cook, Stewart, and Repass (1992, in McCool 1995) state "environment is the travel industry's base product." The land base supports tourism attractions, yet also serves as a vital backdrop for activities in a destination region (Ethos Environmental Inc.1998). In order to support sustainable tourism, planners must not only account for environmental, social, and economic impacts caused by the tourism industry itself, but they must also integrate management with other users of the land and resource base.

Some of the underlying concepts associated with land use planning centre on integrating and balancing diverse and often competing interests (Brown 1996). Participatory land use planning processes involving all affected stakeholders are a means through which shared goals can be converted into "on-the-ground" reality (Brown 1996). Scenario development techniques can help stakeholders understand the environmental, social and economic outcomes of various options associated with competing uses. While there are limits to scenario building models and processes, such efforts can support better decision-making and aid in creating more sustainable outcomes.

Sub-regional land and resource management processes, such as those developed in British Columbia in the 1990s, provide opportunities for all stakeholders to represent their interests (Williams, Day and Gunton 1998). However, in order to participate in such sub-regional planning efforts, individuals and groups require detailed information about the land and resource base. Tourism, in particular, requires tourism resource information from which subsequent decisions can be made (Williams, Penrose, and Hawkes 1998). Spatially-referenced digital tourism resource information can serve as a useful tool in helping to inform planning representatives. The next section provides a background on tourism planning, followed by a discussion of related spatial planning frameworks. These tools aid stakeholders in understanding potential tourism development patterns.

2.3 Tourism Planning

In order to ensure that the costs of developing tourism in a community are minimized, this industry "must be planned with the specific goal of fusing tourism with the social and economic life of a region and its communities" (Gunn 1994). Cases where environmental

damage has occurred as a result of tourism activity have typically been caused by a lack of policies, plans and actions to prepare for growth (Gunn 1994).

Land classification systems can distinguish between various locations within a destination based on the level of access and the expected tourism experience. Three general classifications of land-types are suggested by Ethos in their planning work for British Columbia (Ethos Environmental Inc. 1998):

1. **Front-country:** This zone services large volumes of tourists in naturally scenic though substantially human-altered environments. Tourism in the front-country will often be closely linked to motorized, high volume transportation on major highways, rail corridors, or airports. Activity in this zone often involves the use and development of substantial infrastructure. Front-country activities appeal to those tourists seeking a short duration outdoor oriented activity or an urban experience. Tourists in this zone often do not have time to venture further into surrounding land and resource areas.

2. **Mid-country / Natural tourism zone:** This zone is characterized by the provision of recreation experiences for "intermediate" numbers of visitors in quality natural environments. It is often associated with motorized access and accommodation, but on a smaller scale and with lesser use intensity than in front-country. The emphasis for the tourism experience is still on the natural environment, rather than the facilities themselves.

3. **Back-country / Wilderness tourism zone:** This zone provides a high quality wilderness experience in pristine environments. The absence of motorized access and lack of infrastructure characterize this zone. The tourism experience emphasizes personal and small group interaction and physical activity within pristine natural landscapes.

Distinct experiences and tourism opportunities are anticipated in each of these three regions. While the expected level of resource quality will differ in these areas, maintaining a basic standard is necessary (Williams, Paul, and Hainsworth 1996). The presence of appropriate infrastructure within each zone is critical. Equally important is the absence of specific human forms of development (Ethos Environmental Inc. 1998).

Certain types can enhance the tourism experience (e.g. paved road access to attractions in the front-country zones), yet others are incompatible with an expected tourism experience (e.g. extensive logging activity in back-country wilderness tourism areas).

A high quality land and resource base surrounding tourist destinations may be capable of supporting many tourism products. However, often the tourism industry is not the only user of the land base. In B.C., First Nations, forestry, mining, recreation, and agriculture and other users may all have values associated with the same land base. In addition, non-anthropogenic consideration such as wildlife habitat, aquatic resources and biodiversity requirements must be incorporated. Some activities will be compatible, yet alteration by one sector may limit the ability of another to successfully operate (Manning and Dougherty 1995). Tourism, perhaps more than any other user of the land base, is especially sensitive to alteration by other pursuits.

In many land planning contexts, there is a strong need for tourism stakeholders to integrate their plans with those of other sectors through shared decision making (Williams, Penrose, and Hawkes 1998; Brown 1996; Manning and Dougherty 1995). However, in order to share interests, there is a need for tourism stakeholders to develop a spatial understanding of the potential tourism development patterns.

2.3.1 Spatial Planning Frameworks

Fagence (1990), in a discussion of the significant potential for the use of spatial frameworks to improve planning and management in natural areas, suggests land use conflicts occur when the competing ideologies of conservation and entrepreneurship conflict. He advocates "the adoption of spatial system frameworks, geographically

referenced and derived from the basic principles of geometry" to plan for development. These frameworks allow potential patterns to be spatially conceptualized. This is perceived to be one of the most crucial steps in strategic planning efforts (Fagence 1990). The application of spatial frameworks builds on the concept that "land is not of equal potential and that techniques need to be employed to identify specifically those areas of relatively highest potential to meet the demands and expectations of tourists, the requirements of servicing, and balancing considerations for conservation" (Fagence 1990). Comprehensive spatial planning frameworks must take into account the *in situ* natural and cultural resources of a region in the examination of potential tourism development patterns. Beyond their role in planning for the economic development aspects of tourism, their application allows stakeholders to assess potential resource conflicts, identify areas of special concern, and understand the geographic implications of management decisions (Fagence 1990).

A range of specific regional planning frameworks for tourism was developed in the 1970s and 1980s. Their overall goal was to manage and control tourism development, and to ensure that specific areas of the land base were protected (Fagence 1990).

Table 2.3.1-1 Selected Spatial Frameworks

Author	Year	Concept
Gunn	1972, 1977	Community-attraction complexes, corridors
Ferrario	1979	Experience zones
Jubenville	1976	Wilderness trails
Lindsay	1980	Experience zones
Lusigi	1984	Conservation unit
Miossec	1977	Tourist space
Pigram	1983	Core / buffer

Author	Year	Concept
O'Leary	1980	Activity clusters
Somer	1975	Concentric zones
Yokeno	1974	Model of international travel

Source: Fagence 1990. Used with permission from Elsevier.

Each of these frameworks uses spatial conceptualizations to identify potential tourism development patterns (Fagence 1990). An assessment of each model is beyond the scope of this report. However, the underlying principle is that the application of an appropriate spatial framework enables planners to identify areas that have future tourism use potential as well as the types of management regimes that might be needed to protect their integrity.

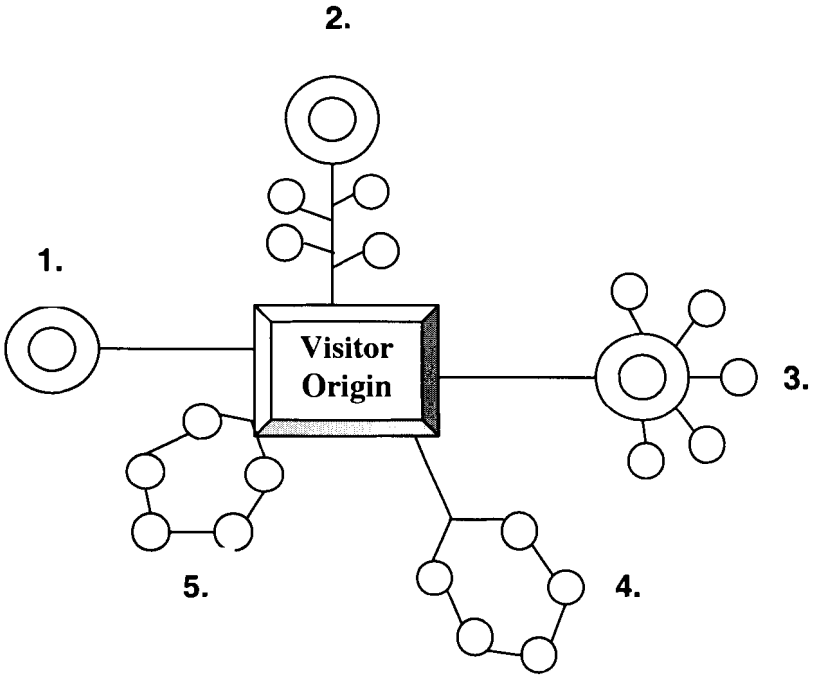
Developing a spatial understanding of key tourism development areas can aid efforts to manage related impacts, the scale and intensity of which may differ among regions, depending on the type of development or the size of the region (Beedasy and Whyatt 1999). In this study, these frameworks build a foundation for conceptualizing potential cruise ship passenger use of the land and resource base of a host destination.

2.3.2 Tourist Movement Patterns

A key aspect of tourism planning is understanding the movement patterns of tourists. During their stay, visitors may move throughout a region, visit key attractions or participate in a range of activities. Each behaviour forms an integral component of the tourist experience (Chardonnel and van der Knaap 2002).

Lue, Crompton, and Fesenmaier (1993) provide five generalized spatial movement patterns for travellers in a tourism region (Figure 2.3.2-1).

Figure 2.3.2-1 General Spatial Movement Patterns of Tourism



Source: Lue, Crompton, and Fesenmaier (1993). Used with permission from Elsevier.

1. **Single destination:** Most activities undertaken within one primary destination
2. **En route:** Several areas visited en route to a main destination
3. **Base camp:** A range of areas visited while at a primary destination
4. **Regional tour:** Several destinations visited while in a destination region
5. **Trip chaining:** A touring circuit.

These movement patterns are quite generalized. However, they suggest that travel patterns across host destinations will not necessarily be uniform.

The global tourism industry provides a broad spectrum of products for travellers. Planning strategies for "tourism" in destinations and regions are not uniform, but dependent on the type of tourism being developed. While the details of development will differ from region to region, some forms of development and tourist movements follow specific patterns. These trends introduce a range of management challenges for the destination, both in urban centres as well as in mid and back-country areas. The following section provides an overview of the cruise industry and highlights some of the sector-specific travel patterns and broad management challenges associated with such development.

2.4 The Cruise Ship Industry

The global cruise ship industry carried an estimated 10.3 million passengers in 2002. During that year, the industry operated at 90.5 percent of its maximum capacity (BC PDG 2003). As these cruise lines plan for significant global expansion, emerging evidence suggests that cruise tourism is a complex entity involving many environmental, social and economic aspects (Dobson, Gill, and Baird 2001).

The economic benefits of cruise tourism have been promoted by some observers (De la Vina and Ford 2001; McDowell 2000; Dwyer and Forsyth 1998), and questioned by others (Wise 1999; Pattullo 1996). Environmental issues associated with ship operations have received much media attention (Nickerson 2001; Nowlan and Kwan 2001), resulting in the development of preventative environmental sustainability programs such as the Alaska Cruise Ship Initiative (ADEC 2001). Social benefits such as the conservation and protection of both natural and cultural resources, as well as the construction of amenities

have also been noted (Bundgaard 2001). However, on-going alterations to existing social and cultural institutions caused by the introduction of the cruise industry are also evident (Pattullo 1996; Marsh and Staple 1995).

Cruise ship tourism is complex due to the multi-faceted nature of the experience. From a tourism planning perspective, it is composed of two primary components: the ship-based voyage and the shore-based experience. Each segment presents unique issues for cruise lines, land-based tour operators, communities and other stakeholders. Key phases of shore-based cruise passenger visitation which require planning consideration by the host destination include: pre-arrival, reception, shore excursions, independent activities and departure.

While the academic literature has recently begun to acknowledge the growing significance of cruise tourism, the industry has traditionally received little academic attention (De la Vina and Ford 2001; Tourism Concern 1997; Marti 1990). Although primarily in a maritime transport context, Marti (1990) states, "published studies comparing elements of the cruise industry are almost non-existent." In some regions of the world, however, the mainstream media, government agencies and non-governmental organizations have joined the debate about the opportunities, risks and challenges of such development (Oceans Blue Foundation 2001; US EPA 2000).

The cruise industry operates in each of the seven continents: Africa, Antarctica, Asia, Australia, Europe, North America, and South America (CLIA 2003). In 2002, the most popular cruising regions included the Caribbean, Mediterranean, Asia / Pacific, Alaska and the west coast of Mexico (BC PDG 2003). In each of these regions, port destinations

face challenges in maximizing the benefits, while mitigating the adverse impacts associated with this form of development. Many of the management needs are similar to traditional forms of tourism, yet planning for cruise ship development involves accounting for the unique features of cruise passengers, shore excursion requirements, and the industry's highly managed trip itineraries.

This report discusses the spatial and management implications of large-vessel cruise ship tourism in the North Coast region of British Columbia. While planning considerations noted in Asian or African port destinations provide some guidance for B.C.'s North Coast, the Alaskan cruise industry tourism strategies and management issues offer a set of useful case studies for assessing land use management implications. This information is particularly relevant because of the similarity in geographic attributes, cultural attributes, and potential travel market preferences between with the two regions. For instance, in the initial stages of development, it is expected that cruise tourism development in the Prince Rupert region will be integrated into Alaskan cruise ship itineraries. A review of the case study will be presented in Chapters 3 and 4 of this research. Section 2.4.1 provides a brief overview of the Alaskan cruise industry.

2.4.1 Alaskan Cruise Industry Overview

The popularity of North American based cruise ship travel has been increasing over the past 20 years. An estimated 7.5 million passengers took voyages during the 2002 season (KPMG 2002). Within this North American market, the Alaskan cruise tourism industry has grown dramatically. The number of passenger nights available for Alaskan-bound cruise passengers increased from 1.9 million in 1992 to an estimated 4.7 million in 2001

(KPMG 2002). As the Alaskan industry continues to grow, new ports are being sought to reduce congestion and to provide new destinations for cruise passengers.

The Alaskan industry currently provides approximately 8% of the global capacity for cruise voyages (KPMG 2002). With a season that has expanded to include the months of May to September, an increasing number of individuals are purchasing Alaskan cruises. Currently, eight destinations comprise the primary ports of call for passengers purchasing cruises on the large vessels that travel to Alaska. The main ports are Anchorage, Haines, Juneau, Ketchikan, Seward, Sitka, Skagway and Valdez. Significant cruise traffic is associated with each of these ports; however, three destinations within Southeast Alaska have grown to support especially large volumes of cruise visitors. In particular, Juneau, Ketchikan and Skagway were expected to receive an estimated 700,000, 681,000 and 650,000 passengers respectively during the 2002 season. From an economic impact perspective, passengers were estimated to have spent $74 million in Juneau (McDowell 2000) $54 million in Ketchikan (McDowell, 2000) and $44 million in Skagway (Southeast Strategies and Dean Runyan Associates 2000) during the 1999 cruise season.

Map 2.4.1-1: Southeast Alaska

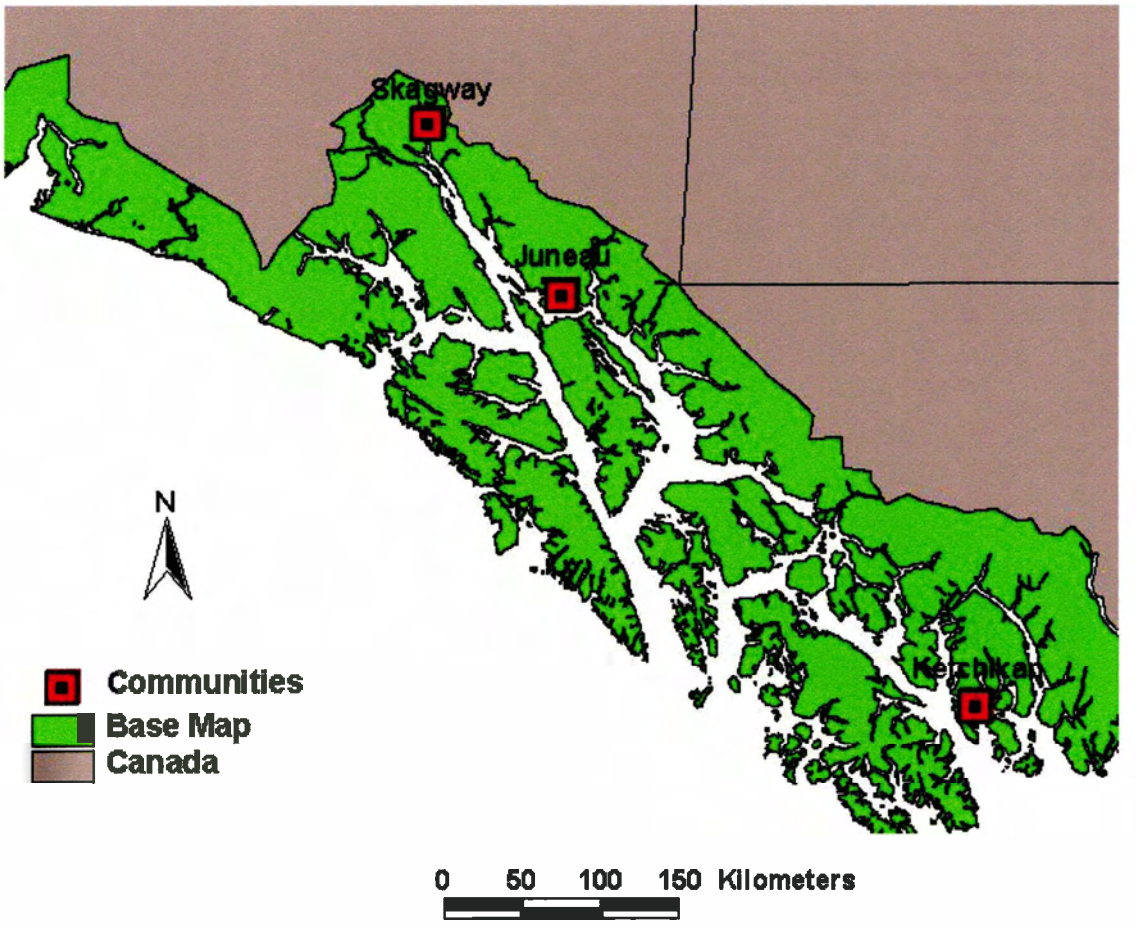


Table 2.4.1-1 provides a sample of an Alaskan cruise itinerary. It highlights a one-way seven-day cruise from Vancouver to Seward, Alaska.

Table 2.4.1-1 Sample 7-day Alaskan Cruise Itinerary (Vancouver to Seward)

Day	Port	Arrival	Departure
0	Vancouver, B.C.		5:00 p.m.
1	Inside Passage (Cruising)		
2	Ketchikan, Alaska	7:00 a.m.	3:00 p.m.
3	Juneau, Alaska	7:00 a.m.	8:00 p.m.
4	Sitka, Alaska	9:00 a.m.	6:00 p.m.
5	Glacier Bay (Cruising)		
6	College Fjord (Cruising)		
7	Seward, Alaska	8:00 a.m.	

Source: Holland America (2003)

The sample itinerary reflects the current pattern of sea voyages on the first and last day of such cruises. This feature provides an opportunity for cruise passengers to become accustomed to the ship's features during the early stages of the voyage, and have a rest day before disembarking from the ship, respectively. This design, however, restricts the number of port calls that can be made during a seven day cruise.

The ships that currently participate in the Alaskan cruise industry range in capacity from 1200 to 2600 passengers, not including crew members (NWCA 2003). Vessels of this magnitude are considered part of the large vessel cruise industry, as opposed to the growing pocket cruise market. The pocket industry caters to individuals who prefer smaller vessels, rarely carrying more than 250 passengers at one time (BC PDG 2003). Throughout the remainder of this report, references to the "cruise industry" refer to large vessel cruises, not the pocket cruise industry. The reason for the focus on the larger

vessel industry is due to the significant volume of cruise passengers that could visit Prince Rupert and surrounding areas during a short period of time. While the pocket cruises travel to many locations and introduce specific impacts, the mid and back-country management challenges associated with the larger vessels was a more immediate concern for the North Coast planning table.

Alaska-bound cruises frequent several ports of call during their voyages. A port of call in the context of this study is a stop made by a cruise ship at a port community. At these ports, passengers are able to explore the natural and cultural attributes of the host destination. The time available for cruise passengers to participate in shore excursions is typically limited to the duration of the stay in each port.

2.4.2 Cruise Visitation Dynamics

The three Alaskan cruise ports examined in this research project serve as ports of call, rather than ports of embarkation or disembarkation. As a result, the duration of cruise passenger visitation is often limited. Table 2.4.2-1 presents the typical duration and frequency of calls in Juneau, Ketchikan and Skagway.

Table 2.4.2-1 Mean Port of Call Duration in Alaskan Ports (May to September 2002)

Destination	Mean Port of Call Duration (Hours)	Number of Large Cruise Ships Accommodated
Juneau	11.0	448
Ketchikan	8.5	412
Skagway	12.5	346

Source: Analysis of cruise ship schedules (NWCA 2002)

The remainder of this section describes Alaskan shore excursions in terms of current participation trends, logistical constraints, and other tour related management issues. This description provides the basis for subsequent analyses of the potential land use patterns and impacts associated with cruise ship tourism in BC's North Coast region.

2.4.3 Alaska Passenger Demographics

Individuals purchasing Alaskan cruises can be typified as being primarily an older crowd. The 1999 Vancouver-Alaska Cruise Passenger Study (Inter VISTAS 1999) determined that 69% of tour passengers were over the age of 55 years. The average age was 60 years. In terms of party composition, 77% of passengers reported travelling with one other person, 16% in groups of 3 or more, and 7% of cruise passengers travelled alone. Only 3% reported travelling with children. Sixty-seven percent of survey respondents were female.

In terms of economic background, 38% of respondents indicated that they had annual household incomes in excess of US$80,000. Approximately 26% of all survey respondents indicated they had annual household incomes in excess of US$100,000. More specific characteristics of the socio-demographics and related shore excursion purchasing patterns of these cruise travellers are presented in the next section.

2.4.4 Alaska Shore Excursions

A shore excursion is an organized tour purchased by a cruise passenger in a port destination. Shore excursions enable visitors to experience the unique attributes of host communities and participate in a wide range of shore-based activities. Such activities

form an integral and potentially memorable segment of the cruising experience (Dickinson and Vladimir 1997). Tours typically use front and mid-country areas for excursion activities. In some cases, backcountry areas are also used. Examples of urban-based activities include museum tours, historical walks, shopping, or sightseeing. Activities outside of urban centres may focus on natural or cultural features including soft-adventure tours, cultural interpretation or a range of other opportunities promoted by a port community. In the context of this work, shore excursions include those travel products sold on-board, in addition to those that are purchased by passengers from the cruise lines or independent operators while in port.

The shore excursion opportunities available to Alaskan cruise ship passengers are extensive, and ever-changing. Many existing products are continually being refined, while a range of new and innovative tours seem to be continually emerging to meet the expectations of visitors. The excursions offered to cruise passengers use existing natural and cultural resources to varying degrees. Their ultimate effect on these resources depends on the types of activities offered, as well as their duration, frequency and intensity of use.

When a cruise vessel reaches a host destination, passengers have 3 options. They may:

- Remain on-board the cruise ship
- Explore the host community on their own; or
- Purchase an organized shore excursion tour.

In general, in order for a cruise ship company to consider a new community as a port of call, a destination must have enough shore excursion opportunities to generate substantial

additional revenue for the cruise lines (Klugherz and Associates 1999). In addition, excursions must be "well-run, reliable and affordable" (Klugherz and Associates 1999). Each cruise line places its own shore excursion demands on port communities, depending on the passenger markets they seek to satisfy. Their demands range from the provision of shopping opportunities to adventure and nature experiences (Ference 1988).

Many of the cruise lines such as Princess, Holland America, and Celebrity have developed sets of shore-based activities for their passengers. Tours are offered through subsidiaries of the parent company or through shore-based operators who have service agreements with the cruise lines[2]. Passengers can purchase these tours for an additional cost above the price of the main cruise voyage. Shore-based tour operators who do not have service agreements with the cruise lines can still offer excursions to cruise passengers. However, their products and services are not typically promoted on-board the cruise ship. This distinction is subtle, yet does have implications for the host destination.

Over the past two decades, tour operators in the Alaskan communities of Juneau, Ketchikan and Skagway have developed diverse shore excursion products for cruise passengers. They have done this either in partnership with the cruise lines, or as independent operators. In all of these communities, as the volume of tour participants and the range of product offerings has grown, the land and resource base in the vicinity of these cruise destinations has seen increasing levels of use. Growth in passenger volume has enabled cruise passengers to purchase an expanding range of tour products and services.

2.4.5 Alaska Shore Excursion Participation

Cruise passenger participation in shore excursions varies amongst Alaskan ports[3]. Juneau has a particularly high level of passenger involvement in such tours. An estimated 84% of passengers participated in at least one shore excursion while in Juneau in 2001 (McDowell Group 2001). Participation is particularly high at this destination as its tour products and services are especially well developed and have been significantly refined over time.

Appendix 1 includes information about the excursion purchasing patterns of cruise passengers in Juneau for the 2001 cruising season. Although 700,000 cruise passengers were estimated to visit the community during the 2001 season, approximately 1.1 million individual excursions were purchased. This suggests that a significant portion of cruise visitors participated in more than one tour during their port of call in Juneau.

The proportion of passengers who purchase shore excursions in Ketchikan is estimated to be lower than that for Juneau. In a 2001 survey, cruise passengers were asked to identify the types of tours in which they had participated while in Ketchikan. About 55% of all of the passengers surveyed indicated that they had pursued at least one shore excursion (McDowell Group 2002). Reliable information about tour participation in Skagway was not available for this report.

Appendix 1 provides an indication of the types of tours and volumes of visitors that purchased specific types of shore excursions during the 2001 season in Ketchikan. An estimated 681,000 passengers visited the region during that year.

For both of these destinations, the port positioning themes discussed previously are reflected in the excursion purchasing patterns of cruise passengers. The themes for Juneau centre on glaciers, mining history, nature and wildlife observation, and the city's role as the state capital. Glacier tours were the most popular excursion purchased by cruise passengers visiting Juneau in 2001. Other popular excursions included whale watching and city tours. Such products involve stops at key historical, cultural, and government sites.

A similar situation is found in Ketchikan, where Aboriginal products and services are strongly promoted to passengers. During the 2001 cruising season, an estimated 14% of all cruise visitors purchased tour products featuring Native Village tours or experiences.

The overriding characteristics of shore excursions have implications for tour operations and land and resource management in other port destinations participating in the Alaskan cruise industry such as Prince Rupert. The following section outlines a number of these traits.

2.4.6 Front-country Planning Implications of Cruise Ship Tourism

Planning for cruise ship activity is a challenge for port communities (Egret Communications and ARA Consulting Group 2001). As noted previously, ships that travel the waters of coastal North America have high passenger capacities (NWCA 2003). In some of the more popular ports in the Alaskan cruise theatre, four ships, with upwards of 10,000 passengers, may visit a specific destination on a given day. For comparison, Juneau, Ketchikan and Skagway were estimated to have populations of

31,000, 8,000 and 900 respectively in 2000 (US Census Bureau 2003). In select locations, significant issues face host communities in coping with this significant quantity of cruise ship passengers (Peisley 1988, in Marsh and Staple 1995).

Common planning issues linked to tourism development are also associated with port development. The movement patterns of cruise ship passengers differ between ports, but Weaver (1993) suggests that "urban tourism on small Caribbean islands is characterized by decreasing levels of tourist activity beyond a specialized commercial zone adjacent to cruise-ship docks." Exceptions to this include visitation to isolated attractions beyond this specialized zone especially in Caribbean port destinations (Weaver 1993). Infrastructure improvements such as expanded berthing capacity for large vessels, increased retail opportunities, improved signage and sidewalks, telephones and other communication devices, as well as widened roads, enlarged visitor reception areas, enhanced local transportation and expanded sewers may be required (Ference 1988). In addition, the capacity and accessibility of existing urban attractions may need to be expanded. Overall, the emergence of specialized tourist zones has been associated more with the cruise ship excursionist than with other types of visitors to a tourism destination (Weaver 1993). My research is not specifically focussed on addressing the front-country management challenges. These are included to provide a context for discussion of the overall challenges faced by cruise ports, especially in mid and back-country areas.

2.4.7 Mid and Back-country Planning Implications of Cruise Ship Tourism

A range of shore excursion tours is typically developed in each port destination. Diverse opportunities to showcase the natural and cultural attributes of host destinations allow

visitors to explore unique attractions in the region. In addition, the range of activity levels, age categories, and budget characteristics of different types of cruise passengers can be satisfied.

The relative distribution of shore excursions in front-country versus mid and back-country areas will differ between destinations depending on the specific attributes promoted. The outcome will be affected by the "market positioning" of each region, and the quality of resources in the destination periphery. In addition, the duration of a port call, the characteristics of the cruise passengers, the desires of the host community and the needs of the cruise lines will each affect the spatial distribution of shore excursion activity and management challenges that are realized.

The introduction of the cruise ship industry to a new port destination has the ability to impact the resources and residents of a community and surrounding resource base (Weaver 1993). Addressing front-country planning issues is important for facilitating a well-coordinated and comfortable experience for the cruise tourist. However, equally important is protecting the integrity of the land and resource base that supports tourism activity in the mid and back-country regions.

Cruise tourists in North America differ in their movement patterns and preferences from land-based visitors (Morrison et al. 1996). Developing an understanding of existing and potential spatial patterns of passenger movement in port communities and surrounding regions allows planners to identify specific land and resource needs and integrate these with competing land-based interests.

Overall, cruise ship development has generated a range of challenges for those who manage the land base, and for residents who inhabit the region (Egret Communications and ARA Consulting Group 2001). In addition to environmental issues that have arisen, social concerns, such as crowding at key sites and aircraft noise in front, mid and back-country regions have emerged. While economic benefits have been generated in many communities, supporting the integrity of the land and resource base has required ongoing planning and management.

2.5 Tourism Assessments

The discussion of regional tourism planning and the application of spatial frameworks in Section 2.3.1 assume that reliable information about the tourism resources of a targeted region exists. While the key attractions in front-country areas are likely known, opportunities in the mid and especially back-country regions are often unrecognized (Williams, Penrose and Hawkes 1998).

Early techniques developed to conduct regional assessments of tourism potential involved defining factors considered important for specific experiences. Several key assumptions are associated with this form of analysis including: "that certain physical factors are important for destination development; that the greater the abundance and quality of these factors, the greater their potential; and that where more of these factors occur, tourism potential is greatest" (Gunn 1988). Potential resource attributes may include physical features such as lakes and rivers, mountain ranges, vegetation types, wildlife use areas, as well as cultural attributes such as historic sites. Existing tourism infrastructure and transportation routes could also be included.

In this form of analysis, maps designating the location of features are generated for each factor considered (Gunn 1994). A map overlaying all relevant tourism values is then created. Regions with the highest degree of overlap for a range of attributes would represent areas considered to have the highest tourism capability.

The use of Geographic Information Systems for tourism planning furthered the usefulness of earlier tourism assessment methods and improved decision- making by incorporating stronger computer-based data analysis, modelling and forecasting procedures (McAdam 1999). GIS and its emerging presence in tourism planning are discussed in the following sections.

2.6 Geographic Information Systems (GIS)

GIS was originally developed as a computer-based tool to "aid in the organization, storage, analysis and display of spatial data (Nizeyimana, Petersen, and Looijen 2002). However, this technology has evolved to become more than simply an organizational or mapping tool. Current GIS approaches increase the analytical capabilities of the operator, and allow users to identify patterns and relationships between features based on specific criteria (McAdam 1999). The development of GIS has aided a diverse range of fields including tourism land use planning.

2.6.1 Definition

A typical GIS system includes a user interface in a "Windows-based" or similar desktop interactive environment. Traditional input and output devices are present, with a number of key additions such as a digitizing tablet to input data and a plotter to print the output from a GIS application (McAdam 1999).

Geographic Information Systems can be defined as "a relational database capable of manipulating both spatial data (in the form of digitized maps) and attribute data (comprising data sets in the form of alpha-numerical records). The spatial data is largely derived from existing or historical paper-based map co-ordinates stored in computer files, whilst the attribute data files are made up of detailed records of any feature or item found on these maps with the items being geo-referenced at their co-ordinates" (McAdam 1999).

The spatial component provides a reference location for a specific feature on the land and resource base, while the attribute data provides information about the feature. For example, the spatial data may identify the location of a destination lodge. The attribute data could identify the mean number of annual visitors to the lodge.

The integration of spatial information with geo-referenced attribute data has allowed Geographic Information Systems to find applications in a broad range of sectors that require spatial planning including, agriculture (Nizeyimana, Petersen, and Looijen 2002), business (Foust, Botts, and Engert 1994), land use planning (Senes and Toccolini 1998) and tourism (Williams, Paul, and Hainsworth 1996). Different configurations of GIS systems allow a range of analytical functions to be completed.

Table 2.6.1-1 Properties and Analytical Functions of a GIS System

GIS Properties	DESCRIPTION	GIS Analytical Functions
▪ A process	For compiling, storing, manipulating, analyzing and displaying spatially referenced data.	Presentation and thematic mapping Data query Spatial query Database integration Route finding
▪ A toolbox	Containing tools for compiling, storing, retrieving, manipulating, transforming and presenting spatial data.	
▪ A database	Of information that spatially links attributes to a specific location on the earth.	Point in polygon analysis Overlays Buffering Visualization and 3-D modelling
▪ An application	For manipulating cadastral, market, land use planning, and resource attribute information.	
▪ A decision support system	Which can enhance decision-making abilities by integrating spatially-referenced data into a problem-solving situation.	

Source: Adapted from Bahaire and Elliott-White, 1999

2.6.2 Capabilities of GIS Technology in Tourism Planning

The distribution of impacts on the land and resource base of tourism regions form specific spatial patterns due to the fact that "locations, regions, resources, amenities, and infrastructures have an unequal potential and capacity for particular forms, types and scales of development" (Fagence 1991 in Gunn 1994). Understanding current and potential patterns can highlight those areas that may be subject to intensive use or require management intervention at some time in the future.

The multi-faceted attributes of GIS suggest a significant potential for use in the tourism industry (Butler 1992). Culbertson et al. (1994) state that the "potential of combining economic and social information with environmental data offers an exceptional tool for long-term decision-making" using GIS applications. A growing number of tourism planners and researchers are realizing the strength of GIS for addressing multi-faceted aspects of tourism planning. Table 2.6.2-1 provides a summary of the diverse functional capabilities of GIS and examples of existing tourism applications.

Table 2.6.2-1 Capabilities of GIS for Tourism Applications

Functional capabilities of a GIS	***Basic questions that can be investigated using a GIS (After Rhind, 1990)***		***Tourism applications***	***Examples***
Data entry, storage and manipulation Map production Database integration and management Data queries and searches Spatial analysis Spatial modelling	Location	What is located at a specific location?	Tourism Resource Inventories	B.C. Tourism Resource Inventory System; NCTOS (2000);
	Condition	Where is it?	Identifying most suitable locations for development	NCTOS (2001); Wicks et al. 1993; Opperman and Brewer 1996; Senes and Toccolini 1998
	Trend	What has changed?	Measuring tourism impacts	Allen, Lu, and Potts 1999
	Routing	Which is the best route?	Visitor management / flows; Time-Space Movements	Chardonnel and van der Knaap 2002; Wager 1995
	Pattern	What is the pattern?	Analyzing relationships associated with resource use	Allen, Lu, and Potts 1999; Harris, Gimblett, and Shaw 1995; Tarrant and Cordell 1999
	Modelling	What if...?	Assessing potential tourism development	Beedasy and Whyatt 1999

Source: Adapted from Bahaire and Elliot-White 1999

However, despite the potential for this technology to support more comprehensive forms of tourism planning, overall acceptance has been slow to develop (McAdam 1999). The reasons for this will be discussed in a further section.

2.6.3 Problem Solving Properties of GIS for Tourism Planning

Gunn (1994) states "no kind of development is any more complicated socially, economically, and environmentally than tourism." As many regions can attest, tourism does have the ability to introduce social, economic, and environmental change. From a planning perspective, there is a high level of uncertainty associated with tourism, especially with respect to issues such as appropriate levels of development, suitable locations for activities, and the industry's overall spatial impacts on a region. The use of GIS can facilitate an understanding of some of the key issues facing regions considering tourism development (Butler 1993 in Bahaire and Elliott-White 1999). Table 2.6.3-1 provides an example of the types of issues currently faced in developing tourism and the role GIS can occupy in addressing some of these questions.

Table 2.6.3-1 Problems of Tourism and the Potential of GIS

Problems of tourism	Nature of problem	GIS application
Ignorance	▪ Of stakeholders and decision-makers concerning the ability of tourism to alter land and resource characteristics and other elements of the destination region	▪ GIS enables stakeholders to develop a systematic tourism resource inventory ▪ Stakeholders are able to more effectively forward their interests and values in land use planning scenarios as a result of a comprehensive information source developed through GIS
Lack of ability	▪ To manage and control development	▪ GIS can be used to identify areas capable and suitable of developing tourism. ▪ GIS can also be used to identify areas of potential conflict, environmental sensitivity or existing resident use.
Lack of appreciation	▪ That tourism is an industry that can cause long-term change to a destination's land and resource base, as well as social structure	▪ GIS can be used in modelling exercises to depict the potential outcomes of tourism development ▪ GIS processes can help stakeholders identify the potential externalities associated with their actions
Lack of agreement	▪ Over acceptable level of tourism development, controlling mechanisms, and overall direction	▪ GIS functions as a *decision support system.* These systems support more informed discussions and have the ability to enable better decisions to be made

Source: Adapted from Bahaire and Elliott-White 1999

2.6.4 GIS Tourism Planning Examples

The application of GIS in tourism contexts has been limited despite the fact that such technology has been discussed in the literature for the past decade (Allen, Lu, and Potts 1999). Table 2.6.4-1 highlights a number of examples of GIS used for tourism planning

purposes. These examples are especially relevant in the context of the present study's research focus.

Table 2.6.4-1 GIS Applications for Tourism Planning

Tourism Application	Brief Overview	Source
Tourist Movement Patterns	▪ Comparison of tourist movement patterns in two regions using GIS	Chardonnel and Van der Knaap 2002
Regional Planning in Mountain Regions	▪ Use of GIS to aid in a process to set visual quality objectives in the Bow-Canmore region	Culbertson et al. 1994
Tourism Planning	▪ Use of GIS to integrate factors such as natural attractions, social and cultural resources, and the combination of all of these resources; Gunn Model	Savitsky, Allen, and Backman 1999
Coastal Development	▪ Integration of factors affecting tourism planning; matching of spatial data with relevant attributes for coastal planning	Beedasy and Whyatt 1999
Parks Planning	▪ Integration of spatial and demographic information to examine the distribution of parks and questions of equity	Wicks et al., 1993
Outdoor Recreation Sites	▪ Examination of questions of equity in terms of relative proximity to recreation areas	Tarrant and Cordell 1999
Tourism Marketing	▪ Use of GIS to account for concepts such as lifestyle and relationship marketing	Elliott-White and Finn 1998

Regional Tourism Planning

In many regions, investors require comprehensive and robust information before they are convinced that tourism development is appropriate in specific locations (Gunn 1994). In addition, there is often uncertainty about the ability of the land base to support commercial tourism activities.

Tourism capability analyses have evolved in recent years and enabled more informed planning decisions. The underlying goal behind such regional planning processes is to identify areas where land and resources are able to satisfy a set of select criteria considered important for specific tourism activities. A tourism capability case presented by Gunn (1994) provides the fundamental steps in such planning processes. In this case, the researchers used two thematic categories of factors to assess the potential region's land base to support tourism activity. More specifically, natural and cultural resource attributes were used in this case study example. For each analysis, inventory and mapping processes identified the distribution of specific attributes across the land base (Table 2.6.4-2). A composite map, showing areas of concentrated resources was produced for both the natural resource series and cultural resource series. A summary map overlayed the two thematic maps produced with the goal of identifying geographical areas where concentrations of natural and cultural resources existed. Through this process, regions with an abundance of resources were considered more capable of supporting tourism activity than other less endowed areas.

Table 2.6.4-2 Criteria Used for Tourism Capability Mapping

Natural Resource Attributes	Cultural Resource Attributes
Water	Prehistory
Vegetation	History
Topography / Soils	Economic Development
Existing Natural Development	Existing Cultural Development
Transportation	Transportation
Cities	Cities
⇩	⇩
Composite Map Based on Natural Resources	**Composite Map Based on Cultural Resources**

Source: Adapted from Gunn (1994)

Such tourism assessment processes enable stakeholders to identify areas capable of supporting tourism development based on environmental, social and economic criteria. By classifying the land and resource base of regions by their tourism potential and identifying the spatial relationships between key resources, stakeholders are able to undertake more informed decision making. An introduction to the British Columbia tourism resource inventory system is provided in the next section.

2.7 The British Columbia Tourism Resource Inventory System

Over the past 30 years, the province of British Columbia has employed a number of innovative tourism resource inventory systems to support land use planning and decision-making processes. From a recreation and tourism perspective, the most prominent of these include the Canada Land Inventory (1963), the Outdoor Recreation Classification System of British Columbia (1977), and most recently, the British Columbia Tourism Resource Inventory System (1990).

The B.C. Tourism Resource Inventory System was developed to provide a more robust and comprehensive method of describing the province's tourism attributes (Ethos Environmental Inc. 1990, in Williams, Paul and Hainsworth 1996). As opposed to past processes that had narrowly focussed on specific activities, the new system used broad biophysical features as well as available recreation behaviour information to inform the assessment of tourism resource potential. Not only did it include bio-physical factors such as slope, gradient, vegetation cover, and wildlife diversity, but it also took into account included human use criteria such as resource preferences.

A prototypical version of B.C.'s tourism inventory system was the Coastal Tourism Resource Inventory (CTRI). It was developed as a tool to support sustainable planning initiatives in the province of B.C. (Williams, Paul and Hainsworth 1996). Beyond a process for identifying potential tourism regions, the CTRI was created as a tool to assist managers in protecting the integrity of the land base for future coastal tourism activities (Gale, 1991 in Williams, Paul and Hainsworth 1996). The innovative CTRI initiative set the stage for the creation of a province-wide inventory system that was suited for use in various regional land use planning contexts. It was also used extensively to support the identification of tourism development opportunities across the province. The application of this type of tool in a regional planning context is discussed in Section 3.

2.8 Land Use Planning in British Columbia

2.8.1 Evolution of the LRMP Process

Approximately 94% of British Columbia's expansive land and resource base is publicly owned (B.C. LUCO 2001). On this land base, a diverse range of economic and non-

economic activities is undertaken. Activities such as forestry, mining, agriculture, guiding, trapping, recreation, hunting and food gathering are supported by the land and resource base.

During the 1980s a growing demand, "coupled with a greater awareness of environmental, economic and social issues – led to increasing conflicts in how we use the land" (B.C. LUCO 2001). In an attempt to address several land use confrontations that were becoming increasing costly and time consuming, the government of British Columbia undertook a series of initiatives developed to contribute to the development of a sustainable land use strategy for the province (Frame 2002).

In 1992, the Commission on Resources and the Environment (CORE) initiated strategic-level planning processes at the regional scale. While CORE stakeholder tables were attempting to negotiate consensus-based solutions in four geographic areas of intense conflict, the government also initiated a set of sub-regional planning processes in sections of the province outside of the CORE planning areas (Haddock 2001 in Frame 2002). The new Land and Resource Management Planning (LRMP) processes were initiated with the goal of developing sustainable sub-regional land use plans.

2.9 Land Resource Management Plans (LRMPs)

B.C.'s Land and Resource Management Planning (LRMP) processes are based on the principle of engaging relevant stakeholders in consensus-based planning. In combination, engaged stakeholders develop formalized LRMP's that identify land use designations, specify resource management objectives, indicators and targets, and establish comprehensive, broadly accepted management frameworks to guide resource

development in specific sub-regional areas (Frame 2002). The resulting plans can designate areas within the planning boundary as specific use zones, and define acceptable activities in these areas.

Members of the planning table, representing broad sets of stakeholders, develop the LRMP by presenting views, identifying issues and developing strategies to maximize the benefits throughout the region. The intended outcome of such an initiative is a management plan that "integrates the principles of sustainability, provincial land use objectives, and the needs of regional communities towards more inclusive and representative land use planning and management (Edwards-Craig 2003).

2.9.1 Information Needs

The creation of effective LRMPs is dependent on the availability of high quality information (Frame 2002). Information enables participants to negotiate for protection and for use of key land and resource values with greater certainty. With comprehensive resource inventory information, stakeholders are in a much better position to spatially determine the location of key areas, but also identify potential areas of conflict. While certain sectors of the economy, especially forestry and mining typically possess substantive inventories of key resource values, other sectors such as tourism, have struggled in the past to adequately represent their interests (Williams, Paul and Hainsworth 1996).

The need for reliable tourism information was particularly apparent to tourism stakeholders during the initial CORE plans and in several subsequent LRMP processes in British Columbia (Edwards-Craig 2003; Williams, Penrose, and Hawkes 1998). As the sophistication of these LRMP processes has increased, so has the quality of information

provided to participating stakeholders. Various processes were conducted to develop useful sub-regional planning information for the LRMP table. Perhaps one of the most useful and innovative sources of information for the tourism sector has been the province's development of the tourism resource inventories (see Section 3.3) as well as complementary Tourism Opportunities Study analyses. The role of these initiatives in LRMP processes is discussed in the next section.

2.9.2 Spatial Tourism Information

Tourism inventory systems in B.C. were developed to provide credible information to support the interests of the tourism sector in LRMP type planning processes (Williams, Paul, and Hainsworth 1996). Through refinements in the methodology and subsequent data collection efforts in LRMP contexts, spatial inventories of tourism values associated with the regional land and resource base were completed for many regions of the province. In some cases, the resulting maps and data provided information that was compared to resource values presented by other sectors involved in a particular planning process (Williams, Paul, and Hainsworth 1996).

2.9.3 Tourism Inventory Systems in Land Use Planning

Tourism resource inventories are tools designed to provide critical information for resource allocation and land use planning decisions (Williams, Paul and Hainsworth 1996). They enable decision makers to understand the types of resources that a region possesses and the spatial relationship between these resources and other key factors such as transportation routes, sensitive areas, and high quality tourism sites. The criteria included in a tourism resource inventory are dependent on the specific intentions of the analysis (Williams, Paul, and Hainsworth 1996).

Tourism capability and suitability resource inventories are common in British Columbia. Capability inventories "assess the maximum potential of a land unit or region for specific tourism uses" (Williams, Paul, and Hainsworth 1996). Suitability inventories "not only assess the potential of a specified land unit for tourist use, but also identify features that may represent constraints on development" (Williams, Paul, and Hainsworth 1996). Both evaluation types are based on the presence, absence or relative quality of a series of parameters identified as being important for a specific type of tourism experience.

Biophysical parameters, such as vegetation or wildlife, and human parameters, such as landscape aesthetics and land tenure, may also be used as inventory criteria (Williams, Paul, and Hainsworth 1996). The number of parameters selected for evaluation depends on the scope of the tourism inventory, the available data, and the quantity of financial resources to be dedicated to the project.

A series of digital map overlays can be generated via GIS technology from B.C.'s inventories. They can depict how the existing resources of an area (i.e. vegetation) are combined with other regional attributes. The weighting given to specific resource attributes will differ, depending on the perceived importance to the overall tourism product. A scoring system can be used to reflect areas of high, moderate or low resource concentration. The designation of an area as possessing high, medium or low capability will depend upon the classification scale used. Overall, tourism inventory systems assess the relative ability of regions of specific areas to support tourism activity based on a concentration of natural and cultural features considered desirable for a specific tourism activity.

2.9.4 The Role of GIS in Tourism Inventory Systems

Traditional tourism capability and suitability inventories have become more useful through the application of Geographic Information Systems (GIS) technologies (Bekker 1991, in Gunn 1994). The inherent spatial nature of tourism resource inventories, and indeed land use planning, has provided a logical link for the use of spatially-oriented tools such as GIS (Savistsky, Allen, and Backman 1999). The ability to integrate a significant amount of information enables users to undertake analyses that would have otherwise been extremely complex or impossible.

GIS-based tourism inventory systems have significantly enhanced the abilities of tourism stakeholders to represent their interests at the LRMP table in British Columbia. The spatial display of tourism values across the land and resource base at a standard scale has enabled direct comparisons with competing interests such as forestry, mining, and agriculture. In this manner, areas of overlapping resource values and potential conflict can be identified and planned accordingly.

The North Coast LRMP undertook two tourism inventory initiatives to develop information for the planning table. These processes conducted resource assessments and subsequent analyses to identify capability and suitability for 11 distinct tourism products across the North Coast planning area (NCTOS 2000 and 2001). While the tourism inventory provided a useful tool for planning in the North Coast LRMP planning area, these efforts did not assess the potential planning issues associated with the introduction of the large vessel cruise industry to the City of Prince Rupert and the broader North Coast region. The unique characteristics of cruise passengers and the related tourism planning considerations are integral to the ongoing LRMP initiative in the region.

The remainder of this report discusses research undertaken to identify the potential spatial and management implications of cruise ship tourism on the North Coast LRMP. The work integrates many of the topics discussed in this chapter, including spatial frameworks, cruise ship tourism patterns, sub-regional land use planning, and GIS technologies.

2.10 The North Coast Region of British Columbia

The North Coast is currently constructing a cruise ship docking facility in Prince Rupert. The intent of this venture is to position the City with the capability to participate fully in the accommodation of cruise ship tourism. While the City of Prince Rupert will serve as the initial staging area for cruise passengers, and will offer in-community tours and services, there is significant potential for the development of other tours and attractions that will draw passengers into neighbouring mid and back-country areas. The North Coast region has the ability to support a wide array of high quality experiences for cruise passengers.

2.10.1 Development Plans

As currently conceived, the development of Prince Rupert as a cruise destination centres on the city serving as a port of call for vessels on round-trip voyages arriving from Vancouver or Seattle, or on a one-way cruise to/and from Alaska. It is anticipated that the duration of visits to the port will range from 8 to 12 hours.

This research focuses on the implications of port of call cruise development. When more certainty for future development plans is generated, further research will need to be undertaken to assess the implications of subsequent development.

2.10.2 Proposed Shore Excursion Activity

The North Coast region supports diverse cultural history, stunning landscapes and abundant wildlife resources (BC PDG 2003). Any of these attributes may be shared with cruise passengers through shore excursion products where deemed appropriate. Tourism planning documents suggest a range of shore excursion activities have development potential in the North Coast.

- Rail tours of the Skeena River valley
- First Nations culture (e.g. Pike Island archaeological tour, cultural tours, new products)
- Charter fishing
- City tours (including the Museum of Northern BC, Native carving shed)
- Flightseeing (fixed wing or helicopter)
- Historic tours (e.g. North Pacific Cannery Village)
- Whale watching tours
- Biking tours
- Harbor tours
- Nature tours (e.g. walking, hiking)
- Kayaking
- Bear viewing

The shore excursion opportunities identified above highlight the broad tourism product base that exists in the North Coast region. Many of the products are only initial development ideas forwarded by North Coast individuals. However, they integrate well with the types of products currently offered in similar Alaskan destinations and follow many of the emerging trends with cruise passengers. The identified opportunities are also supported by two tourism assessments completed in 2000 and 2001 that evaluated many

of these perceived opportunities as high potential tourism products in the North Coast (NCTOS 2000 and 2001). The capability and suitability assessments spatially link specific tourism opportunities to the land and resource base. The remaining sections of this chapter discuss the capability and suitability reports and present potential spatial development patterns of cruise passenger activity in the North Coast region.

2.10.3 North Coast Spatial Tourism Information

In 2000, the Forest and Fisheries Tourism Opportunities Study for the North Coast Forest District was completed. Eleven tourism products were identified as possessing the greatest potential for tourism development based on a combination of natural resource, market potential and local development capability (NCTOS 2000). Ocean kayaking, land-based wildlife/natural history, marine-based wildlife/natural history, destination resort lodges, heritage/culture, hiking, air touring, mountain biking, hut-to-hut activity, marine cruising (pocket cruises), and ski touring were selected from an initial list of over 50 products. Areas across the North Coast Forest District were identified as possessing high physical capability for each of these 11 tourism products. The North Coast Forest District includes the NCLRMP planning area and a small supplementary area. The most promising resource areas for development were highlighted in the text of the NCTOS report.

The North Coast Tourism Opportunities: Suitability and Tourism Use Mapping (2001) report refined the 2000 Forest and Fisheries Tourism Opportunities Study for the North Coast Forest District. It incorporated the input of existing tour operators concerning the suitability of many of these areas for tourism use, through the consideration of key

constraints. This process allowed the identification of areas with values suitable for supporting specific forms of tourism activity.

Chapter 3.3.1 provides a more technical background to the both the tourism capability (NCTOS 2000) and the tourism suitability (NCTOS 2001) reports.

Summary

The literature reviewed in this chapter examined a broad range of topics. Each segment provided information about an element of the research conducted to assess the potential spatial and management challenges of developing large vessel cruise tourism in the North Coast region of British Columbia. The next section discusses the methods used to conduct this research project.

Chapter 3: Methods

3.1 Research Questions

The overarching research questions that guided this research were:

1. **Research Question 1:** What are the existing spatial patterns and resource management implications of cruise passenger activity in the mid and back-country areas of Alaskan cruise ports?

2. **Research Question 2:** What are the potential spatial patterns of cruise passenger activity on the mid and back-country land and resource base of British Columbia's North Coast?

3. **Research Question 3:** What are the potential resource management implications of cruise tourism for British Columbia's North Coast mid and back-country regions?

4. **Research Question 4:** How can GIS be used to integrate existing Alaskan cruise industry trends and shore excursion development patterns with North Coast tourism inventory information to identify potential travel patterns and management implications in the mid and back-country areas of the North Coast LRMP plan area?

Based on these research questions, a multi-phased study was developed. Research efforts were geographically focussed in the North Coast region of British Columbia and in three prominent Southeast Alaska cruise ship destinations. The preliminary North Coast research segment involved: 1) a compilation of regional tourism planning literature, 2) discussions with key stakeholders and 3) a review of existing digital tourism information. The overall goals of this phase were: to understand current development plans, to conduct an overview of existing tourism resources, and to investigate perceived land and resource management challenges resulting from cruise ship passenger activity in mid and back-country areas of the North Coast region.

The second phase of this research involved a case study review of the logistical requirements and spatial patterns associated with cruise ship passenger shore excursions in three prominent Alaska cruise ports. Research activities included: discussions with a cross-section of stakeholders impacted by the cruise ship industry, a review of existing shore excursions, GIS-based spatial mapping of tour patterns, and a compilation of the land and resource management challenges in mid and back-country regions related to the presence of cruise passenger activities. This phase was designed to create an understanding of potential activity patterns for the North Coast, based on probable similarities between existing shore excursion activities in Alaska, and future development plans in the North Coast.

The final phase of this research used information gathered in Alaska to forecast the probable spatial and management implications of shore excursion activities in the North Coast planning area. The research design is described in more detail in the remainder of this chapter.

3.2 Research Techniques

A variety of data collection methods were used throughout this research. A review of academic literature and relevant industry documentation provided a defined research context and an overall understanding of relevant issues linked to tourism development, land use planning, GIS applications, and the cruise ship industry. Within this overall research context, case study research methods played a prominent role.

Case study research involves empirical inquiries that investigate "contemporary phenomenon within its real-life context" (Yin 1994). The case study approach provides a

flexible and adaptable approach for conducting research. As such, it forms an important technique for social science study, bridging the gap between theory and practice. The theory component guides the researcher in developing criteria through which to select a case study and the questions to ask. The case study forces the researcher to integrate a variety of anecdotal information and associated details that form the complex reality on the ground. Overall, case studies are helpful in exploring and explaining situations in reality that may be entirely too complex for experimentation (Yin 1999, in Currie-Adler 2002).

Key informant discussions served as a method for collecting primary data in the case studies undertaken for this research. Individuals representing a wide variety of organizations and constituent groups informed the findings of this work. Overall, the discussions were guided by general questions that supported free discussion on identified topics, yet still provided opportunities for unearthing unexpected issues and evidence. The qualitative nature of the interview data generally prevented a substantial quantitative analysis of many of these data. For the purposes of this work, the intent of discussions with key informants was not to develop a statistical database, but to understand general tour patterns and trends as well as management challenges resulting from shore excursion activity on the region's land and resource base.

3.3 North Coast Cruise Ship Tourism Research Phase

The first phase of this research focussed on understanding potential land and resource use patterns of cruise ship passengers in the North Coast LRMP planning area, based on existing tourism resources and development plans. Background information concerning cruise tourism development plans was collected through existing literature sources. These included market studies, consultant reports, newspaper articles, and websites. Discussions were also conducted with stakeholders in Prince Rupert and the broader North Coast region to understand current tourism initiatives, cruise ship development plans and existing shore excursion opportunities. These discussions were conducted by telephone, as well as during a research trip to Prince Rupert in June, 2002. The following list identifies the types of organizations with which discussions were held.

- Tourism representatives
- Port authority representatives
- First Nations groups
- Educational institutions
- Economic development agencies
- Provincial government
- Tour operators
- Accommodation sector representatives
- Municipal government

Discussions with key informants from these organizations provided a useful overview of proposed cruise tourism development in the North Coast region. A list of existing shore excursion development ideas as well as potential management issues was developed. This allowed the researcher to gain a better understanding of port positioning and development options for comparison with other port communities in Alaska.

3.3.1 Existing Digital Tourism Resource Information

Existing digital tourism resource information was reviewed. In particular, two tourism resource assessments completed in 2000 and 2001 for the North Coast were examined (see Chapter 2). This information provided a useful overview of existing tourism resources in the planning area. These data also highlighted the capability and suitability of the area's land and resource base to support tourism products thought to possess significant development potential in the region.

Tourism Capability: Tourism Opportunities Study (2000)

The first tourism assessment, released in 2000, was the North Coast Tourism Opportunities Study for the North Coast Forest District (NCTOS 2000). The report assessed the physical capability of the land base to support 11 types of tourism products. The report's maps identified key areas able to support tourism activity primarily based upon the availability of high quality physical resources determined to be of importance to each of the tourism products.

The 2000 Tourism Opportunities Study used two different, yet somewhat linked approaches to identify tourism potential in the North Coast Forest District. The first involved GIS-based tourism capability modelling, while the second involved a spatial assessment based on resource criteria as well as the presence or absence of complementary sub-products considered important for a specific tourism experience. A brief overview of these processes is included in the following section. Two examples of the resource criteria assessment are presented in more detail in Appendix 2.

1. Tourism Capability Modelling

Physical capability models were developed for 11 different tourism products in the NCTOS. Up to 50 types of biophysical, heritage, wildlife, existing use or facility features were considered in the development of each tourism product capability model. These factors were divided into *attractors*, and *setting modifiers*. *Attractors* were divided into two categories: key features and modifying features. These were weighted based on their perceived importance to specific tourism products. A GIS function called *buffer* was used to assign a geographical area surrounding a point feature the same value as that feature. Buffer zones ranged from 500 metres to 1 kilometre depending on the feature being examined (NCTOS 2000). *Attractor* digital map layers were then overlaid on each other. Using the GIS tool *union*, values were summed for all attractor layers included in each model. A minimum number of *attractor points*, representing the presence of specific characteristics, were required for an area to be classified as a very high or high capability area. *Setting modifiers*, such as a favourable biogeoclimatic zone or existing use, could boost the ranking of a specific region for each tourism product type. Alternatively, an unfavorable biogeoclimatic zone could lower the capability ranking of a specific zone for each tourism product.

The key features and modifying features for ocean kayaking are shown in Table 3.3.1-1 as examples. The attractor point system is shown in Table 3.3.1-2. The capability classification process is provided in Table 3.3.1-3.

Table 3.3.1-1 Attractors for Kayaking Activity

Key Features	Modifying Features
• Ocean Shoreline (include/exclude)	• Birds
• Rare or distinct natural feature	• Marine Mammals
• Hotspring	• Terrestrial wildlife (near shore)
• Beach / Estuary	• Waterfall
• Heritage sites	• Campsite / Picnic Area
• Cabin / Hut	• Forest Service Recreation Site
• Accommodation Facility	• Wharf
• Public Dock / Staging Area	• Boat Ramp
	• Trails
	• Lakes (w/i 500 meters of ocean)

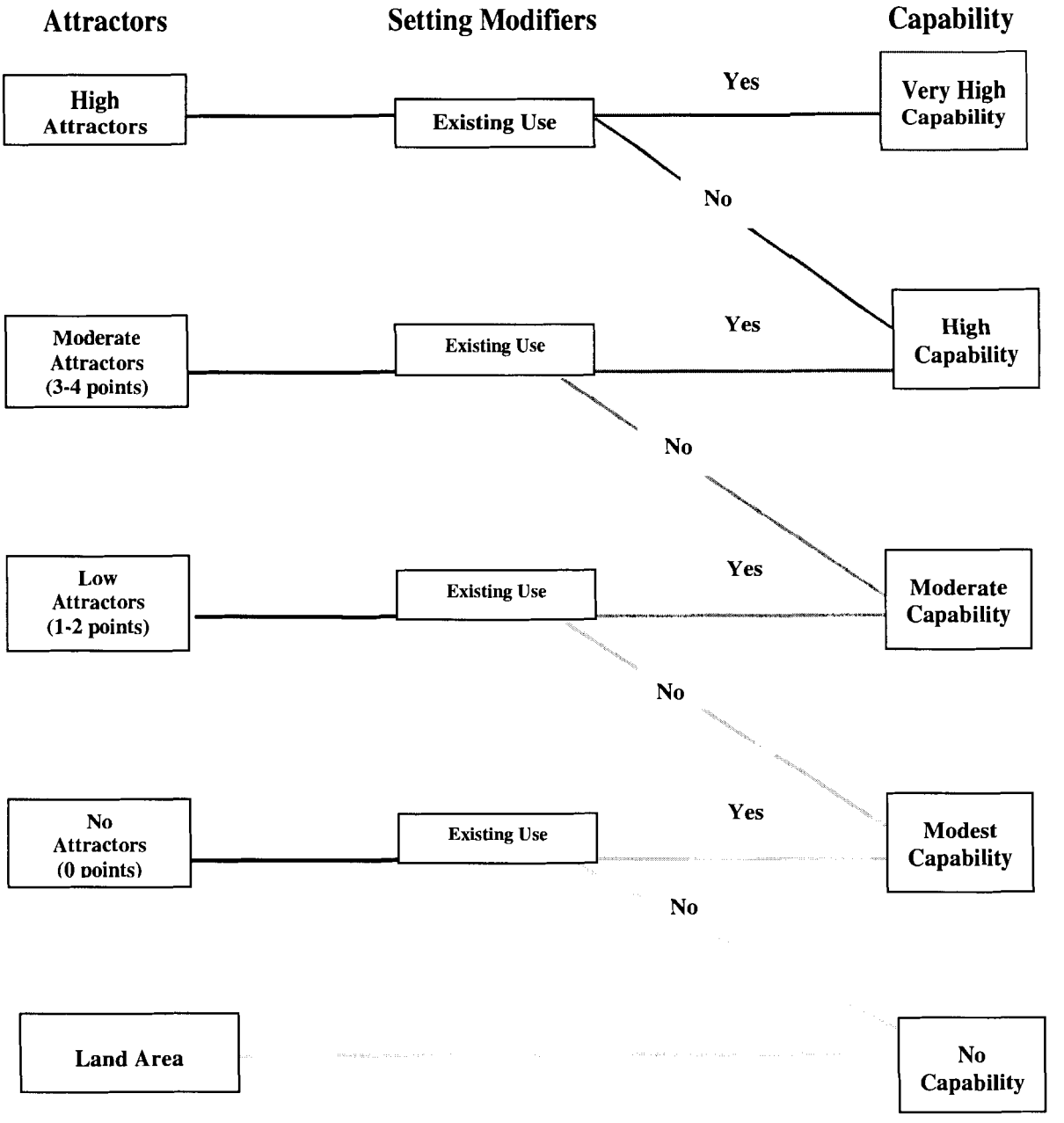
Source: NCTOS 2000. Used with permission.

Table 3.3.1-2 Attractor Point-rating System

Summed Points Of Features	Attractor Rating
0 points	None
1-2 points	Low
3-4 points	Moderate
5 + points	High

Source: NCTOS 2000. Used with permission.

Table 3.3.1-3 Tourism Capability Classification for Kayaking Activity



Source: NCTOS 2000. Used with permission.

The end result of this GIS tourism capability modelling exercise was a series of maps that classified the entire land base as having low, moderate, high or very high tourism capability for each of 11 different tourism products being considered for development in

the North Coast Forest District planning area. These maps provided planning information that enabled stakeholders to visualize relative tourism potential in a spatial context. The tourism capability modelling outputs were included in the final NCTOS report, yet the maps were perceived to be quite complex by stakeholders when the original report was released in 2000.

2. Resource Criteria Tourism Assessment

The second process conducted for the Tourism Opportunities Study (2000) was a tourism assessment based on *resource criteria*. For each of the 11 selected tourism products *resource criteria* were used to identify the most promising areas for development, based on a system wide ranking procedure (NCTOS 2000). This information served as the primary source of spatial mapping information for the North Coast in this research project as opposed to the first process of tourism capability modelling.

The underlying principle for this tourism assessment was that nature-based tourism products are dependent on the presence of high quality natural features. This assessment process used the experience of tourism professionals and regional tourism operators to define key resource criteria for each of the 11 tourism products (NCTOS 2000). Appendix 2 indicates the criteria used for ocean kayaking.

The NCTOS (2000) divided the North Coast Forest District into 17 resource units. For each of the *resource criteria* (i.e. world class beaches for kayaking), the resource units possessing that characteristic were identified. A summation process was then conducted to identify which resource unit possessed high concentrations of specific *resource criteria.*

A further analysis was conducted for some of the tourism products in the NCTOS (2000). These additional assessment processes were based on the availability of sub-products as well as *resource criteria* in key resource areas. Appendix 2 illustrates the opportunity evaluation conducted for the land- based wildlife and natural history tourism product. As indicated in the table, 12 sub-products were considered as potential components of this tourism experience. These components included sub-products such as Kermode bears, mountain goats and waterfalls. Through the assessment process discussed in the previous paragraph, resource units or areas associated with specific sub-products were identified. The summation phase identified resource units with high concentrations of these features. The *resource criteria*-based assessments provided an indication of those geographic regions where high quality tourism resources were located. Overall, tourism capability for geographical areas known as resource units was assessed through the existence of specific resource criteria and the availability of appropriate sub-products.

The NCTOS (2000) report assessed tourism capability. However, the analysis did not consider tourism suitability. This form of analysis does not include factors such as social or physical carrying capacity. In 2001, another resource mapping process was undertaken to expand on the knowledge base, and improve the digital tourism base for the NCLRMP land use planning process.

Tourism Suitability Assessment (2001)

The 2001 follow-up report, "North Coast Tourism Opportunities: Suitability and Tourism Use Mapping" identified areas that were particularly suitable for tourism development based on the experience of existing tourism operators and the consultants. Suitability mapping was conducted for seven tourism products: ocean kayaking, hut-to-hut touring,

marine cruising, destination lodge resorts, wildlife/natural history (land), wildlife and natural history (marine), and air tours. Mountain biking activity was not mapped for suitability due to the assumption that most activity would take place in close proximity to population centres. Similarly, hiking was considered as localized use or linked to specialized heli-hiking activity. Finally, heritage culture was not mapped due to sensitivities surrounding the identification of historic or sacred sites.

Overall, the suitability assessment identified a series of digitized spatial polygons in the North Coast region that had significant features and supportive resources for recreational opportunities and tourism activity development. Suitability polygons were ranked as possessing high, moderate or low suitability.

The preceding capability and suitability reports provided an information base for more specific tourism planning activities in the North Coast Forest district. They also provided a valuable tool for the NCLRMP table and other regional stakeholders in planning for future development in the area.

3.4 Alaskan Case Study Review

While the tourism product assessments provided by the North Coast studies offered a useful overview of several areas appropriate for tourism ventures, they did not account for the unique patterns of cruise ship passenger activities in the region's mid and back-country areas. Specific spatial patterns of shore excursion use are likely to develop and impact the land and resource base of the North Coast region. As a result, a review of three Alaskan cruise ports was conducted to identify typical tourism use patterns and management challenges associated with cruise passenger shore excursions.

Three Alaskan ports currently receive especially large volumes of cruise passengers during the Alaska cruise ship season that extends from May to September. Each of these communities has had a long history with the cruise ship industry. They have accommodated and managed the impacts of a significant volume of cruise tourists over the past two decades.

Juneau, Ketchikan and Skagway are particularly similar in geographic characteristics to the Prince Rupert region of B.C.'s North Coast. They have developed shore excursion products for cruise passengers visiting their communities. Front, mid and back-country shore excursion activities utilize each of these communities and the surrounding land and resource base. The existing spatial dynamics of Alaskan cruise passenger activity in these areas were examined in this study. The details of this review are discussed in the following sections.

3.4.1 Shore Excursion Mapping

The initial source of information concerning the spatial distribution of shore excursions in the three case study ports was literature produced by the major cruise lines. A review of 2002 shore excursion information from Carnival, Celebrity, Royal Caribbean, Norwegian, Holland America and Princess Cruise Lines was conducted. Shore excursion packages, brochures, and websites were all screened for relevant tour details. Reliable information concerning the product offerings of independent operators was included in this review. Brochure and website documentation were compiled, and key areas of use for shore excursion products offered by both cruise line affiliated operators and other independent tour businesses were identified on individual maps of the Juneau, Ketchikan

and Skagway regions (Maps 1, 2, 3). Telephone discussions with various Alaskan shore excursion tour operators also occurred during this initial mapping phase. Details concerning the logistical requirements of specific tours were clarified where possible.

A Geographical Information System (GIS) program (ArcView 3.2) was used to plot existing shore excursion use areas in each of the host destinations. A base map and physical feature maps were obtained through the Alaska State Geo-Spatial Clearinghouse (ASGSC). Features such as lakes, rivers, glaciers, contours and communities were included as reference points for the mapping exercise. A total of 91 shore excursion products offered by the major cruise lines were identified in the communities of Juneau, Ketchikan, and Skagway. In addition, seven products offered by independent operators were identified and mapped. The geographic locations of the sites utilized for land, water, and air-based activities within each of the three destinations were located and plotted. This task identified the spatial spread of the existing shore excursion activities in each community (Maps 1,2 and 3).

In some cases, multiple sites were used during the course of a shore excursion. The geographical distance from the cruise dock to each tour use site was measured using the DISTANCE function in ArcView 3.2. For a specific shore excursion tour, the distance to the furthest site was considered as the distance travelled for that tour. For example, a glacier flightseeing tour in Juneau flew over the Norris, Taku, Hole-in-the-Wall, East Twin and West Glaciers, located approximately 22, 31, 27, 40, and 36 kilometres from the cruise ship dock in Juneau respectively. For this tour, the recorded distance travelled was 40 kilometres. Distance measurements were cross-checked with paper-based maps

produced by the USFS. Confirmation of calculated distances allowed a higher degree of certainty for information generated through ArcView GIS procedures.

For certain types of activity (e.g. helicopter flights and water-based activities), different tour sites were used depending on the period of the cruising season. As a result, the exact location of some sites used for excursion activity was not available. In all cases, the areas of use were plotted using the most accurate information possible.

Tours were grouped by activity theme for analysis. Thematic groups included: helicopter-based tours, floatplane-based adventures, hiking, fishing, marine wildlife viewing, land-based wildlife viewing, kayaking, rafting and canoeing, rail-based activity, destination lodge visits, biking, and road-based tours. Maps were not produced for fishing, rafting or canoeing tour activities due to a lack of reliable spatial information.

The critical distance ranges recorded were the Maximum and Mean Maximum distances travelled for each shore excursion theme. A third statistic, the 25% Extended Travel Range was also calculated. A sample application of these values is described using kayak excursion information.

1. **Mean Maximum Range**: The maximum distance in each of the kayaking tours in Alaska were averaged to produce the mean maximum. For example, the maximum distances travelled in each of the 5 kayaking tours offered in the case study regions were: 2, 16, 24, 26, and 30 kilometres. The Mean Maximum was determined to be 19.7 km by averaging the 5 values.

2. **Maximum Range**: The maximum distance travelled by any of the kayaking tours. In the Alaskan case, 30 kilometres was determined to be the Maximum for kayaking activity.

3. **25% Extended Travel Range:** This extended range was included to reflect probable increases in excursion travel distances generated by future improvements

in transport technology. For all cases, it reached 25% beyond the current maximum travel range for that activity. With respect to kayaking, the 25% Extended Travel Range was calculated as 1.25 times the Maximum for kayaking (30km), or 37.5 km.

3.4.2 Shore Excursion Analysis

This phase of the study involved detailing the logistical and use characteristics associated with shore excursions in the three Southeast Alaska case study areas. Data for this phase was collected via personal and telephone interviews, a review of literature obtained in Alaska, an analysis of relevant mapping information, and personal observation in the Alaskan cruise ports of Juneau and Ketchikan.

Discussions with tour operators and other relevant stakeholders provided a further understanding of typical shore excursions patterns, passenger requirements, and trip preferences. The confidentiality of these informants was retained throughout the review and information reporting process. Reviews of mapping information with these informants provided ground-truthing for some of map products developed in the previous research phase. Observational research in the port destinations of Juneau and Ketchikan helped to identify the patterns of passenger movement over the course of a typical cruise port visit.

3.4.3 Alaska Land and Resource Management Discussions

Land and resource management discussions with stakeholders in Juneau and Ketchikan were conducted by telephone from April to August, 2002. Site visits were made to Juneau and Ketchikan during July, 2002. Specific challenges in Skagway were primarily highlighted through a review of existing literature. Interviews provided useful insights

into the types of management challenges related to cruise passenger shore excursions. Table 3.4.3-1 highlights the types of stakeholders that informed these research findings. Organizations and individuals are not specified in this report so as to preserve the anonymity of participants.

Table 3.4.3-1 Stakeholders Contact List

Organization	
• Federal government • State government (various agencies) • Municipal government (various agencies) • Tourism consultants • First Nations government representatives • Regional tourism agencies • Cruise line representatives • Tourism visitor centres	• Shore excursion operators (i.e. floatplane operator, helicopter tour operator, fishing charter tour operator, hiking tour operator) • Tourism and recreation councils • Conservation groups • Tourism research agency • First Nations tourism operator

The format and content of interviews with all of the preceding informants was relatively flexible. For individuals that had intimate knowledge of specific shore excursion activities (i.e. tour operators), questions were asked about the design of tours, the spatial distribution of sites, travel times, passenger preferences and logistical issues associated with these excursions. For individuals that did not have a direct role in shore excursion operations, a lesser emphasis was placed on shore excursion activity and more focus was placed on gaining an appreciation of general cruise tourism impacts. In addition, all individuals were asked specific questions about the perceived management challenges associated with shore excursion activity, especially in mid and back-country areas.

Individuals who identified specific challenges were asked further questions about existing mitigation or best management practices. Concerns raised by these individuals, and those gleaned from existing literature collected in Southeast Alaska are discussed in Chapter 4.

3.4.4 Information Integration

Many of the tourism products noted for potential development in the North Coast LRMP planning area were similar to those currently offered in the three Alaskan cruise ports examined for this study. This overlap provided a rationale for using the spatial patterns of shore excursions in Alaska as a basis for modelling potential development patterns in B.C.'s North Coast area. As a result, the typical travel ranges for Alaskan shore excursion products were projected on the land and resource base of the LRMP region. While future excursion patterns within the North Coast region will not necessarily be identical to those experienced in Alaska, it is probable that logistical considerations and cruise passenger preferences will be similar between these specific Alaskan and B.C. regions.

The digital tourism files from both the North Coast capability and suitability reports were used as a base for mapping potential areas suited for shore excursions. A total of 8 maps were generated in the mapping phase of this research- one for each of the shore excursion themes examined. For each shore excursion type, the resource units identified as possessing high capability and lying within the 25% Extended Travel Range for that product were identified. The suitability layers identifying polygons noted as being highly and moderately suitable for tourism development were then added. The system used to distinguish the various zones across the North Coast land and resource base is outlined in the map legend and presented in Appendix 3.

Chapter 4: Findings

4.1 Shore Excursion Trends

The ports of Juneau, Ketchikan and Skagway provide a wide range of shore excursion opportunities for cruise passengers. While traditional activities such as helicopter flightseeing to the Mendenhall Glacier in Juneau, rail trips to the White Pass summit in Skagway, and city tours in Ketchikan are extremely popular, a rapid expansion in the number and diversity of tours offered has been noted. One informant in this study indicated that the number of shore excursions in Juneau expanded from seven, to over thirty in just a few years[4]. Some of the factors that stimulated the creation of these excursion products have planning implications for other jurisdictions such as the North Coast. A few of the major factors include:

Shifts in passenger demographics

The 1999 Vancouver-Alaska Cruise Passenger Study detected few changes in the age characteristics of cruise passengers from those expressed in the 1997 study. However, one source indicated that there is an increasingly noticeable presence of families on Alaskan bound ships[5]. Some cruise lines have oriented their vacations and shore excursions to specific demographic market segments. The implication of this trend is that an increasingly broader range of land and resources are needed to satisfy the diverse interests of cruise ship passengers.

Increasing interest in soft adventure products

Partially related to the preceding trend has been a movement towards the development of more soft-adventure cruise products. Examples of these types of shore excursions include: river rafting, glacier trekking, kayaking, hiking and dog sledding. These activities provided experiences requiring varying degrees of physical and mental involvement by cruise passengers. They enabled visitors to "experience Alaska" in a variety of relatively safe environments.

Requirement for high value-for-money shore excursions

Over the past few cruising seasons, there has been an increased demand for excursions that offer high quality experiences at reasonable prices. Some passengers have become more discerning in their on-shore purchasing decisions, often selecting certain lower cost products while in port[6].

Inclusion of multiple activities within shore excursion packages

Shore excursion packages have expanded to include multiple activities within individual tours. Examples of this trend include: the packaging of helicopter flight-seeing with glacier trekking or dog sledding in Juneau; canoeing with off-road Jeep adventures in Ketchikan; and mountain biking with the White Pass rail excursion in Skagway. Segments of the cruising public sought more adventurous shore excursion products, and such forms of activity fulfilled this desire[7]. In addition, the packaging of multiple activities allowed cruise passengers to participate in a variety of experiences in a single tour.

Provision of front, mid, and back-country tour options

While several tour offerings included experiences spanning five to nine hours, the majority were limited to four hours or less. One key informant stated that many passengers desire the opportunity to participate in mid and back-country excursions, but also want to spend time touring and shopping in the port community[8]. In some cases, these tours were scheduled to provide passengers with opportunities to eat their meals on the cruise ship between shore excursions.

Provision of unique experiences

Cruise passengers were seeking unique shore excursion products. One tour operator suggested that passengers desire wilderness experiences that are out of the ordinary, take people away from their regular life, and provide the opportunity for a truly "spiritual experience"[9]. Such experiences in the Alaskan case were noted to be dependent on the availability and use of high quality, and often charismatic natural and cultural resources.

Role of independent operators

A growing trend amongst some cruise passengers to purchase shore excursions offered by independent tour operators either before or after arriving at the port destination was identified[10]. Independent operators do not have service arrangements with the major cruise lines. As a result, they must rely on securing tour participants who decide not to book a shore excursion through the cruise lines. This results in a somewhat disorganized marketing of tours to cruise passengers when these travellers disembark from the cruise ship at the port destination.

4.2 General Attributes of Shore-Based Tour Operations

The following section identifies some of the broad logistical characteristics of shore-based tour operations. These attributes provide a background for subsequent shore excursion management discussions.

- Port of call time limitations restricted the duration and frequency of shore-based product offerings. Tour operators stated that the length of port visits affects the total number of tours they are able to offer daily, and ultimately the volume of passengers provided with services over the entire cruise ship season.

- Many of the cruise lines operating in specific port destinations used the same tour operators at these ports of call to provide their excursion products. The same tour operator, may offer tours to Royal Caribbean, Princess and Holland America passengers[11].

- A significant proportion of shore excursions in Juneau are sold directly to passengers by cruise lines[12]. These sales occur either before passengers board the ship or during their voyage. In a minority, but still significant number of cases, passengers may purchase products at the port destination.

4.3 Product Overview

Many of the types of shore excursion products offered in Juneau, Ketchikan and Skagway were similar in nature. For example, passengers were able to purchase fishing, kayaking, hiking and air-based adventures in each of the three ports. However, the number of tours offered, the combination of activities, and the proportion of cruise passengers that purchased such tours, differed in each of these destinations.

One major cruise line, Princess Cruises, offered a total of 79 excursion products in the three Alaskan communities examined. Juneau, Ketchikan and Skagway supported the delivery of 30, 21 and 28 Princess cruise products respectively.

4.4 Shore Excursion Types

The shore excursion products examined can be categorized into three groups, depending on their main activity and mode of transportation. Land, water and air-based tours are described in the following sections. Table 4.4-1 provides an indication of the distribution of shore excursion products offered by Princess Cruises in the three Alaskan case study regions.

Table 4.4-1 Distribution of Port Shore Excursions (Princess Cruises 2002)

Tour Type	Juneau	Ketchikan	Skagway
Land-Based	12	8	15
Water-Based	9	9	5
Air-Based	9	4	8
Total	30	21	28

Source: Princess Cruises (2002)

4.4.1 Land-Based Tours

As suggested in Table 4.4-1, Juneau, Ketchikan and Skagway tour operators provided a wide diversity of shore excursion experiences to cruise passengers. Approximately half of the tours examined were land-based. Such tours included: city sightseeing; regional bus tours; attraction based experiences (i.e. hatcheries, gardens and breweries); glacier viewing trips; First Nations cultural heritage visits (e.g. Saxman native village); historical tours (e.g. gold panning, mining history, lumberjack show); salmon bakes; rail excursions; mountain biking, cycling, hiking, nature walks; tram tours; gourmet food tasting; horseback riding; and off-road Jeep adventures.

4.4.2 Water-Based Tours

Many cruise passengers selected water-based excursions linked to remote wilderness areas. The accessed regions were characterized by high quality natural and cultural resources. Motorized and non-motorized modes of water transportation supported the delivery of various tour products. The range of activities available included: wildlife viewing (e.g. whale watching and "wildlife quests"); saltwater sportfishing; fresh-water fly fishing (e.g. floatplane access, lake fishing); kayaking; rafting; canoeing; sightseeing; waterfront cruises; back-country jet boat tours and snorkelling.

The three Alaskan communities investigated in this report have excellent access to shoreline resources. This enables a relatively simple transition for passengers from the cruise port to the staging area for water-based pursuits. The distances travelled, the areas utilized and management issues related to offering these forms of activities are discussed later in this chapter.

4.4.3 Air-Based Tours

Air tours provided the opportunity for cruise passengers to access a wide diversity of land forms including glaciers, coastal mountains, ridges, alpine lakes, and destination lodges. Many cruise passengers typically perceive the actual air travel to be one of the most significant benefits of taking an air tour[13]. The excursions utilized both helicopters and floatplanes to transport passengers. The major cruise lines offered air-based tours in all three of the Alaskan communities examined. Juneau had the largest number, with at least 7 different helicopter and 3 floatplane shore excursions offered to passengers. The major cruise lines did not offer helicopter tours in Ketchikan during 2002, yet this community

promoted at least 5 different floatplane-based activities. Skagway offered at least 4 helicopter tours and 2 floatplane-based excursions to cruise passengers. A sample of air-based tour types is listed in Table 4.4.3-1.

Table 4.4.3-1 Alaskan Air-Based Tour Types

Floatplane Tours	Helicopter Tours
Glacier flightseeing	Glacier flightseeing
Wilderness lodge visits	Glacier trekking
Floatplane fly-fishing	Glacier dog sledding
Wildlife viewing using air access	Hiking utilizing helicopter access

4.5 Cruise Port Destination Positioning

Each Alaskan cruise port of call has attempted to uniquely position itself in the cruise tourism marketplace. Part of this positioning is expressed via the shore excursion products they offer. For example, Juneau had a total of ten air-based shore excursion activities available to passengers, while Ketchikan had five tours. Juneau heavily promoted glacier tour experiences, either through flightseeing or activities such as trekking and dog sledding. In terms of cultural heritage products, both Juneau and Skagway had limited offerings, while Ketchikan had three tours dedicated specifically to showcasing Aboriginal heritage.

While some shore excursions had been in existence for many years, many of the newer products were designed to meet the emerging demands of cruise passengers. These excursion products were designed to fit within the overall destination positioning and image focus the port community was attempting to portray.

Table 4.5-1 provides a summary of the positioning themes for Juneau, Ketchikan, and Skagway, derived from discussions with key informants and a review of existing promotional material.

Table 4.5-1 Positioning Themes for Alaskan Cruise Ports

Destination	Positioning Themes	Theme Related Shore Excursions
Juneau	▪ Capital of Alaska	Deluxe Mendenhall Glacier and Juneau Highlights
	▪ Glaciers	Mendenhall Glacier Helicopter Tour Glacier Flightseeing Adventure Helicopter Glacier Discovery Helicopter Glacier Trek Glacier Panorama and Dog Sled Adventure
	▪ Mining History	Historic Juneau Gold Mine Tour Gold Panning and History Tour
	▪ Nature / Wildlife	Whale Watching and Wildlife Quest Mendenhall Glacier and Wildlife Quest
Ketchikan	▪ Aboriginal Cultural Heritage	Totem and Town Tour Saxman Native Village and Ketchikan City Tour Heritage Town and Country Tour
	▪ Sportfishing	Ketchikan Sportfishing Expedition Guided Alaskan Fishing and Wilderness Trek
	▪ Arts / Cultural Centre (e.g. contemporary artists, First Nations artwork, galleries)	Saxman Native Village and Ketchikan City Tour
Skagway	▪ Gold Rush History	Historical Skagway and Days of '98 Historical Tour and Liarsville Salmon Bake

4.6 Alaskan Land and Resource Use Patterns

This section provides information concerning the distribution patterns of the shore excursions associated with the communities of Juneau, Ketchikan and Skagway. It identifies the areas accessed for cruise passenger activity. It also highlights the distances these tours occurred from each port community, and where possible, the frequency of use for specific areas. The information presented provides a framework for modelling the potential land and resource use patterns associated with cruise tourism development in B.C.'s North Coast LRMP region.

4.6.1 Cruise Passenger Excursion Patterns In Alaskan Case Study Regions

Within and adjacent to Alaskan cruise ship destinations, specific physical, natural and cultural attributes were promoted for visitor use. Key sites were located across the land and resource base proximate to these host destinations.

Maps 1, 2 and 3 provide a visual summary of the spatial distribution of sites used for shore excursions in the three Alaskan port communities. Some sites were used for more than one tour offering. The maps only indicate the spatial extent of these shore excursions. They do not suggest the frequency of use, nor do they identify the volume of tour participants that access these areas.

Skagway provided an interesting example of a port of call, which also utilized an adjacent community as a shore excursion base. While many tours left directly from the community, a number of tours transferred passengers to Haines by catamaran. The two communities are approximately 26 kilometres apart. In a sense, Haines served as a secondary hub of activity, where a total of nine shore excursions were based.

The spatial distribution patterns associated with 8 shore excursion tour themes are presented in Table 4.7.1-1. For illustrative purposes, the findings for floatplane-base shore excursion themes and kayaking are presented in the following section. Similar analysis for the remainder of shore excursion themes was completed. The logistical constraints associated with each product theme are included in Appendix 4.

4.6.2 Floatplane-Based Tours

Due to a limited level of road development, floatplanes have played a vital role in the economy and lifestyle of Southeast Alaska for decades. Their influence is also apparent with respect to cruise tourism, where floatplanes represent both a means of transport and an integral part of the remote wilderness experience that visitors seek. At least 10 separate excursion tours offered by the major cruise lines utilized floatplanes in the three case study ports.

Spatial Distribution

Table 4.6.2-1 summarizes the flight patterns of floatplane excursions offered to cruise passengers by the major cruise lines in Juneau, Ketchikan and Skagway.

Table 4.6.2-1 Spatial Patterns (One-Way Travel Distance) for Floatplane Activities in the Case Study Regions

Floatplane Activities			
Destination	**Relevant Tours**	**Maximum Distance (km)**	**Mean Maximum (km)**
Juneau	3	56	45
Ketchikan	5	73	56
Skagway	2	81	58
	Total: 10	**Maximum: 81 km**	**Mean: 53 km**

While the ten floatplane-based tours range in duration from 1.25 to 7 hours, flight times varied from 30 minutes to 90 minutes (to the site and return). These relatively short flying periods were attributed to several constraints including operating costs, issues related to maximizing floatplane use, and the comfort and convenience requirements of passengers (e.g. relatively cramped seating arrangements and the need for washroom facilities not available on-board)[14]. Other floatplane-based tour constraining factors are presented in Appendix 4.

While the majority of sites used for shore excursions offered by the major cruise lines in Alaska occurred within a 60 kilometre radius of the initial staging areas, two of the excursions identified occurred beyond this range. According to a floatplane tour operator in Juneau, flight times for the entire excursion are normally limited due to flight costs and passenger considerations. An approximate 40 to 48-kilometre radius from the staging area was identified by a key informant for typical tours[15]. However, a slightly farther mean distance was calculated (53 km) based on data for all floatplane-based excursions in the three case study ports. Overall, the maximum one-way distance travelled for the 10 floatplane-based tours offered by the major cruise lines was 81 kilometres from the dock.

Estimated Volume

The 2001 Juneau Visitor Survey revealed that approximately 3% of all cruise passengers visiting Juneau participated in fixed-wing flightseeing activities (McDowell Group 2001). This represented approximately 21,000 passengers during the five-month cruising season. A similar study conducted in Ketchikan in 2001, found that 5% of cruise passengers, or approximately 33,000 individuals, purchased small plane flightseeing excursions (McDowell Group 2002).

Independent Tours and Related Implications

While the majority of passengers purchased tours offered by the cruise lines in Southeast Alaska, there were a number of independent tour operators that also provided flight excursions to cruise passengers. A list of some of these independent tours is provided in Table 4.6.2-2.

Table 4.6.2-2 Sample of Independent Floatplane-Based Tours

Destination	Excursion	Estimated One-Way Travel Distance (km)	Duration (Hours)
Juneau	Pack Creek Bears	47	8
Ketchikan	Misty Fjords and Glacier Tour	112	2½
Ketchikan	Anan Creek	96	3
Ketchikan	Hyder/Bear Viewing	112	5

The majority of tours used sites within relatively close proximity to the port destination. However, some excursions occurred much further away from the port staging area. This is especially the case for tours that offered particularly unique opportunities to view charismatic attractions. The costs of such shore excursions were typically higher than those offered by the cruise ship operators.

4.6.3 Kayaking-Based Excursions

Kayaking has become an increasingly popular activity for cruise ship passengers visiting Alaskan destinations[16]. Such soft-adventure products cater to a wide range of cruise passengers.

Spatial Distribution

The primary use areas for the 5 kayak-based tours examined were located from 2 to 30 kilometres away from the port area. However, tour participants did not necessarily kayak the entire distance within this range. For example, participants in one Juneau-based excursion travelled by bus to Auke Bay, approximately 16 kilometres from the cruise ship dock. From this location, passengers set off on their kayaking adventure. A similar process occurred for a Ketchikan-based tour. There, passengers were bussed to a staging area and then transferred by inflatable raft to an island where they began their kayaking adventure. Similarly, a Skagway tour utilized the White Pass and Yukon Railroad to transport passengers to a glacier lake, where visitors paddled for 50 to 60 minutes.

In these cases and others, the furthest site that was utilized by any of the kayak excursions was located approximately 30 kilometres from the port area. The mean maximum one-way distance travelled for all of the kayak tours was approximately 20 kilometres from the cruise ship dock.

Estimated Volume

Approximately 2% of the cruise passengers that travelled to Juneau in 2001 participated in a kayak excursion while in that destination (McDowell, 2001). This represented about 14,000 passengers during the 2001 cruising season. In Ketchikan, approximately 1% of cruise passengers, or roughly 6600 individuals, purchased kayaking tours in 2001 (McDowell, 2002). According to one key informant, kayaking tours in Ketchikan typically include 10 participants, with 8 to 10 groups accessing key sites per day [17].

4.7 Summary

The cruise ports of Juneau, Ketchikan and Skagway play key roles in the Alaskan cruise

ship industry. As the volume of passengers visiting each of these ports has expanded over the past two decades, the variety of shore excursions has increased. During the past ten years, new and innovative tours have been developed, in addition to the refinement of existing shore excursions.

Eight major tour types existed in the Alaskan case study areas. Many of these tours were multi-modal, incorporating a range of activities and types of transportation in one tour. Table 4.7.1-1 provides a summary of the spatial distribution of these tours in each of the Alaskan ports examined.

A range of key concepts emerged from this review of three Alaskan cruise ports. These are highlighted in the paragraphs below:

- **Tour duration and travel distances:** Most of the shore excursions in Juneau, Ketchikan and Skagway were limited to 4 or less hours in duration due to logistical and passenger considerations. However, a small number of tours did exceed 4 hours in length and focussed on visiting particularly charismatic sites and backcountry regions well removed from the ports.

- **Land and resource use.** Many shore excursion activities were focussed in areas that contained high quality natural, cultural and physical resources. Maintaining the environmental and cultural integrity of these resources was essential to ensuring the ongoing sustainability of tour operations.

- **Multiple activities during a single shore excursion.** Shore excursions were often multi-faceted in character. A growing number of excursions involved the use of multi-modal transportation methods (e.g. rail excursions with kayaking).

- **Diversity of excursion products.** Juneau, Ketchikan and Skagway had all expanded their range of shore excursions to suite the interests and preferred spending behaviours of new cruise passenger markets in the recent past.

- **The "Alaskan Experience"**. Most cruise passengers in Alaska were seeking the "Alaskan experience". Comprised of shore excursions that access high quality resources, these tours provided cultural and historical interpretations of the region, and included opportunities to view wildlife.

Table 4.7-1 Spatial Patterns of Alaskan Cruise Passenger Shore Excursions

Activity	Number of Tours Examined	Maximum One-Way Travel Distance (km)	Mean Maximum One-Way Travel Distance (km)	25% Extended Travel Range (km)
Helicopter-Based Excursions	12	58	34	73
Floatplane-Based Excursions (Cruise Lines)	10	81	53	101
Floatplane-Based Excursions (Independent Tours)	4	112	92	140
Hiking Tours	12	53	19	67
Marine Wildlife Viewing Tours (Cruise Lines)	15	42	24	52
Marine Wildlife Viewing Tours (Independent Tours)	2	86	84	108
Terrestrial Wildlife Viewing Tours (Cruise Line)	3	50	39	62
Terrestrial Wildlife Viewing Tours (Independent Tours)	2	112	104	140
Kayaking Tours	5	30	20	38
Rafting and Canoeing Tours	7	42	20	52
Rail Tours	4	30	26	38
Destination Lodge Tours	4	35	27	43
Mountain Biking Tours	7	30	19	38
Land-Based Tours	35	159	25	199

4.8 Land and Resource Challenges: The Alaskan Experience

The following section identifies environmental and social management issues related to cruise ship tourism development in Alaska. It focuses on issues related to land and resource use in mid and back-country areas. Mitigative strategies that have been developed in these jurisdictions are included in Appendix 5.

4.8.1 Flightseeing Noise

Helicopter and floatplane noise has been a concern for many residents in the City and Borough of Juneau (CBJ) for more than a decade (Egret Communications and ARA Consulting Group 2001). While not all of the aircraft noise in the region is generated by tourism operations, a significant proportion is related to cruise passenger activity. Noise impacts within the downtown core have received a significant amount of attention, yet concerns have also been raised about impacts on residents living along rural flight routes, individuals using mid and back-country areas for recreation, and sensitive wildlife.

4.8.2 Helicopter Landings

The Tongass National Forest (TNF) accounts for roughly 80% of the land base in Southeast Alaska. While a portion of the TNF is held privately, much of the remaining 20% is under the control of various state, municipal and federal agencies. The regions that surround Juneau are primarily within the boundaries of the Tongass National Forest. The volume of individuals seeking helicopter flightseeing excursions within this region is primarily attributed to growth in the number of cruise passengers purchasing helicopter-based tours. Disturbance to other recreationists and users of the land base has forced a re-examination of permitted landings that are primarily related to cruise ship-based tour groups.

4.8.3 Shoreline Use

An increasing number of individuals are using Alaskan shoreline areas for both commercial and non-commercial recreation uses. Conflicts over the use of these coastal resources have emerged amongst and between sport fishing charters, sea kayaking outfitters, bear hunting guides, and residents who use the region for recreational activities (Behnke 1999). The increased use of shoreline areas has raised concerns about protecting the integrity of the experiences that are accessible to all user groups. In addition, physical impact issues have been raised by some users (USFS 2001a).

4.8.4 Jurisdictional Issues

Misty Fjords National Monument (MFNM) is located approximately 22 air miles (35 kilometres) from Ketchikan, Alaska. The National Monument encompasses an area of approximately 2.3 million acres and comprises land that is primarily wilderness in character. As cruise passenger visitation to Ketchikan has increased, the number of people visiting Misty Fjords by boat and by floatplane has also grown. Combined with use by residents of Southeast Alaska and other non-cruise ship passengers, activity levels within specific areas of MFNM have become a concern for many stakeholders (USFS 2001b).

While regulating the number of individuals to specific areas may be desired by some individuals, the jurisdictional responsibilities and management of the land and water resources in this area is complex (USFS 2001b). The desire of many groups is to provide opportunities for both commercial and non-commercial recreation. Consequently, maintaining the high quality resources of the area has generated a strong interest in

creating collaborative management strategies amongst many of the agencies responsible for managing these areas (USFS 2001b). The co-operative agreements that this effort will establish are designed to promote more efficient regulation and monitoring. Such a process will hopefully resolve legislative barriers to effective land and resource management.

4.8.5 Trail Use and Management

The City and Borough of Juneau (CBJ) has developed an extensive network of trails within its boundaries. During the 1990s, these trails were especially popular routes for residents. With high quality trails accessible from the city, and a growing interest in outdoor adventure from cruise passengers, shore excursions involving the use of these hiking trails emerged in the late 1990s[18]. This resulted in an increasing level of use conflict between residents and commercial tour operators competing for the same limited resource. Collaborative strategies have helped resolve many of the outstanding conflicts.

4.8.6 Marine Wildlife Viewing

Over the past decade, scientists in Alaska have become more concerned that whale watching activity in Southeast Alaska is threatening the health and safety of the region's whale population (NMFS 2000). These concerns have been accentuated by a growing number of cruise passengers seeking whale watching excursions.

An increasingly prominent example of such concerns is illustrated at Point Adolphus, a region frequented by cruise passengers for humpback whale watching activity. Frequently, cruise ships, whale watchers, and private and commercial fisherman are

found in close proximity to the whales in this area. In addition to discussions concerning habitat degradation and social conflicts, issues about increased levels of stress on these mammals have been raised. The National Oceanic and Atmospheric Administration (NOAA) Whale Watching Regulations represent a first step in managing whale watching activity in areas of concern (NFMS 2000). Further research and co-operative management initiatives are being developed.

4.8.7 Terrestrial Wildlife Viewing Activities

Visitors to Southeast Alaska have traditionally been interested in observing wildlife in their natural habitat. This is especially the case with respect to bear viewing. While in the past, bear viewing activity occurred incidentally, there has been an increasing level of visitation focussed specifically on visiting sites frequented by bears (Behnke 1999). Several cruise passenger tours have been developed and many existing operations have expanded to accommodate the increased demand for bear viewing activity.

The growing demand for wildlife viewing is beginning to compromise the wilderness conditions that are required to support healthy bear populations in Southeast Alaska. As the level of use increases in the areas where bears congregate, there is an increased potential for bear-human conflict (Behnke 1999).

Sections 4.9 and 4.10 identify a range of other land and resource management issues identified in the Alaskan case study regions. These issues highlight the range of challenges that have arisen in existing Alaskan cruise ports, and which could potentially arise in other cruise destinations such as the North Coast.

4.9 Other Land and Resource Management Cruise Industry Issues

Table 4.9-1 Related Land and Resource Management Issues and BMPs

Category	Location	Issue	Best Management Practice	Source
Biotic Resources: Fish	Sitka	▪ Increasing competition for halibut stocks within close proximity of the town of Sitka	▪ Sitka Sound Local Area Management Plan ▪ A plan developed to reduce competition for halibut stocks by commercial fisherman, charter boat operators, personal use fisherman and non-guided sport fisherman. ▪ Restricts commercial fishing boats and charter boats from halibut fishing in Sitka Sound to allow personal use fisherman and non-guided sport fisherman the opportunity to catch halibut in the waters near Sitka. ▪ Catch limits and boat size restrictions are in effect for the remainder of the year throughout the sound	Juneau NGO representative http://www.fakr.noaa.gov/sustainablefisheries/lamp/sslamp.htm
Land Management	Tongass National Forest	▪ Management guidance for the Tongass National Forest (which includes much of the lands surrounding Juneau, Ketchikan, and Skagway)	▪ Tongass National Forest Land and Resource Management Plan (LRMP) ▪ Identifies Land Use Designations (LUDs) for the land base to ensure acceptable activities and limits to use.	USFS Ketchikan representative http://www.fs.fed.us/r10/
Commercial Recreation	Southeast Alaska	▪ Increasing conflict between commercial recreation and other users for high quality recreational experiences	▪ Shoreline/Outfitter Guide Analysis	USFS Sitka representative www.fs.fed.us/r10/tongass/

4.10 Related Issues Raised by Key Informants

Table 4.10-1 Related Land and Resource Management Issues Raised By Key Informants

Category	Location	Issue	Best Management Practice	Source
Hiking Trails	Juneau	Erosion of hiking trails due to excessive use	Hardening of trail sites and the development of slip-proof boardwalks at key sites However, some informants raised concerns about the increasing number of hardened surfaces in mid and back-country areas. Such actions were suggested to decrease the naturalness an area, thereby affecting overall experience quality for users.	Juneau NGO representative
Garbage	Juneau	▪ Deposition of garbage at key sites	▪ CBJ Tour Operators Best Management Practices States that garbage at use sites is the responsibility of the tour operators. Regardless of the source of the garbage, operators should collect all visible waste.	Juneau helicopter tour operator http://www.juneau.org/tourism2/ppcpackets/2002_03_18/02finalbestmgmt.pdf
Waste Generation	Juneau, Skagway	▪ Waste generated by sled-dogs used for glacier dog-sledding activities	▪ Tour operators who conduct glacier dog sledding activities are required to collect all waste generated by the dogs, and remove it from the glacier by helicopter on a daily basis.	Juneau helicopter tour operator

Category	Location	Issue	Best Management Practice	Source
River Bank Erosion	Haines	▪ Concern that the level of commercial jet boat traffic has exceeded those anticipated in the Chilkat Eagle Preserve Management Plan ▪ Erosion of river banks in some areas due to wave action	▪ The Alaska Department of Fish and Game supports research to establish whether jet-boat activity is causing damage to riverbanks. A 50-foot buffer from the riverbanks of the Chilkat River is required by tour operators to reduce erosion through caused by wave action.	USFS representative Chilkat Bald Eagle Preserve Management Plan
Commercial Use of Resident Recreation Areas	Juneau	▪ Preservation of recreation sites solely for residents	▪ City and Borough of Juneau Best Management Practices 2002: Tour operators agree not to use specified sites for tour activity unless they have obtained a special permit to do so (primarily recreation sites in close proximity to Juneau, i.e. State and City parks).	Juneau municipal government representative
Biotic Resources: Fish	Sitka	▪ Increased fishing pressure on halibut and salmon stocks by visitors (including cruise passengers)	▪ Increased efforts towards encouraging catch and release forms of fishing by cruise passengers participating in fishing excursions.	Sitka NGO representative

Category	Location	Issue	Best Management Practice	Source
Protection of Sensitive Sites	Wrangell	▪ Impacts of increased recreation use on cultural resources ▪ E.g. Rock carvings at Petroglyph Beach in Wrangell are beginning to erode and deteriorate as visitors do chalk or pencil rubbings.	The State, after consultation with stakeholders (Tlinglit elders, city officials, residents) made copies of the petroglyphs to protect the original works.	Behnke 1999
Multiple Uses	Tongass National Forest	Increasing use of the Tongass National Forest by cruise visitors and other commercial recreational users, combined with land use designations restricting the number of individuals on-shore at a given time to 12, has raised issues for small cruise vessels (pocket cruisers)	▪ No BMP was stated. However, zoning regions for use by pocket cruise vessels may need to be considered to support this industry.	Behnke 1999
Tourism and Subsistence Use	Southeast Alaska	▪ Concern has been expressed about the impacts of increased tourism on local subsistence use (e.g. sportfishing in Sitka)	Groups within Haines, Klukwan, and the Sitka Tribe have opposed cabin development on the Chilkat River and the construction of lodges at Baranof Island. ▪ These examples suggest that careful consideration must be given to the location of infrastructure for tourism activities. As such, key sites for subsistence activities can be avoided.	Behnke 1999

4.11 Potential North Coast Cruise Ship Tourism Spatial Development Patterns

The potential spatial patterns for cruise passenger activities within the North Coast are presented in the following section. These patterns are based upon a combination of spatial trends for specific activities in the Alaskan cruise ports of Juneau, Ketchikan and Skagway, and tourism inventory data contained in the NCTOS Capability (2000) and Suitability Reports (2001). This section does not attempt to locate the specific sites where activity will occur, nor does it suggest the types of activity that should be developed in this region. Its purpose is to identify the high capability and suitability areas for specific activities that might occur within typical cruise passenger excursion travel ranges. A summary of the research findings associated with eight different shore excursion products is presented in Table 4.11-1. Potential spatial patterns for kayaking and floatplane-based excursion activity are used in the text to illustrate the application of GIS generated information for spatial planning used in this research project. Map 4.11-1 identifies the location of the 17 resource areas used in this study. A description of each area is included in Appendix 6.

Map 4.11-1 North Coast Resource Areas

(see next page)

Source: NCTOS 2000. Used with permission.

Figure 4.11-1

FOREST AND FISHERIES TOURISM OPPORTUNITIES STUDEY FOR THE NORTH COAST FOREST DISTRICT - RESOURCE AREAS

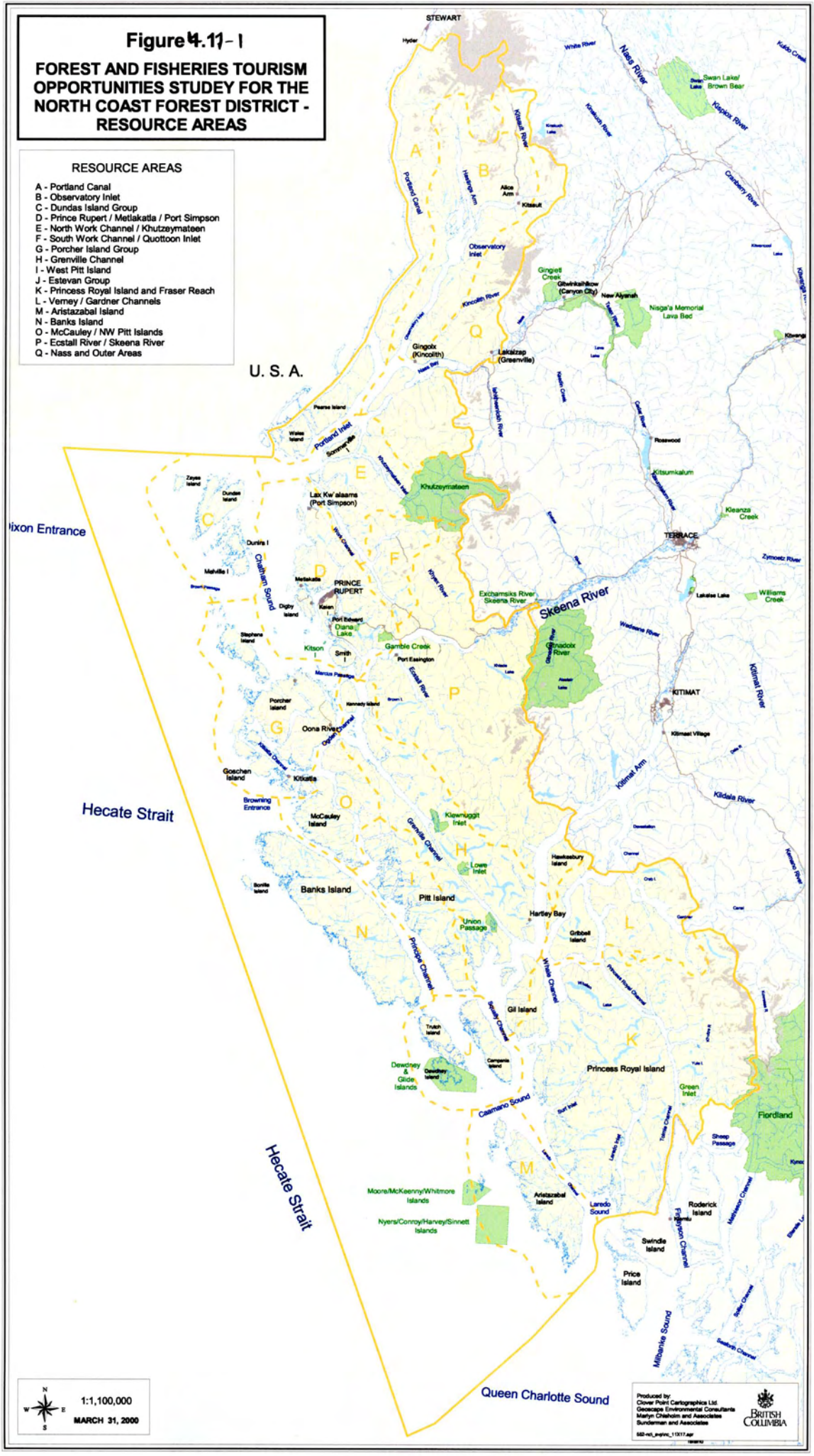


Table 4.11-1 Potential North Coast Cruise Passenger Activity Areas

Activity	Potential Resource Areas (High Capability)	Potential Resource Areas (High and Moderate Suitability)	Map
Helicopter-Based Excursions	A, D, E, F, G, P, Q	See map for location	4
Floatplane-Based Excursions (Cruise Lines)	A, B, D, E, F, G, P, Q	Section 4.11.1	5
Floatplane-Based Excursions (Independent Tours)	A, B, D, E, F, G, K, L, Q, P	Section 4.11.2	5
Hiking Tours	C, D, G H, O, P (Long-term potential)	N/A	6
Marine Wildlife Viewing Tours (Cruise Lines)	C, D, E, G	See map for location	7
Marine Wildlife Viewing Tours (Independent Tours)	C, D, E, G	See map for location	7
Terrestrial Wildlife Viewing Tours (Cruise Line)	D, E, F, H, P, Q	See map for location	8
Terrestrial Wildlife Viewing Tours (Independent Tours)	B, D, E, F, H, K, L, P, Q	See map for location	8
Kayaking Tours	C, D, G	C, D, E, F, G	9
Destination Lodge Tours	C, D, E, G	See map for location	10
Mountain Biking Tours	D, G	N/A	11

4.11.1 Potential North Coast Floatplane Excursion Patterns

While there are many natural features suitable for floatplane tours in mid and back-country areas in Alaska, the majority of these were not utilized due to logistical limitations associated with most cruise passenger excursions[19]. Some of these limitations

included the increasing costs of floatplane operations as travel distance and flight times were expanded; the need for tour operators to maximize the number of tours offered during relatively limited port of call durations; and the diverse needs and desires of cruise passengers. A compilation of other logistical considerations is provided in Appendix 4.

Capability Analysis

The NCTOS (2000) identified 10 regions that are capable of supporting air touring products within the North Coast region. Resource areas capable of supporting air touring excursions (NCTOS 2000) include: Portland Canal (A), Observatory Inlet (B), Prince Rupert, Metlakatla, Port Simpson (D), North Work Channel/Khutzeymateen (E), South Work Channel/Quottoon (F), Porcher Island Group (G), Ecstall River/Skeena River (P), and the Nass and Outer Areas (Q). The identified 8 sites are located within the typical travel ranges for floatplane-based tours offered by the *major cruise lines*. However, all areas within the North Coast LRMP region are within the typical travel ranges of fixed-wing excursions offered by *independent tour operators*. In addition, areas including the Queen Charlotte Islands and regions to the east (Terrace and Kitimat) fall within this range.

Suitability Analysis

The North Coast encompasses many areas that possess high quality natural features suited to air touring. According to the 2001 NCTOS tourism suitability report, "the rugged coastline, dramatic peaks of the coastal mountains, the steep fjords, the scattered lakes, rivers and overall scenery provide a tour with a variety of scenic experiences and air access points of interest." The NCTOS (2001) suitability assessment indicated that

air-based circle tours are best conducted within a 60-kilometre radius of the point of departure. These tours allow tourists the opportunity to view surrounding landscapes (e.g. rugged coastline, lakes, or the coastal mountains) while experiencing flying. Within a 60-kilometre radius of the port of Prince Rupert, regions of high suitability (NCTOS 2001) for circle tours include:

- Portions of the Inside Passage
- Nass River
- Glaciers of Mount Finlay
- Porcher, Dundas, Melville and Stephens Islands
- Outlets of the Nass and Ecstall Rivers

Map 5 (Appendix 7) identifies the regions identified in the NCTOS (2000 and 2001) as possessing particularly high capability and suitability for flight seeing tours. These sites all occur within typical Alaskan travel ranges for floatplane excursion activity. However, if floatplane tours are developed, some cruise passengers may be willing to pursue more exclusive and costly excursions that travel greater distances from the port to view particularly "charismatic" locations.

4.11.2 Potential North Coast Kayaking Activity Patterns

A wide range of areas within the North Coast region has been identified as possessing high capability and suitability for kayaking tours (Map 9-Appendix 7). There are already a number of existing tour operators in the North Coast region that could offer kayak excursions to cruise ship passengers.

Tours leaving directly from Prince Rupert could potentially use sites within close proximity of the port. These areas include highly suitable sites (NCTOS 2001) around Kaien Island and the beaches of Digby Island. However, a range of other areas along the coast has been identified as being suitable. These may be accessed through a combination of bus, boat, or aircraft. The areas of high capability in the North Coast (NCTOS 2000) that are located within the typical travel ranges for such activity are listed in Table 4.11.2-1.

Table 4.11.2-1 Potential Cruise Tourism Resource Use Areas for Kayaking in North Coast LRMP Region

Unit	Name	Associated Communities
C	Dundas Island group	Port Simpson, Metlakatla
D	Prince Rupert / Metlakatla / Port Simpson	Prince Rupert, Metlakatla, Port Simpson
G	Porcher Island Group	Kitkatla, Oona River

The 2001 NCTOS Tourism Suitability report identified regions C, D, E, F, G, I, J, L and M as possessing high quality resources for kayak-based tourism. However, only C, D, E, F, and G are within Alaskan travel ranges.

The expected travel range for kayaking tours is relatively limited in geographic space (38km). In the North Coast region some tours could be expected to depart from Prince Rupert or a neighboring island. However, there may be potential for linkages with other product offerings, such as boat touring, or wildlife viewing. The distribution of potential tours may vary significantly depending on the type of product developed. The appropriateness of such excursions in specific areas will need to be examined by key stakeholders involved with the LRMP process.

In addition to the areas identified as suitable in the North Coast Tourism Opportunities Study processes (2000 and 2001), the Prince Rupert-Terrace corridor may provide increased access to areas located outside of the North Coast LRMP planning area. However, according to a key informant, sections of the Skeena River may not be suitable for kayaking, canoeing or rafting due to hazardous tidal influences and other water flow issues.

The discussion of floatplane and kayak-based excursion activity has demonstrated how GIS was used in this project. Space limitations preclude a similar review for each of the six remaining tourism products in this report. The spatial patterns for each of the eight types of tourism products examined in this study are presented in Maps 4 to 11 included in Appendix 7.

Chapter 5: Management Implications

5.1 Introduction

The introduction of the large vessel cruise ship industry to the North Coast of British Columbia is perceived as a significant opportunity for the region to diversify its local economic base. While this complex form of tourism has provided a range of economic, social, and environmental benefits for port communities in Alaska and in destinations throughout the world, stakeholders in the NCLRMP will have to address a range of management challenges.

The North Coast region supports magnificent landscapes, unique cultural histories and a host of high quality physical and natural resources. Shore excursion development may be based on any of these diverse themes. A large proportion of tours would be expected to utilize sites in front-country areas. However, many would also be centred in mid and back-country locations. The long-term success of these tours will be dependent on the sustained quality of the area's natural resources and other charismatic attributes in the North Coast region.

This chapter highlights the potential management implications of cruise tourism on the land and resource base of the North Coast. The spatial patterns and management challenges identified in three Alaskan communities serve to inform these projections. The discussion is undertaken with specific reference to considerations for the North Coast LRMP.

The first section of this chapter discusses the implications of the projected shore excursion spatial patterns. The second section identifies specific land and resource management challenges that may need to be addressed. The final section presents a discussion of the role for GIS generated tourism information in helping stakeholders understand the potential impacts of the cruise passenger activity on mid and back-country areas of the North Coast.

5.2 Spatial Implications of Cruise Passenger Activity

A set of unique spatial patterns of cruise ship shore excursion activity emerged in this research. The planning implications of these trends are discussed in the following paragraph.

5.2.1 Spatial Distribution

The spatial patterns of shore excursion activity developed through this research suggest that there is typically a significant concentration of tour activity in relatively close proximity to the port community. This trend may have implications for existing users of the land and resource base. Shore excursion activity may conflict with resident recreation and other non-recreation oriented activities.

While some of the shore excursion activities are expected to be concentrated within a relatively small geographic area, others could occur across a wider landscape. The spatial analysis identified areas where stakeholders might wish to focus their planning efforts, designate land use priority, and define resource protection for tourism and recreation values.

5.2.2 Integrated Land Uses

This research did not identify potential locations for shore excursion activity at the site level. Such a process is beyond the scope of a regional land use planning process such as the North Coast LRMP. However, the implications of land use planning at this scale is that *resource units*, rather than sites, are identified as being capable or suitable for shore excursion activity. Future planning efforts to allocate use of the land base should recognize that entire zones may not be needed to support tourism-based products. The projected travel ranges suggest areas within which specific resources important for tourism exist. The high tourism potential areas within these expected travel ranges should be protected for their shore excursion values by NCLRMP stakeholders. There, decision-makers need to evaluate the tradeoffs between preserving specific areas for tourism use versus permitting landscape-altering operations on the same land base. They might also suggest management actions for non-touristic activities that allow the co-existence of values needed for shore excursion and recreational pursuits.

5.2.3 Logistical Issues

The spatial patterns of shore excursions developed through this research were identified through discussions with individuals offering shore excursions to Alaskan cruise passengers. The insights of these individuals provided the logic behind the existing length of tours, reasons for the use of specific sites, and activity level requirements included in specific excursions. While the vast majority of the Southeast Alaska land base possesses high quality resources, only certain areas are used for shore excursions due to these operational constraints. Many of the logistical, administrative, and market constraints identified by shore excursion operators are listed in Appendix 4.

The North Coast region's current development plans are to serve as a port of call for Alaska-bound ships. As a result, the port of call durations, and most likely the shore excursion limitations could parallel those experienced in Alaskan cruise ports. Shore excursion spatial patterns, supported by consideration of these logistical factors can help focus LRMP stakeholders on identifying and protecting those areas within the local logistical constraints for development.

5.2.4 Access Corridors

The projected spatial patterns for cruise excursion activity suggest that areas well beyond the bounds of urban centres have potential for tourism development. Access to many of the locations outside of local communities will be primarily by boat, helicopter, or floatplane. This is due to the unique geographic attributes of the North Coast region. While specific sites should be protected from negative landscape alteration to support tourism activity, consideration will also need to be given to the designation of travel corridors suited to providing access to these sites. While not all cruise passengers will demand pristine landscapes during their shore excursions, there is an expectation of high visual resource quality. Industrial activity and tourism need not be mutually exclusive. For example, certain logging activity may introduce limited visual disruptions, while conducting harvesting activity and still providing opportunities for shore excursions. Stakeholders will need to establish the key sites for cruise excursion activity and identify important access corridors. Providing some level of protection for tourism values within these transit corridors will support a higher quality tourism experience for cruise passengers. Additionally impacts on wildlife, recreationalists and other stakeholders can be minimized through effective tourism planning.

5.3 Specific Land and Management Issues

Most of the activities that have been identified as shore excursion development opportunities in North Coast mid and back-country areas will depend on access to natural, physical, and cultural resources. While specific tourism developments suited for cruise passenger visitation already exist in some communities in the North Coast planning area, cruise ship tourism-specific development and related infrastructure have not occurred.

Large vessel cruise ships, such as those which currently access ports in British Columbia and Alaska, deliver a significant number of individuals to the destination land base for a relatively short period of time. The high volume, pulse-like visitation of cruise passengers has significant implications for management of mid and back-country areas, as witnessed in Alaskan jurisdictions. Some of the potential impacts are discussed in the following section. Throughout, there is significant reference to the need for collaborative-agreements between stakeholders in order to address these management challenges. Such agreements require a diverse set of stakeholders to share perspectives and generate creative solutions. Regulations can support these efforts, yet they alone will not be sufficient to ensure the integrity of the operating land base.

5.3.1 Helicopter and Floatplane-Based Activity Impacts

Helicopter and floatplane activity for flightseeing activities and access to the land base is being considered by some stakeholders in the North Coast region. This form of activity provides a highly attractive opportunity for cruise passengers to view the dramatic resources of the region and access the unique features. However, it also has the ability to

introduce adverse noise impacts and disrupt existing ground-based activities. With significant growth in the number of air-based tours, even the most silent aircraft can impart cumulative effects on the host region.

Recommendation: Stakeholders in the North Coast region should develop a set of acceptable flight routes. Through a collaborative process, air-based tour operators can identify the most desirable routes to access specific locations. Additionally, stakeholders can identify sensitive wildlife or existing use areas where aircraft noise could introduce a negative impact. For tours that access the land base, agreements need to be reached as to the acceptability of using specific locations for large-scale tour operations. Through the designation of permitted helicopter and floatplane landing areas for commercial shore excursion activity, a degree of certainty can be achieved for those operating tours, and those affected by its activities.

5.3.2 Site Degradation

High volume tourism activity at specific locations may cause degradation of the host sites. Physical damage can include erosion, trampling of vegetation or disturbance to cultural resources. Over time, it is possible that these high quality tourism locations could loose their attractiveness for subsequent tourism activity.

Recommendation: A range of site improvements and visitor management strategies can be implemented to reduce the resource impacts of large-scale tourism. These improvements do not necessarily have to detract from the overall experience. Activities such as trail hardening can be completed using techniques to maintain the natural appearance of the location. By developing a series of well-designed locations for tour

activity, wide-spread site degradation can be limited. In addition, strategies to manage visitor use patterns can be implemented for locations where adverse impacts have been noted. Through the development of a monitoring program, unwanted alterations in site characteristics can be identified and subsequently mitigated.

5.3.3 Integrated Land Use Planning

The viability of much of the tourism activity in British Columbia is dependent on access to a high quality natural resource base. However, this can be said for many different users of the land and resource base in the North Coast region. Tourism activities have the ability to impact existing users. Conversely competing users can affect the ability of tourism operations to function. Planning for tourism expansion, and especially cruise ship shore excursions is a vital step in supporting a viable industry while protecting the land and resource base.

Recommendation: The NCLRMP provides an opportunity for tourism stakeholders to incorporate their interests into the land use plan. More specifically, there is an opportunity to protect specific areas for tourism activities. Such designations would not necessarily exclude other resource users from using these areas. However, in many cases resource extraction activities in areas where tourism operates is considered inappropriate. LRMP stakeholders should identify the appropriate level of use, the permitted activities in that zone, and acceptable modes of access. Integrated use of the land base can occur, but the type of industrial activity, the timing of operations events, and the overall level of disruption must consider tourism values in their resource use decisions. In tourism focus areas, tourism values should be given a very high level of priority. Through such a

process, high value tourism areas can be protected while supporting the possibility of other suitable resource uses. Protection for access corridors and flight patterns may also need to be considered.

5.3.4 Resident Recreation Areas

Conflict in Alaskan port communities has arisen due to unexpected crowding in key recreation areas. These sites are used for recreational activities such as hiking, camping, and fishing. Sheltered bays and high quality landscapes provide the backdrop for resident recreation activity in these areas. As the volume of cruise passengers has increased, more and more tour groups are also gaining access to these areas. This has created conflict where commercial tourism and recreational activities overlap. From a land use planning perspective, the physical impacts of poorly planned land use will become apparent over time. However, for recreationists who may be forced to share their recreation sites with large groups of cruise passengers, degradation of the recreation experience may be a more significant issue in the near future.

Recommendation: The designation of specific sites, moorings, or trails for non-commercial recreation activities may serve as a tool to support the sustained availability of high quality recreational experiences for residents. Examples of such management strategies and tools suited to accommodating activity in such high use areas include: the permitting of commercial recreation for each of 38 different shoreline use zones in Southeast Alaska (A5.3); the designation of areas where commercial tours are not permitted (although in primarily an urban context for Juneau); and the identification of hiking trails for varying types of acceptable recreational use. Although a significant

amount of activity may occur in the NCLRMP area, the identification of areas for recreational use only will support resident's needs for access to high quality recreational areas.

5.3.5 Wildlife Viewing Activity

Wildlife viewing activities, such as bear viewing and whale watching, are increasingly popular shore excursion activities for cruise passengers. Cruise passengers are willing to pay significant amounts for the opportunity to view wildlife species. Various measures can be implemented to mitigate some of the adverse impacts of such activities.

Recommendations: Mitigation techniques and best management practices have been developed for wildlife viewing in various locations across British Columbia and Alaska. Codes of conduct for whale watching (Section A5.6), wildlife viewing towers for bear watching (Section A5.7), and wildlife buffers for air-based tours (Section A5.1) have all been developed. The adaptation of principles from these initiatives and voluntary visitor management programs taken by tour operators can support more sustainable forms of wildlife viewing activity.

5.4 Related Recommendations

North Coast stakeholders have the ability to learn key lessons from other communities which have decided to participate in cruise tourism development. Some of the recommendations that relate to NCLRMP issues are derived from management initiatives undertaken by other tourism receiving destinations.

Environmentally sensitive tour operations. By implementing a training program for tour operators and guides, a basic standard of environmental consciousness and behaviour related to shore excursions can be achieved. Ensuring environmentally sensitive operations can help to preserve the resources of the region and support high quality tourism experiences.

Monitoring programs. Developing monitoring programs in the NCLRMP region can ensure that adverse impacts on the land and resource base are identified before significant damage occurs. Monitoring of the effectiveness of selected visitor management actions is an important role for host destination organizations. If negative impacts are identified, corrective action such as temporal or spatial closures can be implemented for specific areas.

Ongoing research. The demographics and preferences of cruise passengers are not static. Over the past few years, the average age of Alaskan cruise passengers has decreased. Simultaneously, the number of adventure products, including kayaking, rafting and glacier trekking has increased. A frequent monitoring program will enable stakeholders to track trends and adjust product delivery if required. Additionally, where emerging market preferences and potential resource impacts are identified, planning efforts can be focussed.

5.5 GIS Generated Tourism Information

The existence of spatially-referenced tourism resource information for the North Coast region served as a valuable data source for this research. The information contained in the NCTOS 2000 and 2001 reports identified the spatial distribution of existing features and

facilities as well as those areas capable and suitable for future tourism development. As opposed to tabular data, where these characteristics are highlighted, GIS-based products allow stakeholders to understand the spatial relationships between key features and potential product linkages. However, information concerning tourism attributes and infrastructure does not remain static over time. Landscapes may be altered, facilities added or removed, or new product preferences identified.

Recommendation: The NCTOS capability and suitability reports provided relevant digital tourism information for the NCLRMP regional planning process. While the completion of the LRMP will provide direction for the use of the land and resource base when completed, its strategic nature supports site level plans where required.

The availability of reliable tourism information for the North Coast land base will enable more informed decisions. The existing tourism information base has been strengthened through the completion of the capability and suitability reports. Stakeholders in the North Coast, including government, tourism operators, First Nations and residents should commit to periodically updating the GIS tourism information base that currently exists in relatively user-friendly GIS format. With the introduction of large scale tourism development in the near future, these information resources will remain critical in mitigating potential impacts.

Chapter 6: Conclusion

This research focussed on understanding the potential development patterns of tourism development in the North Coast LRMP region as a result of the introduction of the large vessel cruise ship industry. This research used a GIS application to support spatial planning and serve as a visual tool. These efforts were undertaken to support better decisions in the area's ongoing land use planning process.

The primary research questions guiding this work included:

The following sections summarize the finding of this work in relation to these research questions.

1. What are the existing spatial patterns and resource management implications of cruise passenger activity in the mid and back-country areas of Alaskan cruise ports?
2. What are the potential spatial patterns of cruise passenger activity on the mid and back-country land and resource base of British Columbia's North Coast?
3. What are the potential resource management implications of cruise tourism for British Columbia's North Coast mid and back-country regions?
4. How can GIS be used to integrate existing Alaskan cruise industry trends and shore excursion development patterns with North Coast tourism inventory information to identify potential travel patterns and management implications in the mid and back-country areas of the North Coast LRMP plan area?

6.1 Spatial Planning

The spatial planning segment of this work revealed that a wide diversity of shore excursion products is currently offered to Alaskan cruise passengers. While some shore-based tours primarily use front-country areas, many access the mid and back-country.

The findings of this research identified a set of spatial patterns for each of eight different cruise tourism product types. Distinct spatial patterns for each of the product types suggested important planning implications for future developments of this kind.

The North Coast region currently plans to develop a broad range of shore excursion opportunities to cater to cruise passengers visiting the region. As in Alaska, some of these products will be offered in the city of Prince Rupert. However, others will access the unique and charismatic features of the areas outside of this front-country territory. The projected spatial patterns presented in this research highlighted possible land and resource areas most appropriate for shore excursion activity (Maps 4-11 in Appendix 7). Such information can be used to support tourism stakeholders in the North Coast LRMP planning process.

6.2 Management Implications

Potential resource and visitor management implications associated with such shore excursions were also discussed in this research. The management challenges are diverse, and ultimately, will depend on the types of shore excursions developed, and the management techniques utilized to mitigate negative impacts. While not all of these challenges may surface in the North coast, understanding potential impacts may help the region to be proactive in their efforts to reduce the overall effects on the land and resource base. Issues such as crowding at key sites, flightseeing noise, and trail conflicts can hopefully be identified and mitigated before significant adverse impacts arise.

6.3 GIS Based Information Integration

The North Coast tourism inventory information developed through the NCTOS 2000 and

2001 provided a useful assessment of some of the tourism products perceived to have development potential. The relative capability and suitability for these products was identified across the entire North Coast land base. While there is a possibility that all areas could be accessed for shore excursion activity, this is unlikely due to the logistical constraints presented by the dynamics of a cruise ship port of call. Shore excursion trends and spatial development patterns identified in the Alaskan case study communities provided guidance as to the probable spatial distribution of passenger activity on the land and resource base.

The use of GIS helped to integrate these sources of information. The map products of this research depicted potential travel ranges for cruise passenger shore excursions. These projections assisted in identifying areas where tourism planning efforts should be concentrated. Management challenges are more likely to be concentrated in these regions, and require special notice by NCLRMP table members in their deliberations. The visualization and analytical capabilities provided by GIS supported a more robust and accessible planning reference.

6.4 Limitations of This Study

A number of limitations are associated with this research project. Firstly, the report examined the existing shore excursion spatial patterns in three prominent Alaskan cruise ship ports. This information provides a useful understanding of logistical constraints for tour operators in offering shore excursion products. While North Coast operators will be constrained by a significant number of these factors, there is a possibility that actual spatial patterns may differ slightly due to local conditions.

Secondly, this research focussed on Prince Rupert's role as port of call, not a port of embarkation of disembarkation. In the near future, Prince Rupert is indeed, planning to serve as a port of call. However, shifts in the cruise industry or the evolution of new cruise packages may expand the role of Prince Rupert. Should this occur, cruise passengers may be willing to purchase tours that travel greater distances from the port community.

Finally, not all of the activity types offered to Alaskan cruise ship passengers in Juneau, Ketchikan and Skagway could be modelled for the North Coast case. The 11 tourism products identified in the North Coast Tourism Opportunities Study (2000) did not include activities such as fishing, canoeing or rafting. The Alaskan spatial patterns for these forms of activity are provided, however, no maps were produced.

6.5 Recommendations For Further Study

Despite the growing influence of global cruise tourism, the academic literature significantly under-represents this form of tourism development. Growing attention is being paid to ship-related issues, yet few studies investigate the land and resource impacts of large scale cruise passenger activity.

This research was conducted prior to the initiation of large vessel cruise tourism in the North Coast region of British Columbia. Even as this report is being written, the first formal cruise ship visit is only a few months away. The intent of this work is to suggest potential spatial patterns and management challenges that may need to be addressed. However, there is a valuable opportunity for researchers to follow the development of the cruise ship industry in the North Coast over time. Through periodic research efforts, land

and resource issues such as crowding at key sites or soil erosion as well as challenges and successes can be monitored. Such information can inform the tourism literature and also serve as a useful resource for other communities who wish to undertake this form of tourism development.

The North Coast is currently planning to develop as a port of call in the short term. However, the region could promote itself as a port of embarkation or disembarkation in the future. Beyond the 8 to 12 hour visits currently envisioned, longer stays may be possible. In this case, the spatial patterns and related issues may need to be re-examined.

There is also an opportunity to investigate the utility of digital tourism information sources for members of the North Coast LRMP table. Research efforts could focus on the strengths of the existing capability and suitability assessments, as well as the utility of potential spatial development pattern projections, such as those conducted in this project, for land use planning.

From a GIS modelling perspective, there is an opportunity to improve model output in subsequent tourism inventory processes. The methodology for the NCTOS 2000 report identified three constraints in developing those particular tourism capability models. Those factors included: data quality, model inputs and weights, and the exclusion of suitability criteria. The first two issues are common concerns in tourism capability modelling processes where a map overlay analysis is used. A compilation of information layers exists, yet future GIS-based tourism products could be refined through the development of map layers that may have been absent. The second issue, model inputs and weights, is related to the value assigned to specific information layers. Is the potential

for viewing birds more important than the presence of waterfalls during a kayaking experience, or are they similar? These determinations may introduce a subjective element to the analysis. Through examining other processes, and monitoring the preferences of existing clientele and potential visitors, these weightings can be refined. The final issue, the exclusion of suitability criteria, was rectified in this case through the development of the NCTOS 2001 suitability report. Overall, while the tourism inventory base used for this project (the NCTOS 2000 and 2001) provided high quality information, further generations could include improvements to ultimately improve the final outputs. This type of research could identify useful formats, as well as support the development of more informative digital tourism information bases.

Appendix 1

Alaskan Shore Excursion Participation Levels (2001)

Table A1-1 Juneau Cruise Ship Passenger Tour Participation Levels (2001)

Tour Type	Tour Participation (%)	Estimated Volume
Glacier Tour	33	231,000
Mt. Roberts Tramway	24	168,000
City Tours (Bus/Van)	16	112,000
Whale Watching Cruises	13	91,000
Helicopter Flightseeing	10	70,000
Salmon Bake	10	70,000
DIPAC Fish Hatchery	9	63,000
Glacier Gardens	3	21,000
Fixed-Wing Flightseeing	3	21,000
Rafting	2	14,000
State Museum	2	14,000
Kayaking	2	14,000
City Museum	1	7,000
City Walking Tours	1	7,000
Dog Sledding	1	7,000
Gold Panning / Gold Mine Tour	1	7,000
Fly Fishing	1	7,000
Hiking Tours	1	7,000
Nature Walk	1	7,000
Charter Fishing (Salt water)	0	3500
None	16	112,000
Other	8	56,000
Total	**158**	**1,106,000**

Source: Adapted from McDowell 2001

Table A1-2 Ketchikan Cruise Ship Passenger Tour Participation Levels (2001)

Tour Type	% of Cruise Visitors Participating in Ketchikan Tours*	Estimated Volume
Native Village Tours / Experiences	14	93,000
City Tours	12	80,000
Flightseeing (Small Plane)	5	33,000
Museums / Exhibitions	2	13,000
Charter Fishing	2	13,000
Day Cruise	2	13,000
City Walking Tours	2	13,000
Canoeing	2	13,000
Nature Walk	2	13,000
Kayaking	1	7,000
Other Tours / Excursions	11	73,000
Total	**55**	**364,000**

***Read**: 14 percent of all Alaska cruise visitors participated in a Native village tour in Ketchikan

Source: Adapted from McDowell 2002

Appendix 2

Table A2-1 Opportunity Evaluation for Ocean Kayaking Based on *Resource Criteria*

Resource Criteria		Regional Quality	Regional Quantity		Resource Area(s)
Remoteness / Distance from population, use level – recreation & commercial	Backcountry, very few encounters with other people	H	H		D, G, I, K, M
Access to staging areas	From PR and other communities, shuttling	H	M		C, D, E, F, G
Terrain, currents, and winds	Locations exhibiting credible safety	H	M		D, G
Features	World class beaches	H	M		C, D, G, J
	Island groupings	H	H		C, D, G, I
	Shelter: inlets, bays, coves	H	H		C, D, G, I, K, J
	Cultural/heritage features	H	M		B, D, E, H, I, J
Seasonality	Optimal weather conditions	L	-		-
Uniqueness	Resource/Product uniqueness to the West Coast	M	M		C, D, J, L
Circuits	Marine-river-lake, island (with appropriate features)	H	M		C, G, H
Hotsprings	Hotspring to hotspring tour. Most are undeveloped	H	H		L
High Capability Resource Areas / Communities ranked by resource criteria (number of times identified)		**Resource Areas:** D (8), G (7) C (6), I (4), J (4), L (1)			

Table Definitions:

Regional Quality / Quantity: As compared to the rest of the BC Coast
Resource Areas: Areas exhibiting the highest value for each criteria

Source: NCTOS 2000. Used with permission.

Table A2-2 Opportunity Evaluation for Wildlife/Natural History: Land Based on *Resource Criteria* (NCTOS, 2000)

Resource Criteria >>>>>>>> Sub-Products	Potential Viewing Locations	Quality of Sightings / Feature	Reliability of Sightings/ Success	Seasonality (Months)	Uniqueness in BC Coast	Access to Staging Areas	Regional Quality	Regional Quantity	Resource Area(s)
Grizzly Bear	H	H	H	April-July	M	M	H	H	B, E, K, L
Kermode Bear	L	H	L-M	All	H	L	H	H	K, L
Black Bear	M	H	L-M	All	L	H	H	M	All
Mountain Goat	L	L	L	Fall	L	L	L	L	P, Q, L
Eagles	H	H	H	All	M	H	H	H	All
Fishery (lakes, rivers)	M	H	H	All	M	L-M	H	M	B, P, Q, K, H
Large Rivers (scenic)	H	H	-	-	M	L-H	H	H	P, Q
Lakes (scenic)	H	H	-	-	M	L-H	H	H	D, H, K
Cliffs, gorges, escarpments	H	H	-	-	H	L-H	M-H	M	B, F, K, L
Waterfalls	H	H	-	-	M	L-H	H	M	A, B, E, F, H, K
Islands, archipelagos	H	H	-	-	L	L-H	M	M	C, D, G, I, J
Hotsprings	H	H	-	-	H	H	H	H	L

High Capability Resource Areas / Communities ranked by resource criteria (number of times identified)	Resource Area(s):	Communities:
	K (8), L (7), B (5), H (5), P (5), Q (5), D (4), F (4), E (4)	HB (11), PRM (10), KG (7), PS (6)

Table Definitions:

Regional Quality / Quantity: As compared to the rest of the BC Coast

Resource Areas: Areas exhibiting the highest value for each criteria

Source: NCTOS 2000. Used with permission.

Appendix 3

Map Legend

Table A3-1 Map Legend for Maps 4-11 in Appendix 7

Map Representation	Information
Red Outline	▪ Resource areas outlined in red indicate regions of high tourism **capability** for specific tourism products identified in the North Coast Tourism Opportunities Study (2000) within typical travel distances for similar shore excursion products offered by the **major cruise lines** in Alaskan destinations.
Pink Outline	▪ Identifies **high and moderate suitability** areas **within** typical travel ranges for similar shore excursion products offered by the **major cruise lines** in Alaska.
Green Outline	▪ Identifies **high and moderate suitability** areas **within** typical travel ranges for similar shore excursion products offered by the **independent tour operators** in Alaska.
Blue Outline	▪ Identifies **high and moderate suitability** areas **outside** typical travel ranges for similar shore excursion products in Alaskan destinations.

Appendix 4

Cruise Tourism Excursion Development Constraints

Constraint Type	Constraints To Development	Source
	Helicopter Flightseeing and Landing Activity	
General	▪ Increasing cost of helicopter operations as travel distances and flight times are expanded ▪ Need for tour operators to maximize the number of tours offered during relatively limited port of call durations ▪ Diverse needs and desires of cruise passengers	▪ Juneau helicopter operator
Technological	▪ Excursion flight time must balance fuel, weight, and pilot costs (i.e. total flight durations rarely exceed 45 minutes to 1 hour roundtrip)	▪ Juneau helicopter operator
	▪ Number of existing helicopters in the fleet	
	▪ Limited passenger capacity for helicopters (e.g. 3-6 passengers depending upon type of machinery)	▪ Juneau helicopter operator
	▪ Need for heli-pad, staging area, and fuel depot in close relative proximity to the cruise ship dock and at destinations if excursions are of a significant distance from the starting point	
	▪ Weather patterns: frequency of rain and fog	
Resource	▪ Adherence to height and distance buffers developed to protect recreational users (e.g. cabins, trails, and wildlife)	▪ CBJ Best Management Practices
	▪ Need for high quality, charismatic destinations; often associated with wilderness experiences and excursions that are "out of the ordinary" for cruise passengers	▪ Juneau helicopter operator
	▪ Waste disposal at sites utilized by helicopter excursions	▪ Juneau helicopter operator
	▪ Capability and suitability of designated sites for landing / excursion activity	
	▪ Need for the creation of environmentally / community sensitive flight patterns	

Constraint Type	Constraints To Development	Source
Administrative	▪ Permitting system for helicopter landings (e.g. United States Forest Service (USFS) issues landing permits for the Mendenhall Glacier on a five year basis)	
	▪ Helicopter-recreation conflicts related to noise and site use	
	▪ Potential restriction of flightseeing activity to specific hours within the day (e.g. flightseeing tours are limited to the hours between 7:00 a.m. and 9:00 p.m. in Juneau)	▪ CBJ Best Management Practices, 2002
	▪ Aviation safety (e.g. managing flight patterns and volumes)	
Market	▪ Operator need for multiple excursions per port of call period to be profitable within current pricing range of excursion products	▪ Juneau helicopter operator
	▪ Helicopter excursion demands by existing and future cruise passengers	
	▪ Preservation of "wilderness experience" for passengers through the management of passenger volume	
	▪ Need for educational or adventure activities at the destination site	
	Floatplane Flightseeing and Landing Activity	
Technological	▪ Excursion length flight time must balance fuel and pilot costs (e.g. Flight times for one organization are typically limited to 45 minutes-1 hour).	▪ Juneau floatplane tour operator
	▪ Need for inter-modal connections (e.g. efficient transportation linkages to move passengers)	
	▪ Number of existing floatplanes	
	▪ Limited passenger capacity for aircraft	
	▪ Age of existing floatplanes	
	▪ Weather: precipitation and fog, changing weather patterns	

Constraint Type	Constraints To Development	Source
Resource	▪ Designing flight corridors to avoid important salt water areas and lakes, access trails, and other high use sites for local and subsistence activity	
	▪ Capacity and suitability of the destination/ landing area to support multiple floatplane landings	
	▪ Degree of conflict with existing operations / recreational use at the destination site (e.g. forest service cabins)	▪ USFS Ketchikan
	▪ Limited capacity of built structures to support floatplane excursions at the destination site	▪ Juneau floatplane tour operator
Administrative	▪ Degree of flexibility with flight patterns. This affects the ability to mitigate impacts that develop over time.	
	▪ Aviation safety (e.g. managing flight patterns and aircraft volumes)	
	▪ Adherence to height and distance buffers developed to protect recreational users (e.g. cabins, trails and wildlife).	▪ CBJ Best Management Practices
Market	▪ Upper limit to the amount of time that cruise passengers remain comfortable within relatively cramped floatplanes	▪ Juneau floatplane tour operator
	▪ High volumes of cruise passengers demand floatplane excursions within a relatively narrow time frame	
	▪ Lack of bathroom facilities on floatplanes constrains some cruise passengers	▪ Juneau floatplane tour operator
	▪ Need for charismatic features in order to draw passengers to a tour (e.g. fjords, whales, bear viewing areas)	
	▪ Need for operators to provide simply a "sample of Alaska" for cruise passengers taking floatplane excursions	▪ Juneau floatplane tour operator
	▪ Need for linkages between excursion products (e.g. Boat excursion to Misty Fjords, return by floatplane, or the reverse)	▪ Juneau floatplane tour operator

Constraint Type	Constraints To Development	Source
	Saltwater Charter Fishing	
Technological	▪ Availability of vessels	▪ Ketchikan sportfishing operator
	▪ Fishing charters typically remain within a specific radius of the port area due to: • Limited amount of time for the overall excursion which reduces the total time available for travel • Safety considerations such as ensuring access to rescue and other services • Proximity to the port area in case of mechanical failure, and the need to get passengers back to the ship before departure	▪ Ketchikan sportfishing operator
	▪ An exception to the above set of criteria is for a full-day halibut fishing excursion (offered by Carnival in Juneau) • Total excursion time is 8 hours • Time on the vessel is approximately seven hours • Travel time is approximately 1-2 hours one-way, depending upon weather and species presence	▪ Carnival Cruise Lines 2002
Resource	▪ Fish harvesting procedures differ amongst regions and cruise lines: • Most cruise lines advocate catch and release, but will process fish caught during excursions and deliver them to the passenger's home (do not allow storage on the cruise ship)	▪ Princess Cruise Lines 2002 ▪ Carnival Cruise Lines 2002
	▪ Numerous boats involved in fishing charters may utilize the same areas, due to: • The availability of specific species in key areas (e.g. King, Sockeye and Chum salmon) • Boating safety concerns and mechanical failure	

Constraint Type	Constraints To Development	Source
	▪ Various fishing organizations may use different staging areas and fishing sites (e.g. The two major operations in Ketchikan use different sides of an island, with one organization bussing their visitors to a marina located in the eastern side of an island).	
Administrative	▪ A fishing excursion co-ordinator oversees the activities of one fishing association (20 to 30 boats), ensuring the efficient operation of fishing activity. Increased insurance costs have affected the ability of small volume operations to function	▪ Ketchikan sportfishing operator
	▪ Multiple excursions during one day are needed to make operations feasible	
Port of Call Duration	▪ The total number of fishing excursions operated is determined by the length of the port of call (e.g. An 8-hour versus 12-hour port of call affects the number of excursions that can be offered).	
Market	▪ Many fishing excursions in Ketchikan are limited to 5 hours, with an additional 30 minutes required for passenger staging and disembarkation (some exceptions) ▪ Fishing excursions usually involve a maximum of 20-30 minutes for travel time to the fishing destination ▪ This allows approximately 4 hours of total fishing time	▪ Ketchikan sportfishing operator
	▪ Number of fishing excursions offered is affected by the timing of cruise ship arrivals (e.g. Cruise ship arrivals are staggered at intervals in Ketchikan. This allows fishing charters the opportunity to offer a morning and early afternoon trip).	▪ Ketchikan sportfishing operator
	▪ Charters attempt to offer "Alaskan fishing experiences" that meet the perceptions of cruise passengers	▪ Ketchikan sportfishing operator
	▪ Changing demographics of the cruise passengers who are taking fishing excursions (e.g. more women are becoming involved as well as families and children. Currently, an estimate is that 60% of passengers are men)	▪ Ketchikan sportfishing operator

Constraint Type	Constraints To Development	Source
	Hiking Activity	
Logistical	▪ Port of call timing significantly affects the number of tours that can be offered over the course of the day. (E.g. If ships arrive early in the morning, then hiking operators are able to offer all of their products, often at multiple departure times)	▪ Juneau hiking operator
Administrative	▪ Must obtain appropriate permits from local and often regional authorities to undertake hiking activities on public land	▪ Juneau hiking operator
	▪ Need to balance the needs of residents and those of commercial operators (e.g. Trail Mix, a non-profit organization, has managed conflict in the past, and continues to maintain trails and support resident and industry needs).	▪ Juneau hiking operator
Resource	▪ The weather can be poor, but most hiking tours operate in all weather conditions including rain, sleet, and snow.	▪ Juneau hiking operator
	▪ All tours have unique selling points (e.g. views of the glacier, beach areas adjacent to rain forest, tram rides)	▪ Juneau hiking operator
	▪ Need to ensure the quality of the trails to avoid injury and liability	▪ Juneau hiking operator
Market	▪ Hiking is not the opportunity that is typically marketed to cruise ship passengers due to the existence of other, better known attractions	▪ Juneau hiking operator
	▪ Cruise passengers desire the opportunity to see other attractions and parts of the community during a port of call. ▪ One operator stated that existing tours do not exceed 4.5 hours, and they do not expect future tours to surpass this time limit. ▪ This limit also avoids competition with other attractions in a destination. Cruise passengers are able to participate in hiking activities as well as visit other sites within the community.	▪ Juneau hiking operator

Constraint Type	Constraints To Development	Source
	▪ Different cruise lines typically cater to a different clientele. ▪ This affects the number of participants for a specific type of tour. Younger, and typically more active passengers purchase hiking tours in greater quantities in Juneau. Certain cruise lines are associated with a cruise experience catered towards a party atmosphere and generally attract a younger clientele.	▪ Juneau hiking operator
	▪ Hiking activities are one of a group of soft-adventure products such as kayaking and mountain biking that cruise passengers choose between.	
Marine Wildlife Viewing		
Logistical	▪ Tours are generally conducted within a 20-mile (32 km) radius of the launch site. ▪ Tours typically cover a distance of 40-miles (64 kilometres)	▪ Juneau marine wildlife viewing operator
	▪ The port of call timing affects the number of tours offered	
	▪ Sitka is able to offer a 3 ½ hour tour because the tour operators pick up passengers from the cruise ship, avoiding unnecessary transportation time.	▪ Juneau marine wildlife viewing operator
	▪ There are 4 primary marine wildlife viewing operations in Juneau. In addition, a fleet of independent operators using small boats offer excursions to cruise passengers. The number of operators is estimated between 20 and 60 on a given day.	
Administrative	▪ The NOAA whale-watching guidelines have been converted to regulations, and thereby attempt to protect the whales from human disturbance.	
Resource	▪ Most non-marine wildlife-viewing tours in Juneau have a set route. ▪ A marine wildlife viewing operator in Juneau stated that they do not. Patterns change with the season (e.g. mating behaviour and feeding periods for marine wildlife).	▪ Juneau marine wildlife viewing operator

Constraint Type	Constraints To Development	Source
Market	▪ Within a destination, passengers often prefer to take two shorter excursions as opposed to one long excursion ▪ This has implications for the length of the marine wildlife viewing tour that is appropriate	▪ Juneau marine wildlife viewing operator
	▪ Passengers state that a 5 hour marine wildlife tour is suitable if marine wildlife is observed	▪ Juneau marine wildlife viewing operator

Appendix 5

Alaskan Land and Resource Management Challenges and Associated Best Management Practices

Section 4.8 identified management challenges that have arisen in some Southeast Alaskan cruise ports and their proximate surroundings. The next section highlights management strategies and Best Management Practices that have been developed to address these challenges, especially in mid and back-country areas.

A5.1 Flightseeing Noise Mitigation

A range of initiatives have been undertaken to reduce the noise impacts of flightseeing on community residents, recreational users, and wildlife[20]. These initiatives are outlined in the following paragraphs.

City and Borough of Juneau (CBJ) Best Management Practices 2002

The Best Management Practices (BMP) initiative is a collaborative program developed between tour operators and the CBJ in 1997. It was designed "to minimize the impacts of tourism in a manner which addresses both residents' and industry concerns (CBJ 2002)." Through this program, acceptable operating practices for the tourism industry are refined on a yearly basis. While many of the BMPs relate to city-based issues, a set of practices that extend beyond the urban core is defined for helicopter and floatplane operations. The BMPs include considerations for:

- Flight routes and aircraft identification. Operators agree to provide established flight routes to the public and a rationale for selecting specific routes (e.g. weather, turbulence, and traffic).
- Altitudes (e.g. Minimum 1500 and 1000 feet above residential areas for helicopters and floatplanes respectively).

- Fly Neighbourly program (e.g. All pilots are trained for local flying conditions to reduce the impacts of helicopter activity)
- Operating times (e.g. Tour-related flight departures are permitted from 8:00 a.m. to 7:00 p.m., with all flights to be completed by 9:00p.m.).
- Low use zones (e.g. Operators recognize low-use zones, or regions where direct overhead flights are to be avoided, safety permitting)
- Wildlife viewing (e.g. Operators agree not to circle, hover, harass or decrease altitude for wildlife viewing, as well as to avoid mountain goat kidding areas during specific seasons).

The CBJ Best Management Practices initiative is a voluntary program. During the 2002 season, 47 operators agreed to abide by the guidelines (CBJ 2002).

Fly Neighbourly Flight Routes

The Fly Neighbourly program is a voluntary noise-reduction program designed by the Helicopter Association International for helicopter and floatplane operators around the world. Participants in this program agree to consider issues related to noise abatement, pilot awareness, training, flight operations planning, and responsiveness to community concerns (Friends of Aviation 2001). The five major aircraft operators in the CBJ have developed flight routes to mitigate community over-flight issues.

Satellite Heliport Locations

The CBJ recently commissioned a report assessing the potential for alternative heliport locations (CBJ 2002). The process of selecting suitable sites may provide a useful set of tools for jurisdictions considering developing heliport-based activities.

A5.2 Helicopter Landing Mitigation

Final Environmental Impact Statement (FEIS): Helicopter Landing Tours on the Juneau Icefield 2003-2007 (USFS 2002a)

The FEIS was released by the United States Forest Service (USFS) in May, 2002. The process resulted in the following regulations for tour operators that conduct helicopter activity on the Juneau Icefield.

- Helicopter landings are permitted on the Icefield from 8:30 am to 8:00 p.m., 7 days a week.
- Helicopters must ensure a 1,500-foot vertical and horizontal distance from traditional mountain goat summer and kidding habitat, and from other animals observed from the air. A 1-mile (1.6 kilometre) buffer is to be maintained between helicopter landing sites and important mountain goat kidding areas from May 15 to June 15 each year. In addition, regulations prohibit low flight passes that result in a noticeable change in animal behaviour.
- The USFS considered implementing 0.5 to 1.0 mile (0.8 to 1.6 km) buffers at the end of trails used by non-commercial recreational users. The USFS realized that hikers do not want to encounter helicopters on the ground nor hear helicopter-related activity at the end of a trail. However, due to safety concerns, helicopter-based tour operators were still permitted to land in these areas.
- The FEIS designated *enclave sites* within the Semi-Remote Recreation Land Use Designation (LUD). These sites are located within 0.5 miles (0.8 kilometres) of flight routes that receive heavy aircraft travel. The 15 enclave sites within the Juneau Ranger district allow for a high concentration of use at designated locations on the land and resource base. Sites are limited to 20 helicopter landings at one time, with a maximum of 120 passengers. On a daily basis 100 landings accommodating up to a total of 600 passengers are permitted. However, in reality, these areas typically have 3 to 6 helicopter landings at one time, with 18 to 36 passengers per visit. These sites are permitted to include minor developments, likely including the placement of temporary, primitive facilities on site for the summer, with virtually no long-term, on-site modification.

The selected alternative includes considerations for the appropriate number of landings and visitors and the types of site development permitted in various Land Use Designations (LUDs) on the Juneau Icefield. Table A.2-1 lists these considerations.

Table A5.2-1 Maximum Recreation and Tourism Development by LUD

LUD	Minimum distance (or physical barrier) to another authorized activity per site	Maximum number of helicopter landings and people allowed per site per day	Maximum number of helicopter landings and people allowed per site at one time	Acceptable ROS Experience	Maximum Allowed group encounters per day
Remote Recreation	3-mile (4.8km) minimum distance between occupied sites	10 landings/ day 60 people/day	3 helicopters at one time; 18 people at one time.	Primitive	2 groups. No more than 3 groups in a day.
Semi-Remote Recreation	0.5-mile (0.8km) minimum distance between occupied sites.	10 landings/day 60 people/day	10 helicopters at one time; 60 people at one time	Semi-Primitive Motorized	9 groups. No more than 10 groups in a day.
Semi Remote Recreation with Enclave(s)	0.5-mile (0.8km) minimum distance between occupied enclave sites.	100 landings/day 600 people/day	20 helicopters at one time;[1] 120 people at one time[1].	Roaded Natural[1]	19 groups[1] No more than 20 groups (of up to 6 people) per day may use the site[1].

[1]Based on the assumptions listed above and Forest Plan standards and guidelines, there could be up to 100 helicopter landings at one time (up to 600 people at one time) at an enclave site. This ROD establishes a more primitive ROS at enclave sites than the Forest Plan allows, and thus fewer numbers of helicopters and people are allowed at one time at the enclave sites. These parameters are more restrictive than Forest Plan guidelines.

Source: Adapted from USFS 2002

The FEIS attempted to address impacts on residents, recreationists, wildlife and on new areas. Impact mitigation techniques involve the following considerations.

Recreationists: The FEIS attempted to locate permitted landing sites in areas where recreational conflict could be minimized. In addition, tour operators were required to create flight paths that avoided key recreation sites and trails. Finally, the bid process for attaining permitted landings was designed to include an evaluation of recreational impacts, based on the proposed location of landing sites.

Wildlife: Issues were raised that helicopter tours could stress wildlife species near flight routes, landing areas, and tourism activity sites. Such stress could lead to habitat abandonment or long-term population declines. The FEIS includes a requirement that helicopters maintain a 1500-foot vertical and horizontal clearance for a range of animals across the land and water base. Helicopters would be required to maintain a 1-mile (1.6 kilometre) habitat buffer during certain periods of the year. When landings are required within this buffer, helicopter pilots are to incorporate mitigation techniques such as approaching from the centre of the glacier, or from below the elevation of the species (specifically goats). If landings occur within this region, monitoring is to be undertaken to determine whether habitat productivity and viability are being adversely affected.

***Impacts in New Areas*:** Concerns were expressed that permitted helicopter landings at new sites could affect the experience of ground- and water-based recreation users and wildlife at specific sites. The FEIS permitted only one new area to be accessed between 2003 and 2007. However, helicopter tours have been operating for two decades in this region, and therefore a significant number of sites are currently used for landings despite this small increase in landing areas.

The Helicopter Landings FEIS (2003-2007) for the Juneau Ranger District presents important information about the solutions that have been developed. The growth of helicopter-based activity has paralleled the increase in cruise ship passengers to the region over the past 20 years.

A5.3 Shoreline Capacity

Shoreline Outfitter/Guide Draft Environmental Impact Statement

The USFS developed the Shoreline Outfitter/Guide Draft Environmental Impact Statement (DEIS) in Southeast Alaska to address increasing levels of use in the shoreline zone by commercial recreation. The shoreline zone, for the purposes of the analysis, was defined as the area above the mean high tide watermark to 0.5 miles (0.8 kilometres) inland. Currently, the primary activities that occur within this region are: sightseeing, hiking, camping, photography, boating, hunting, freshwater fishing, and nature viewing. While access to the region is primarily water-based (e.g. charter boats, kayaks, sailboats), some commercial operations use floatplanes, helicopters or wheeled planes.

For each of the 38 Use Areas defined in Southeast, Alaska, the DEIS specifies:

- Proportions of the established carrying capacity allocated to commercial recreation use in each season
- Permitted commercial recreation activities
- Approved modes of access for commercial use
- Locations where *large commercial groups* can occur and related guidelines
- Mitigation measures for commercial recreation activities
- Monitoring requirements.

The USFS does not have control over the saltwater resources of the region. As a result, commercial recreation activities that do not access the shoreline zone are outside its jurisdiction. Therefore, some of the tours that are popular with cruise ship passengers such as floatplane flightseeing and wildlife viewing are not regulated.

The Shoreline Outfitter/Guide DEIS considered 5 alternative allocations for commercial use of the land base. Each alternative is evaluated against three primary issues:

- **Issue 1:** Availability of Recreation Opportunities for the Guided and Unguided Recreationist
- **Issue 2:** Economic Opportunities and Potential Effects on Outfitter/Guide Businesses
- **Issue 3:** Conflicts Within the Commercial Recreation Industry

The proposed alternative allocates between 5 and 40 percent of the total recreation capacity (USFS 2001a) to commercial recreation, depending on the Use Area. "Each allocation is based on factors such as the proximity of the Use Area to communities, the amount of subsistence use, and potential resource impacts" (USFS 2001a).

The DEIS also considered the designation of specific regions for large group. Two types of large group areas were considered:

Enclave sites: Areas where large groups (e.g. 75 individuals) can occur on a regular basis throughout the season.

Fifteen-Percent Area: Places where large groups can occur only on an occasional basis, for less than 15 percent of the primary use season.

According to the DEIS, large group activity can occur in relatively few areas of the forest because businesses providing services are constrained by the need to maintain schedules and the need for access points that can accommodate large boats (USFS 2002). Nature viewing tour boats frequently provide tours to large groups (12 to 70 people). However, these excursions are typically limited to 2 to 3 hours in duration. By designating specific sites for such activity, other commercial operators and residents who seek solitude and low levels of human contact can avoid these sites.

Physical Impacts

In addition to the social issues related to increased use of the land base, environmental factors were also addressed in the shoreline capacity study. Examples of the potential environmental effects of allocating commercial recreation include site-specific concerns described in Table A5.3-1.

Table A5.3-1 Examples of Potential Environmental Effects of Commercial Activity Allocation

Environmental Concern	Examples of Potential Site-Specific Impacts
Biodiversity	▪ Trampling of vegetation, small scale habitat fragmentation
Soil	▪ Reduced soil productivity, disturbance of specific soil layers
Wetlands	▪ Soil disturbance
Vegetation	▪ Soil compaction, physical injuries to trees, trampling, introduction of exotic species
Wildlife	▪ Avoidance behaviour, disruption of key marine mammal use sites
Fishing	▪ Stream bank erosion, increasing fishing pressure, degradation of spawning habitat
Threatened, Endangered and Sensitive Species	▪ Human disturbance on breeding and feeding ground

Source: USFS (2002). Shoreline Outfitter/Guide Draft Environmental Impact Statement.

In order to address these environmental concerns, the USFS supports a series of Best Management Practices (BMPs). The rang of BMPs are extensive, and describe acceptable distances for approaching wildlife, procedures for developing sanitary facilities, acceptable behaviour in areas with cultural resources and many other practices.

The Shoreline Outfitter/Guide DEIS attempts to allocate commercial recreation opportunities at a level where all users can enjoy the land and resource base. The USFS realizes that commercial recreation is a significant factor in the economy of Southeast Alaska, and has attempted to set limits that are conducive to supporting these activities while protecting the integrity of the land.

A5.4 Jurisdictional Issues: The Misty Fjords Interagency Plan

The overriding goal is to develop an inter-agency strategy for the management of Misty Fjords National Monument (MFNM). Currently, the following agencies have jurisdictional responsibilities within the planning area in Alaska (USFS 2000):

- **United States Forest Service (USFS)**: manages the uplands, and the Misty Fjords National Monument itself. The USFS also has responsibility for subsistence use of fish and wildlife.
- **Alaska Department of Natural Resources**: traditionally manages submerged lands (tidelands and lands under navigable rivers and salt water fjords).
- **State of Alaska**: responsible for administering the Alaska Coastal Zone Management Plan, which regulates uses of Alaska's coastal zone and coastal resources.
- **U.S. Coast Guard**: responsible for navigational aids, and rules governing boats.
- **U.S. Army Corps of Engineers**: manages navigable waters
- **Federal Aviation Administration**: responsible for managing airspace and aircraft.
- **U.S. Fish and Wildlife Service and the National Marine Fisheries Service**: protects marine mammals, critical fish habitat, and threatened and endangered species.
- **Ketchikan Indian Corporation, the Organized Village of Saxman, and the Metlakatla Indian Community**: represent Alaska Natives with traditional, cultural and historic ties to the landscape. MFNM includes important historic villages and fishing camps.

- **Alaska Department of Fish and Game**: manages fish and wildlife population and hunting and fishing.

The need for a collaborative plan at Misty Fjords arose due to concerns voiced by numerous stakeholder groups. The primary source of concern is not typically one of physical impacts, but degradation of the "Alaskan experience" resulting from the large volume of passengers and floatplanes.

The Misty Fjords Interagency Planning team's first meeting included consultations with public interest groups. Some of the concerns that were identified as issues to be addressed in the plan include:

- First Nations cultural site protection
- Preservation of wilderness area qualities
- Protection of critical habitat
- Protection of subsistence use areas
- Management of commercial activity (e.g. restrictions on bear-hunting, determination of flight paths)
- Management of access and permitting activity
- Management of dispersed versus concentrated use of key areas
- Determination of infrastructure allowances

The lessons that will be learned by the Misty Fjords Interagency Planning team may provide useful tools for the management of commercial activity in other jurisdictions[21]. The interagency initiative hopes to bring all of the agencies and public users together toward building a common vision for future management that overcomes jurisdictional boundaries. The MFNM Interagency Team plans to allow agencies to implement mutual

goals and desired conditions through its own planning and regulatory process. An example is included:

> The Coast Guard, for example, could develop boating rules for areas of concentrated use, as they have for Tongass Narrows. The FAA could develop advice on traffic patterns or over-flights. The Alaska DNR could refine guidance in the Central Southeast Plan Area for use of tidelands. The Forest Service could set capacity levels for outfitters and guides. Guides or tour providers could develop voluntary codes of conduct. Each such proposal would involve appropriate environmental analysis and documentation and public participation. The shared vision would provide the overall guidance to ensure individual efforts are complementary, and include a list of possible management actions or proposals, which could be considered. (USFS 2002b)

Use of actual land base within Misty Fjords is quite low. However, floatplane and boating activity levels have increased, causing concern for recreational and commercial users. Through the development of the Interagency Plan, authorities hope to incorporate the needs of commercial operators, independent visitors, wilderness advocacy groups, tour group participants, and federal, state, local, and tribal governments. In addition, a successful arrangement can ease the permitting process and close existing loopholes.

A5.5 Trail Use and Management: Trail Mix and the Trail Working Group

In order to address the concerns of the CBJ and users of the municipal trail system, Trail Mix, a non-profit organization, was created to facilitate a process for evaluating commercial use of the Juneau trail network. The CBJ also developed the Trails Working Group, which included representatives from land management agencies, members of the public, and tour operators. The Trails Working Group conducted a survey of residents to determine those trails that were most valued by the community. After a series of information gathering initiatives certain trails were designated for commercial use, while others were maintained solely for public use.

The role of Trail Mix Inc. since that time has expanded. The mission of the organization is "to be the steward of a safe and enjoyable trails system by bringing people and resources together for trail improvements and activities" (Trail Mix website 2002). The state and federal agencies that have control over the trail network do not contribute significant financial resources to the on-going trail maintenance activities required. Consequently, Trail Mix serves as the co-ordinating body, and maintains the trails through volunteer support and financial contributions. Trail Mix also receives a portion of the $5.00 head tax collected by the CBJ from cruise passengers for its activities[22].

A5.6 NOAA Whale Watching Regulations

In response to the "recent boom in the marine mammal viewing industry" (NMFS 2000) and the concern for the health and safety of humpback whales in Alaska, the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service proposed regulations to establish minimum approach distances for all vessels operating in the vicinity of humpback whales. The regulations followed three years of voluntary Marine Mammal Viewing Guidelines that were designed to minimize impacts on marine mammals and reduce the overall level of viewing pressure. The proposed regulation suggested that "it would be unlawful to approach, by any means, including interception, within 200 yards of a humpback whale." The final regulations that have been implemented reduced the approach distance to 100 yards.

A5.7 Bear Viewing Site Development

The USFS has undertaken a number of initiatives to reduce the overall level of human-bear conflict at key bear-viewing sites. These developments include the implementation

of a permit system for the Pack Creek Brown Bear Viewing Area, and the construction of an observatory at the Anan Creek Wildlife Viewing Area. Each of these initiatives was developed to reduce the overall level of impact caused by humans on bears, while allowing visitors the opportunity to view this form of wildlife. The two initiatives are discussed briefly described in the following paragraphs:

Anan Creek Wildlife Viewing Area: Anan Creek is located approximately 48 kilometres south of Wrangell, Alaska. The region has one of the largest Pink salmon runs in Southeast Alaska and attracts both black and brown bears, in addition to eagles, and seals. An observatory was built by the US Forest Service to provide a safe viewing area for visitors. The observatory is an open, log style wood shelter with two entryways that overlooks the falls and the creek. There does not appear to be any limits on visitation.

Pack Creek Brown Bear Viewing Area: A visitor permit system was instituted for Pack Creek in 1988. In response to the increasing number of visitors to the region, a limit of 24 visitors per day was implemented during the prime-viewing season of July 10th to August 25th in 1991 (Behnke 1999). With 1,381 visitors frequenting the area in 1997, protecting the integrity of this area's wildlife resources has remained an ongoing task.

The North Coast region of British Columbia offers high quality bear viewing opportunities. With the introduction of cruise passengers to the planning area, it is anticipated that wildlife, and more specifically, bear viewing may be desired by visitors. An effective management system will be required to manage increased wildlife viewing activity. Lessons learned from the approaches used in Southeast Alaska may help in this regard.

Appendix 6

North Coast Resource Units

Unit	Name	Associated Community	Comments
A	Portland Canal	Stewart, Gingolx	With Alaska next door, the area offers much for boaters and kayakers in scenery and fishing. Historic sites include as old mines (Georgie River, Swamp Point, Maple Bay) and the stone house on Wales Island.
B	Observatory Inlet	Gingolx, Laxgalts'ap	Very scenic and unique area. Weather is similar to interior. Historic sites; includes Anyox, Alice Arm, and Kitsault - deserted town sites with an opportunity to be marketed as a recreation destination. Good access to sub-alpine. Suitable for fishing, hunting, river activities, mountain biking. Significant wildlife viewing potential.
C	Dundas Island group	Port Simpson, Metlakatla	Excellent kayaking area for novice to expert. More of a wilderness experience then Porcher Island. Excellent whale watching and fishing. Traditional use area important to region's First Nations
D	Prince Rupert/Metlakatla/Port Simpson	Prince Rupert, Metlakatla Port Simpson	Many beaches within close proximity to Prince Rupert. (Digby Island, Big Bay, Lucy Island). Includes Pike Island archaeological site. FN cultural activities, fishing, wildlife viewing, boating, kayaking and mountain biking.
E	North Work Channel/ Khutzeymateen	Port Simpson	Includes an old volcano (Crow Lagoon) and Khutzeymateen Provincial Park. Best known for wildlife viewing (whale watching and grizzly bears). Also for kayaking, boating and FN culture.
F	South Work Channel/ Quottoon Inlet	Port Simpson	Quottoon Inlet is the most scenic area in the whole North Coast. Large waterfalls and steep cliffs. Forest Service Recreation Site at head of Work Channel. Road access to Work Channel from Hwy 16.
G	Porcher Island Group	Kitkatla, Oona River	Offers the best all round area for kayaking (beginners to expert). Large beaches, wildlife viewing. Excellent beaches and great potential for trail development. FN culture and environmental education opportunities.

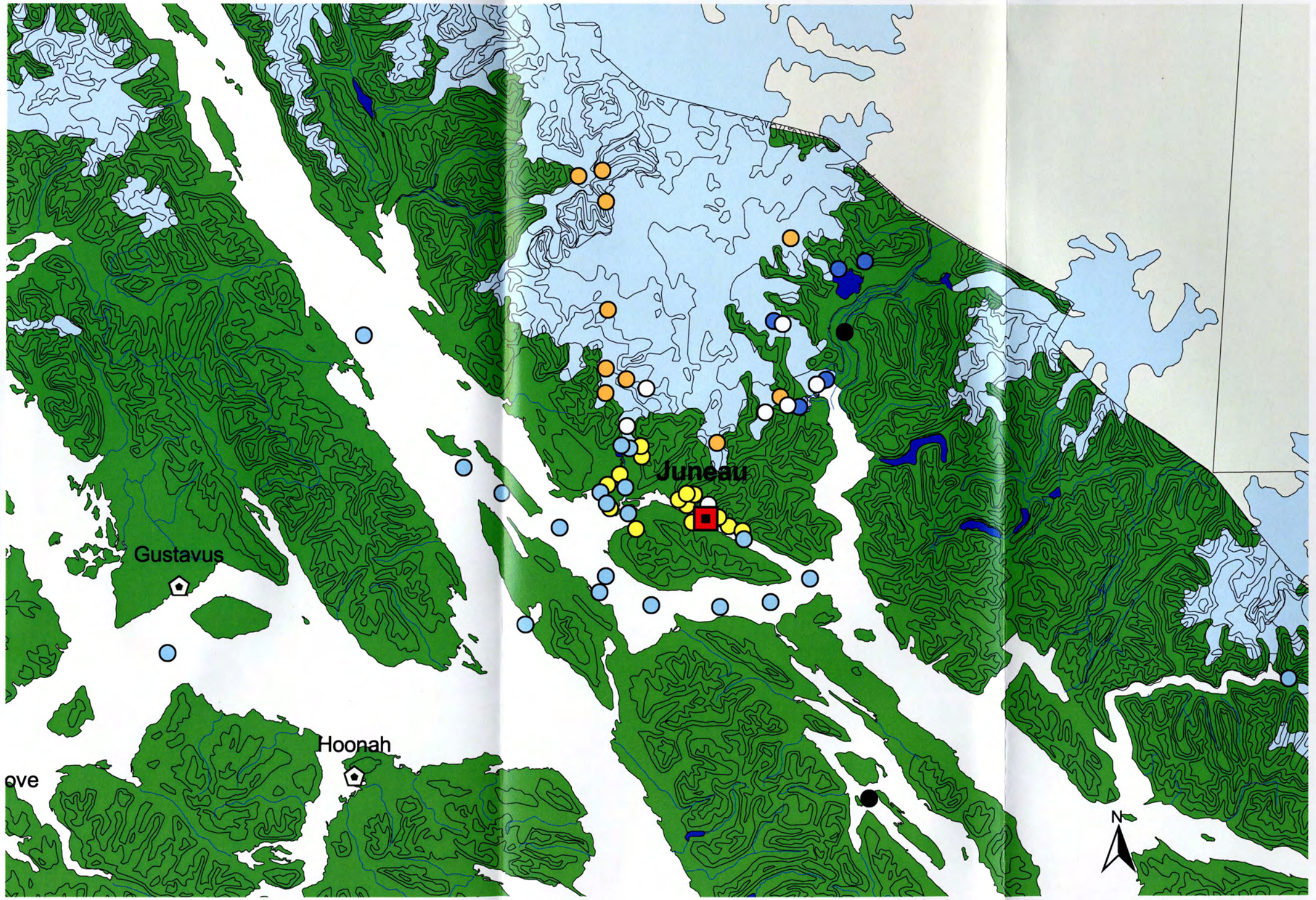
Unit	Name	Associated Community	Comments
H	Grenville Channel	Kitkatla/Oona to Hartley Bay	Great fishing area, few anchorages. Scenic inside passage. Few kayak campsites. Tides run 4 to 6 knots. If timed with tides a kayaker can cover a lot of territory. Contains Lowe Inlet Marine park
I	West Pitt Island	Kitkatla to Hartley Bay	Very good touring area with many inlets and islands (Complex landform with many small islets, inlets, channels suited to kayaks and small boats. Best example of native stone fishing weir in district – still works)
J	Estevan Group	Hartley Bay	If this area were closer to PR it would be considered the best area by far for kayaking, fishing, hiking and wildlife and scenic viewing. Remoteness limits potential for area. Areas most important and unique feature is the large island to the east – Campania Island. This island has very fine white sand beaches. Few trees on the island make hiking and viewing exceptional. Trutch Island is comprised of sheltered inlets that lead to an exposed west shore. Old radar station on Trutch Island has houses, helipad, dock and other facilities – currently leased out to shell fish farm operator.
K	Princes Royal Island and Fraser Reach	Hartley Bay	Best known for Kermode bear viewing. Barnard Harbour contains 2 large fish camps. Anchor and Canoona Lakes contain high cliffs and beaches. Khutze Inlet is known for Grizzly viewing. Undeveloped hotsprings in Klekane inlet. Karst features in Chapple Inlet. Kayaking, boating and wildlife viewing main opportunities.
L	Verney/Gardner Channels	Hartley Bay	Touring area protected from winds. Potential for hotspring tours or routes (Bishop Bay, Weewanie, Europa Pt. /Shearwater). Kermode bear viewing.
M	Aristazabal Island	Hartley Bay	Protected waters provide very good kayaking. Large beaches. Good wildlife viewing. Remote area also used for commercial sport fish.
N	Banks Island	Kitkatla	Exposed to ocean swells on west coast and is hazardous for small boats and kayakers. The east coast is steep. Few anchorages or opportunities for kayakers and small boats. Remote access.

Unit	Name	Associated Community	Comments
O	McCauley/NW Pitt Islands	Kitkatla	Small beaches, limited anchorages, modest kayaking potential.
P	Ecstall River / Skeena River	Prince Rupert/Hartley Bay	Rivers influenced by tide. Potential kayak/canoe route. Post-contact abandoned townsite. Canoeing, fishing, jet boating, wildlife and scenic viewing. Skeena River is a major influence on setting/environment. Strong winds.
Q	Nass and Outer Areas	Gingolx/Laxgalts'ap	Linkages to development associated with Nisga'a Treaty. Oolichan runs.

Source: Forest and Fisheries Tourism Opportunities Study for the North Coast Forest District (2000)

Appendix 7

Map 1.
Juneau: Spatial Distribution of Cruise Passenger Shore Excursion Activity (2002)



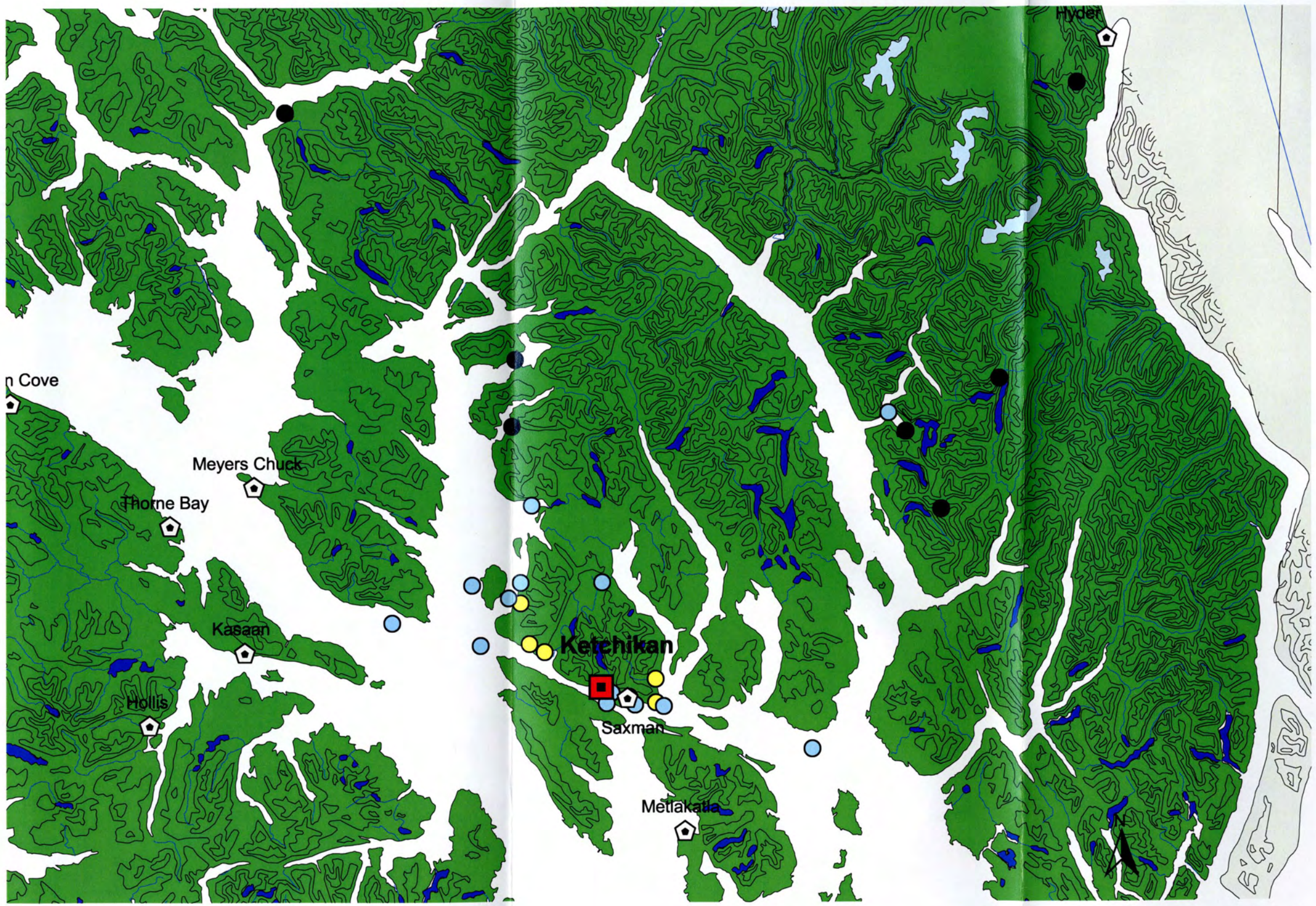
Juneau
Communities
Helicopter Overflights
Helicopter Landings
Floatplane Overflights
Floatplane Landings
Water Excursions
Land Excursions
Rivers
Lakes

Lakes
Contours
Glaciers
Base Map
Canada

0 20 40 60 80 100 Kilometers

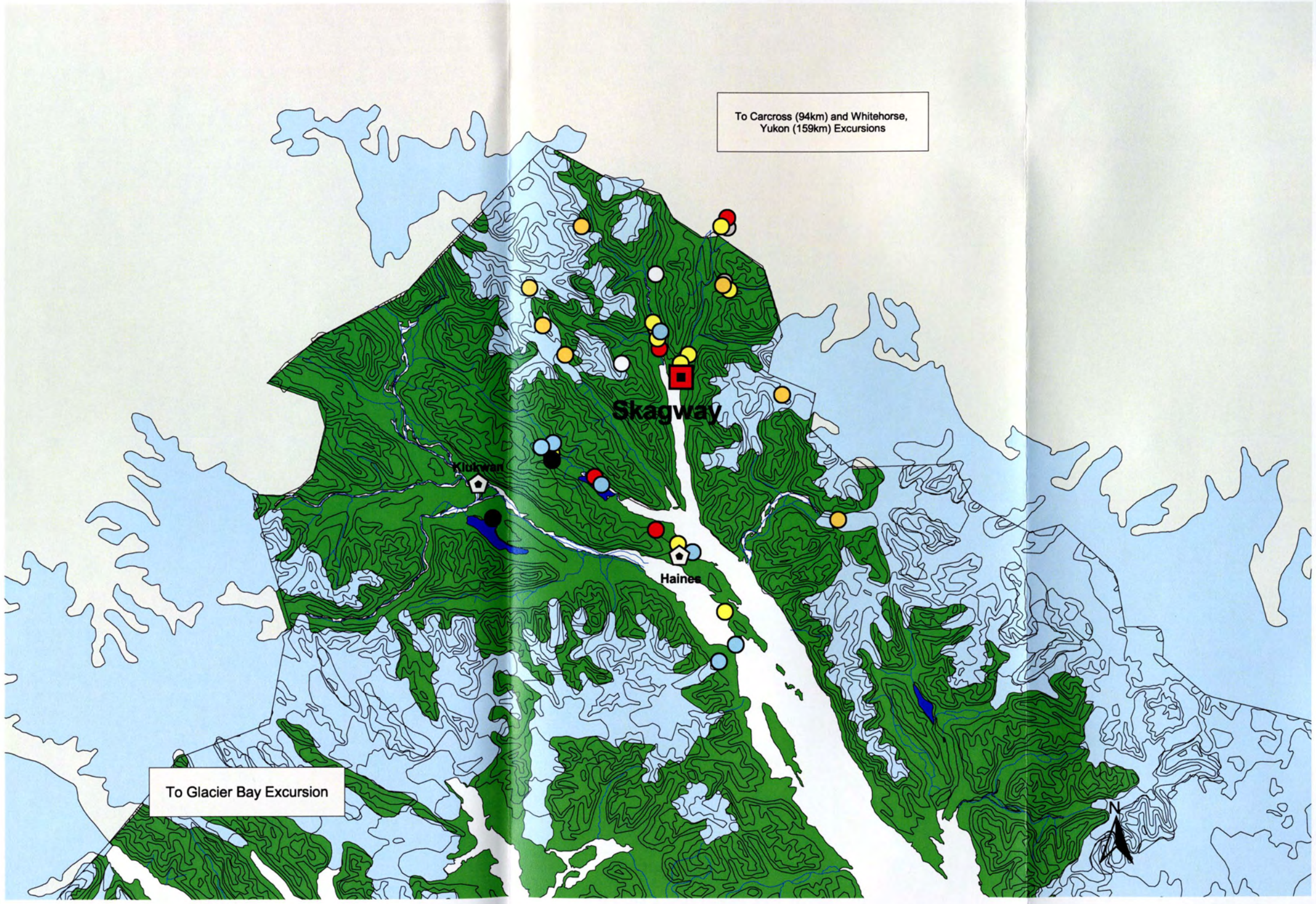
Scale: 1:800,000
Date: December, 2002
Source: ASGSDC

Map 2.
Ketchikan: Spatial Distribution of Cruise Passenger Shore Excursion Activity (2002)

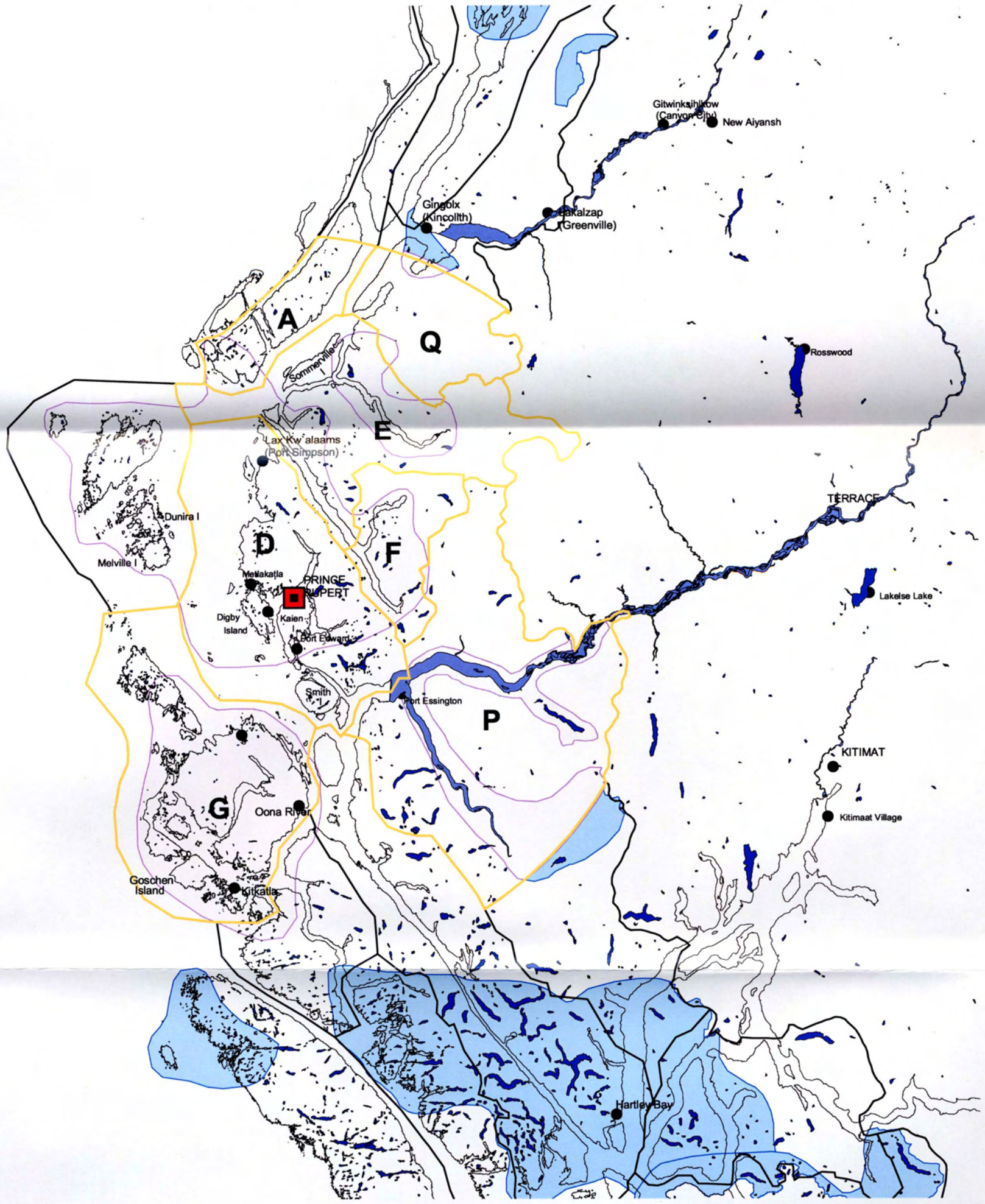


Scale: 1:800,000
Date: December, 2002
Source: ASGSDC

Map 3.
Skagway: Spatial Distribution of Cruise Passenger Shore Excursion Activity (2002)



Map 4.
Potential North Coast Land and Resource Use:
Helicopter-Based Activity



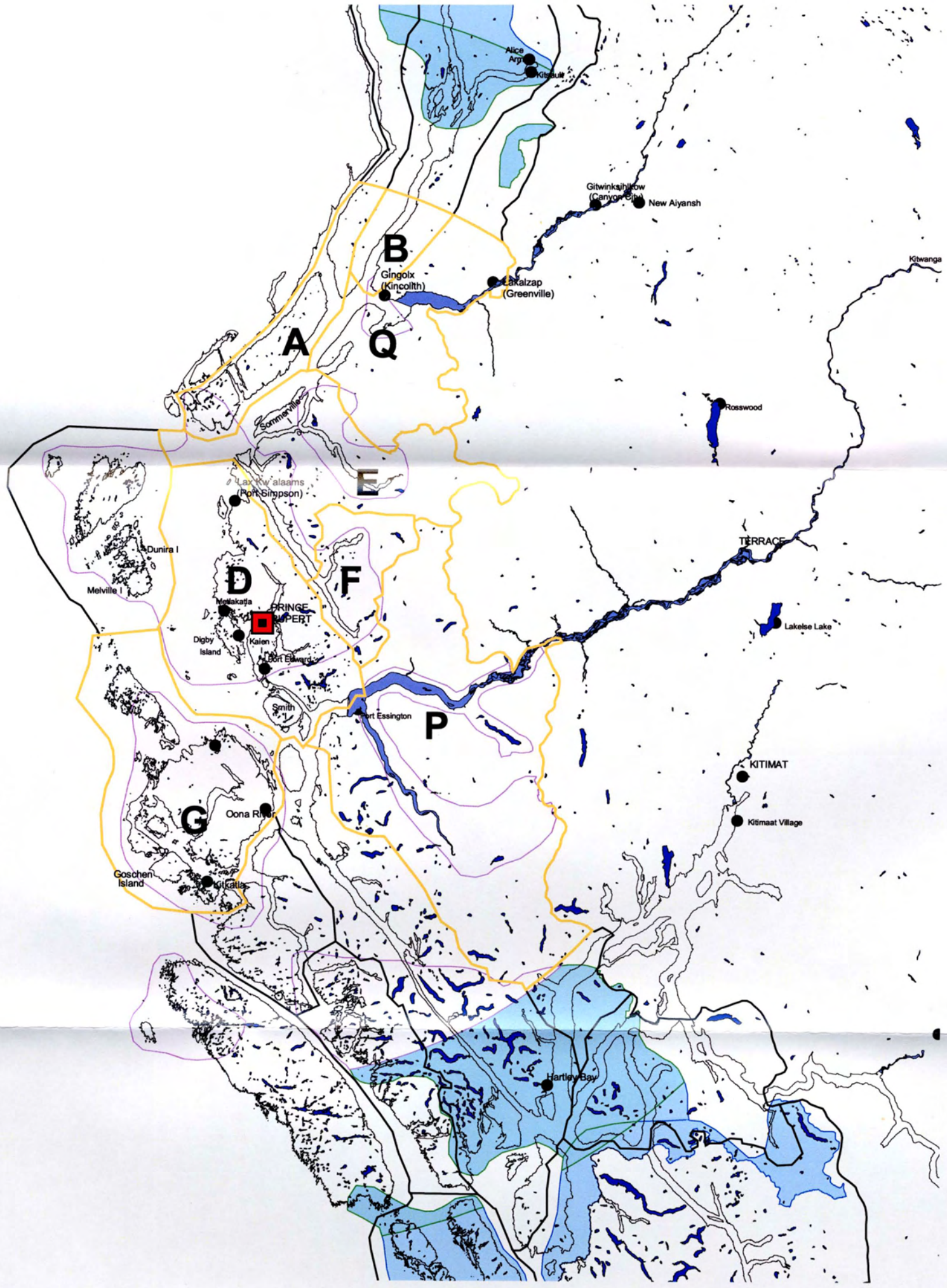
0 20 40 60 80 100 Kilometers

- Prince Rupert
- Text ReferenceText
- High Capability (In AK Tour Range 73km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- High and Moderate Suitability (In AK Tour Range 73km)
- High and Moderate Suitability (Outside AK Tour Range 73km)

N

Scale: 1:1,250,000
Date: December, 2002
Source: NCTOS 2000, 2001

Map 5.
Potential North Coast Land and Resource Use:
Floatplane-Based Activity

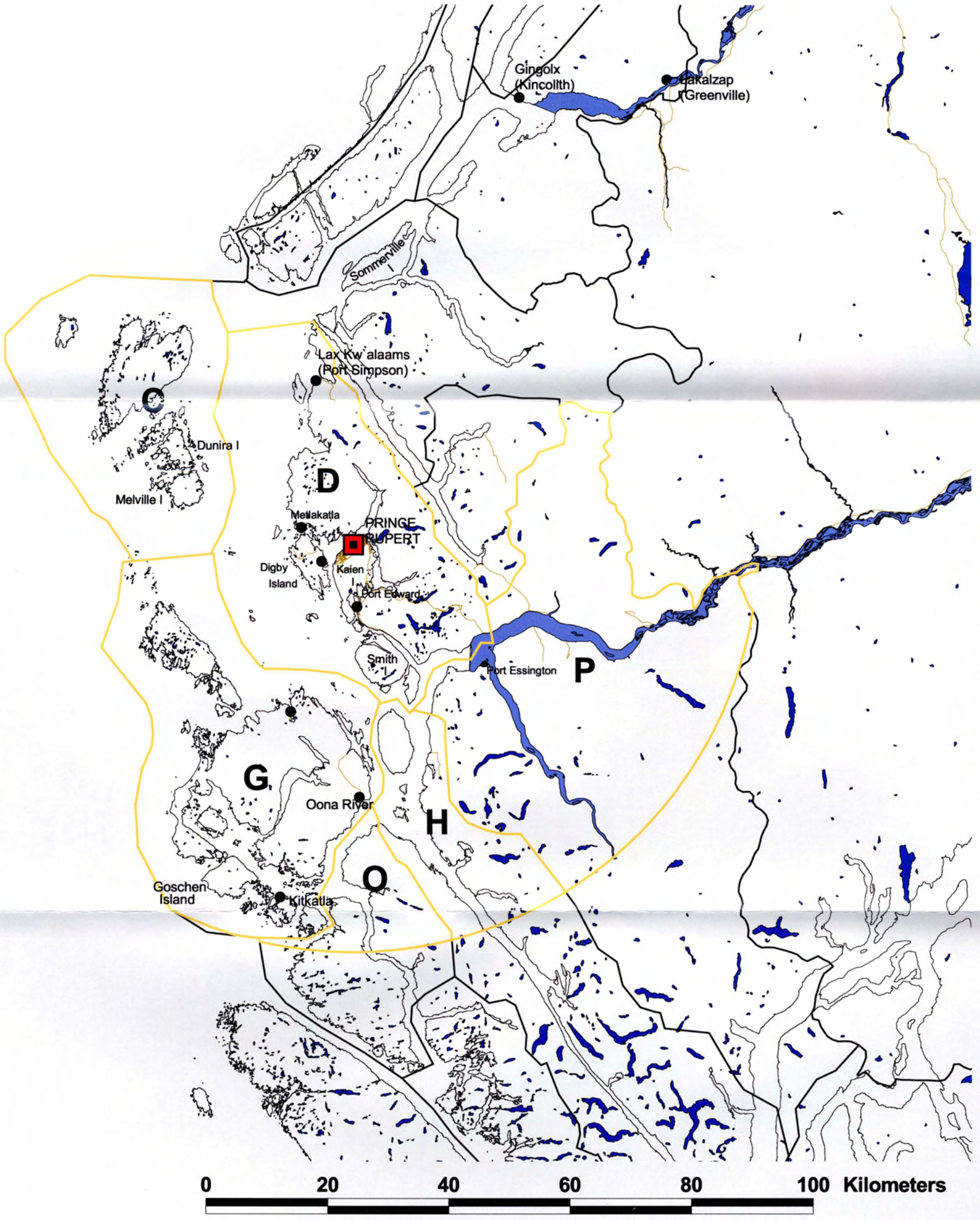


- Prince Rupert
- Text ReferenceText
- High Capability (In AK Cruise Tour Range 101km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- High and Moderate Suitability (In AK Tour Range 101km)
- High and Moderate Suitability (In AK Indep. Tour Range 140km)
- High and Moderate Suitability (Outside AK Tour Range 140km)

N

Scale: 1:1,500,000
Date: December, 2002
Source: NCTOS 2000, 2001

Map 6.
Potential North Coast Land and Resource Use:
Hiking Activity

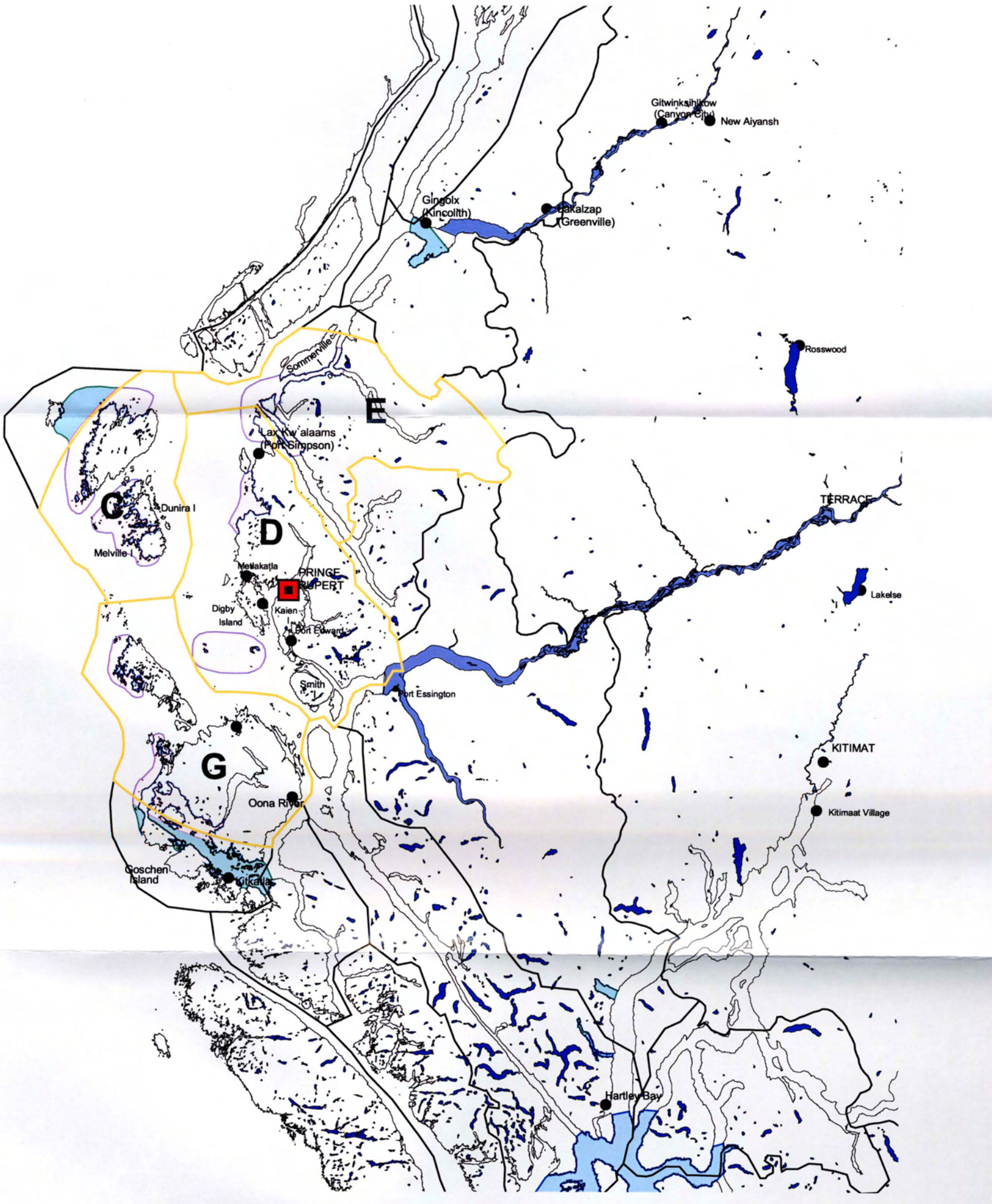


Prince Rupert
Text ReferenceText
High Capability (In AK Tour Range 67km)
Resource Units
Major Rivers
Lakes
Coastline
Communities
Roads

N

Scale: 1:1,000,000
Date: December, 2002
Source: NCTOS, 2000

Map 7.
Potential North Coast Land and Resource Use:
Marine Wildlife Viewing Activity

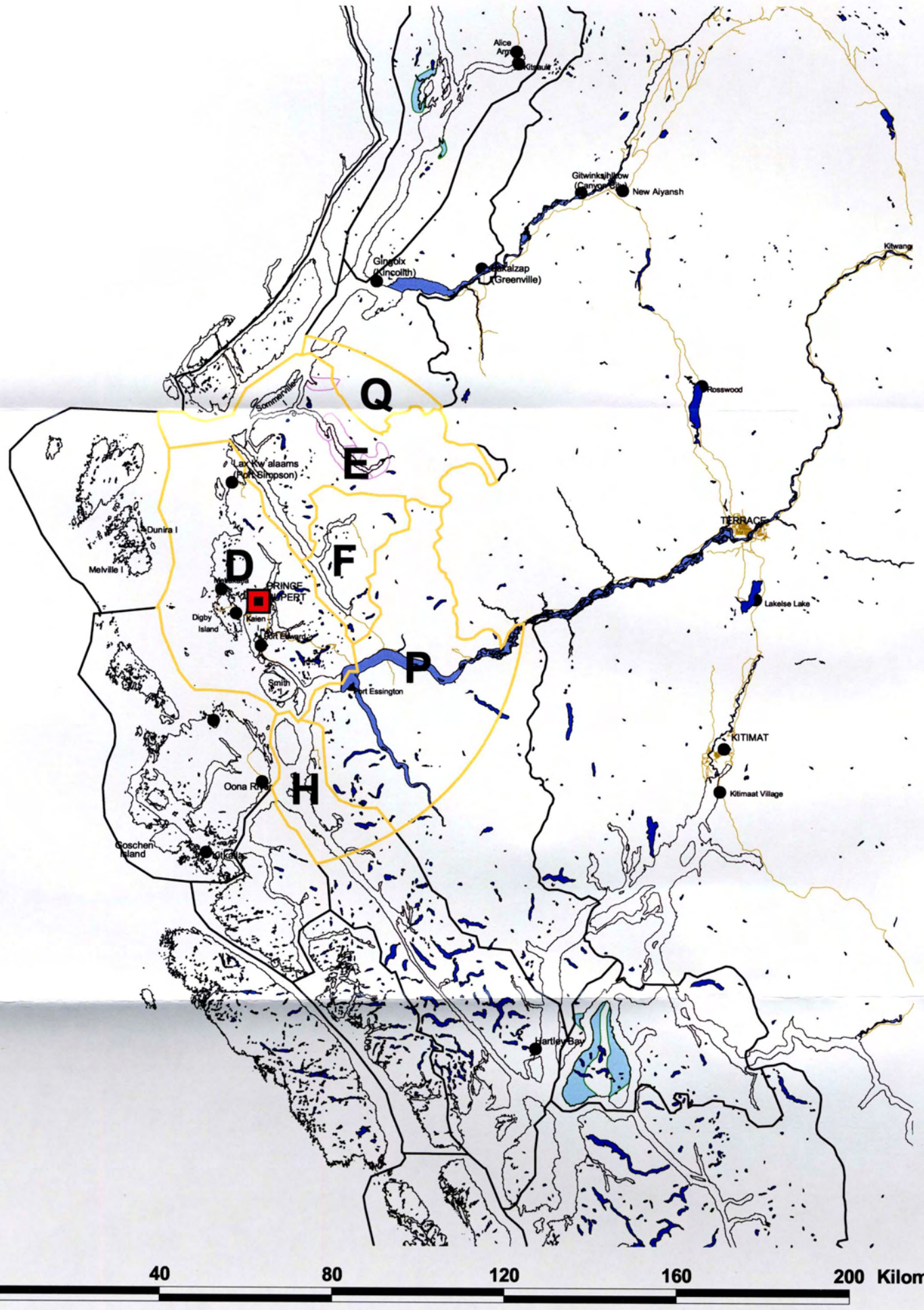


- Prince Rupert
- Text ReferenceText
- High Capability (In AK Cruise Tour Range 52km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- High and Moderate Suitability (In AK Tour Range 52km)
- High and Moderate Suitability (In Indep. AK Tour Range 108km)
- High and Moderate Suitability (Outside AK Tour Range 108km)

N

Scale: 1:1,250,000
Date: December, 2002
Sources: NCTOS 2000, 2001

Map 8.
Potential North Coast Land and Resource Use:
Terrestrial Wildlife Viewing



- Prince Rupert
- Text ReferenceText
- High Capability (In AK Cruise Tour Range 62km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- High and Moderate Suitability (In AK Tour Range 62km)
- High and Moderate Suitability (In AK Indep. Tour Range 140km)
- Roads

N

Scale: 1:1,750,000
Date: December, 2002
Source: NCTOS 2000, 2001

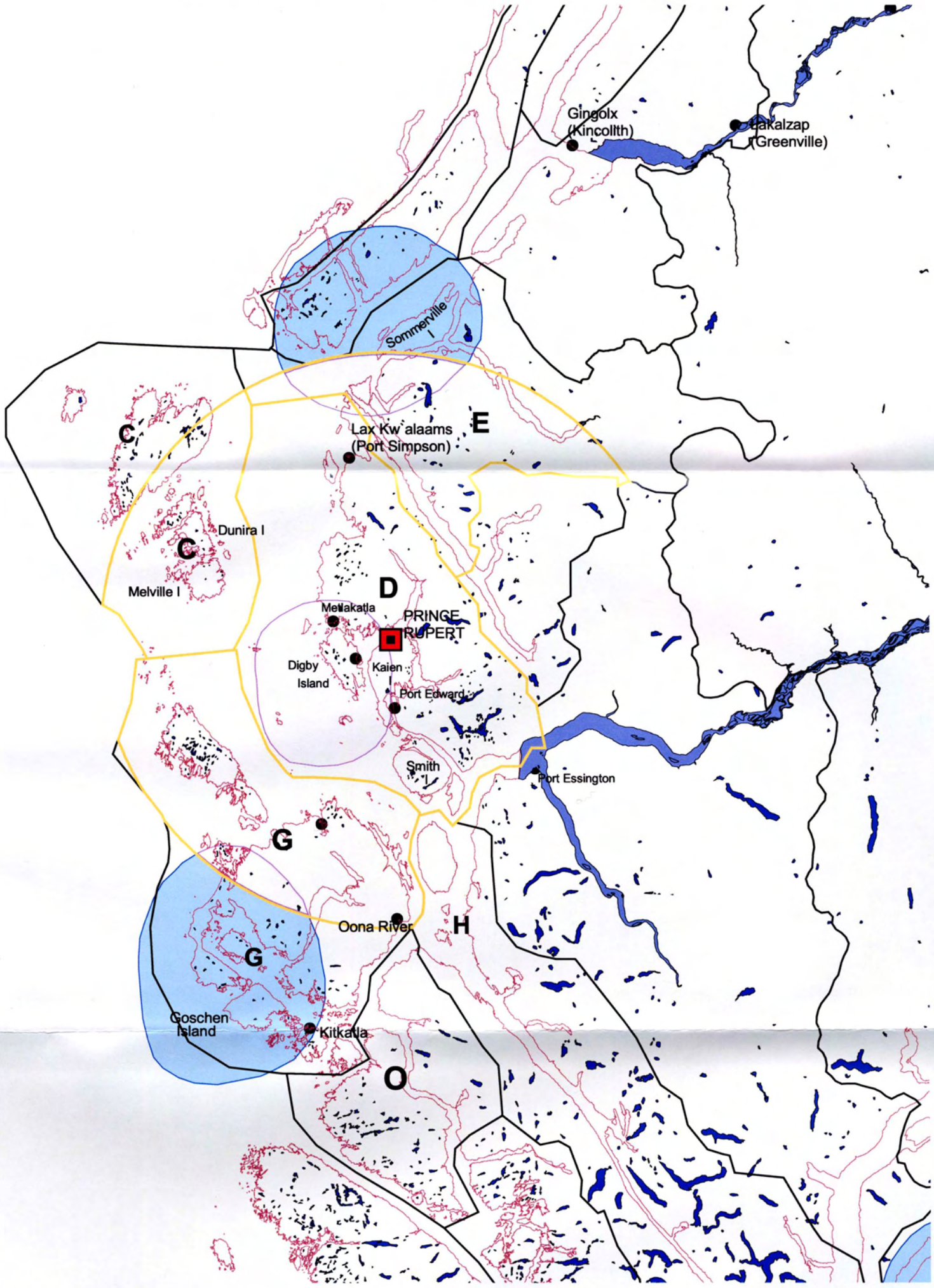
Map 9.
Potential North Coast Land and Resource Use:
Kayaking Activity

- Prince Rupert
- Text ReferenceText
- High Capability (In AK Tour Range 38km)
- Resource Units
- Coastline
- Major Rivers
- Lakes
- Communities
- High and Moderate Suitability (In AK Tour Range 38km)
- High and Moderate Suitability (Outside AK Tour Range 38km)

N

Scale: 1:1,000,000
Date: December, 2002
Source: NCTOS 2000, 2001

Map 10.
Potential North Coast Land and Resource Use:
Destination Lodge Activity



0 20 40 60 80 100 Kilometers

- Prince Rupert
- Text ReferenceText
- High Capability (In AK Tour Range 43km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- High Suitability (In AK Tour Range 43km)
- High Suitability (Outside AK Tour Range)

N

Scale: 1:1,000,000
Date: December, 2002
Source: NCTOS 2000, 2001

Map 11.
Potential North Coast Land and Resource Use:
Mountain Biking and Cycling Activities

- Prince Rupert
- Text ReferenceText
- High Capability (In AK Tour Range 38km)
- Resource Units
- Major Rivers
- Lakes
- Coastline
- Communities
- Roads

N

Scale: 1:750,000
Date: December, 2002
Source: NCTOS 2000, 2001

References

Alaska Department of Environmental Conservation (ADEC) (2001). *Web Site.* Available: http:www.state.ak.us/local/akpages/ENVIRONMENTAL.CONSERV/press/cruise /cruise.html. Accessed October 4, 2001. Various sections.

Alaska State Geo-Spatial Data Clearinghouse (ASGSDC) (2002). *Web Site.* Available:www.asgdc.state.ak.us.

Allen, J.S., K.S. Lu, and T.D. Potts (1999). "A GIS-Based Analysis and Prediction of Parcel Land-Use Change in a Coastal Tourism Destination Area." Presented: *1999 World Congress on Coastal and Marine Tourism.* Vancouver, British Columbia.

Ap, J. and J.L. Crompton (1998). "Developing and Testing a Tourism Impact Scale." *Journal of Travel Research*, 37: 120-130.

Bahaire, T. and M. Elliott-White (1999). "The Application of Geographical Information Systems (GIS) in Sustainable Tourism Planning: A Review." *Journal of Sustainable Tourism*, 7(2): 159-174.

Beedasy, J. and D. Whyatt (1999). "Diverting the Tourists: A Spatial Decision- Support System for Tourism Planning on a Developing Island." *ITC Journal*, 3-4: 163-174.

Behnke, S. (1999). "Tongass Tourism Themes: Socio-Economic Research Needs and Opportunities in Southeast Alaska." Prepared for: USFS, Juneau Forestry Sciences Laboratory.

Boyd, S.W. and R.W. Butler (1996). "Seeing the Forest Through the Trees: Using Geographical Information Systems to Identify Potential Ecotourism Sites in Northern Ontario, Canada." In *Practicing Responsible Tourism*, edited by L.C. Harrison and W. Husbands. Toronto: John Wiley. Pages 380-403.

British Columbia Land Use Coordination Office (2001). *Land Use Coordination Office Web Site.* Available: http:www.luco.gov.bc.ca.

British Columbia Ports and Destinations Group (BCPDG) (2003). "Cruise British Columbia Initiative." Presented in Prince Rupert, British Columbia. 29 April 2003.

Brown, D. (1996). *Strategic Land Use Planning: Source Book.* Victoria: Queen's Printer.

Brunt, P. and P. Courtney (1999). "Host Perceptions of Socio-cultural Impacts." *Annals of Tourism Research*, 26(3): 493-515.

Bundgaard, M. (2001). "Linking Tourism and Conservation in the Arctic." Workshop presentation. Location unknown. Available: http:www.ngo.grida.no/wwfap /doc/bundgaard.doc.

Butler, R. (1992). "Alternative Tourism: The Thin Edge of the Wedge." In *Tourism Alternatives: Potential and Problems in the Development of Tourism*, edited by V.L. Smith and W.R. Eadington. Pennsylvania: University of Pennsylvania Press.

Chardonnel, S. and W.G.M van der Knaap (2002). "Managing Tourist-Time Space Movements in Recreational Areas: A Comparative Study of a Protected Natural Park in the French Alps and the "De Hoge Veluwe" Dutch National Park Using the Same Methodology." *Revue de Geographie Alpine*, 90(1): 37- 48.

City and Borough of Juneau (2002). "Juneau Tour Operators Best Management Practices." Available: http: www.juneau.org/tourism2/. Accessed 21 July 2002.

Cruise Lines International Association (CLIA) (2003). *CLIA Website*. Available: http: www.cruising.org. Accessed various dates. Accessed various sections.

Culbertson, K., B. Hershberger, S. Jackson, S. Mullen, and H. Olson (1994). "Geographic Information Systems as a Tool for Regional Planning in Mountain Regions: Case Studies from Canada, Brazil, Japan and the USA." In *Mountain Environments and Geographic Information Systems*, edited by M.F. Price and D.I. Heywood. Bristol, PA: Taylor and Francis.

Currie-Adler, B. (2001). "Collaborative Management of the Mexican Coast: Public Participation and the Oil Industry in the Terminos Lagoon Protected Area." MRM Report 281. Burnaby, BC: Simon Fraser University, School of Resource and Environmental Management.

De La Vina, L. and J. Ford (2001). "Logistic Regression Analysis of Cruise Vacation Market Potential: Demographic and Trip Attribute Perception Factors." *Journal of Travel Research*, 39(4): 406-410.

Dickinson, B. and A. Vladimir (1997). *Selling the Sea: An Inside Look at the Cruise Industry*. Toronto: John Wiley and Sons. Pages 237-239.

Dobson, S., A. Gill and S. Baird (2001). "A Primer on the Canadian Pacific Cruise Ship Industry." Unpublished draft. Simon Fraser University.

Dwyer, L. and P. Forsyth (1998). "Economic Significance of Cruise Tourism." *Annals of Tourism Research*, 29(2): 393-415.

Edwards-Craig, R. (2003). "British Columbia Land Use Planning." MRM Report 323. Burnaby, BC: Simon Fraser University, School of Resource and Environmental Management.

Egret Communications and ARA Consulting Group (2001). "Tourism Management Plan." Prepared for: City and Borough of Juneau.

Elliot-White, M.P. and M. Finn (1998). "Growing in Sophistication: The Application of GIS in Post-Modern Marketing." *Journal of Travel and Tourism Marketing*, 7(1): 65-84.

Ethos Environmental Inc. (1998). "Tourism and Protected Areas Management in British Columbia." Prepared for: British Columbia Parks Legacy Panel.

Fagence, M. (1990). "Geographically-Referenced Planning Strategies to Resolve Potential Conflict Between Environmental Values and Commercial Interests in Tourism Development in Environmentally Sensitive Areas." *Journal of Environmental Management*, 31: 1-18. Figure 2 used with permission from Elsevier.

Ference, D. (1988). "B.C. Cruise Ship Industry Development Strategy." Prepared for: Canada-British Columbia Tourist Industry Development Subsidiary Agreement.

Foust, B., H. Botts, and M. Engert (1994). "Using GIS to Model Barriers Affecting Consumer Travel Patterns." In *GIS in Business '94 Conference Proceedings*. San Francisco: 5-8 June 1994.

Frame, T. (2002). "Shared Decision Making and Sustainability: An Evaluation of Land and Resource Management Planning in British Columbia." MRM Report 296. Burnaby, BC: Simon Fraser University, School of Resource and Environmental Management.

Friends of Aviation Newsletter (2001). *Web Site*. Available: http:www.juneau.org/ tourism2/documents2001 /FOA-Newsletter. pdf

Garrod, B. and A. Fyall. "Beyond the Rhetoric of Sustainable Tourism?" *Tourism Management*, 19(3): 199-212.

Gunn, C.A. (1994). *Tourism Planning: Basics, Concepts, Cases*. Washington, D.C.: Taylor and Francis.

Gunn, C.A. (1988). *Vacationscape,* 2nd edition. New York: Van Nostrand Reinhold.

Harris, L.K., R.H. Gimblett, and W.W. Shaw (1995). "Multiple Use Management: Using A GIS Model to Understand Conflicts Between Recreationalists and Sensitive Wildlife." *Society and Natural Resources*, 8: 559-572.

Holland America Cruise Lines (2003). *HAL Web Site*. Available: http:www.Holland america.com. Accessed various dates. Accessed various sections.

Inter VISTAS Consulting Inc. (2001). "Port Vancouver Economic Impact Study." Prepared for: Vancouver Port Authority.

Inter VISTAS Consulting Inc. (1999). "1999 Vancouver-Alaska Cruise Passenger Study." Prepared for: Vancouver Port Authority.

Kariel, H.G. (1989). "Tourism and Development: Perplexity or Panacea?" *Journal of Travel Research*, Summer:2-6.

Klugherz and Associates (1999). "Campbell River Cruise Ship Port: Preliminary Assessment." Prepared for: District of Campbell River and Campbell River Indian Band.

KPMG Consulting (2002). "Cruise Market Trends." Presentation made to the Ministry of Sustainable Resource Management, January, 2002.

Lue, C.C., J.L. Crompton, and D.R. Fesenmaier (1993). "Conceptualization of multi-destination pleasure trips." *Annals of Tourism Research*, 20(2): 289-301. Figure 1 used with permission from Elsevier.

Manning, E.W., and T.D. Dougherty (1995). "Sustainable Tourism: Preserving the Golden Goose." *Cornell H.R.A. Quarterly*, April: 29-42.

Marsh, J. and S. Staple (1995). "Cruise Tourism in the Canadian Arctic and Its Implications." In *Polar Tourism: Tourism in the Arctic and Antarctic Regions*, edited by C.M. Hall and M.E. Johnston. Chichester: Wiley and Sons.

Marti, B. (1990). "Geography and the Cruise Ship Port Selection Process." *Maritime Policy Management*, 17(3): 157-164.

McAdam, D. (1999). "The Value and Scope of Geographical Information Systems in Tourism Management." *Journal of Sustainable Tourism*, 7(1): 77-92.

McCool, S.F. (1995). "Linking Tourism, the Environment, and Concepts of Sustainability: Setting the Stage," In *Linking Tourism, the Environment, and Sustainability-Topical Volume of Compiled Papers From A Special Session of the Annual Meeting of the National Recreation and Park Association,* compiled by S.F. McCool and A.E. Watson. Minneapolis, MN: General Technical Report. INT-GTR-323.

McDowell Group (2002). "Ketchikan Visitor Market Analysis: Summer 2001." Prepared for: Ketchikan Visitors Bureau and Ketchikan Gateway Borough.

McDowell Group (2001). "Survey on Juneau Visitor Center Needs." Prepared for: City and Borough of Juneau.

McDowell Group (2000). "The Economic Impacts of the Cruise Industry in Southeast Alaska." Prepared for: Southeast Conference.

Ministry of Sustainable Resource Management. (MSRM) *Web Site.* Available: srmwww.government.bc.ca/ske/lrmp/ncoast. Used with permission from the Province of British Columbia.

Morrison, A.M., C.H. Yang, J.T. O'Leary, and N. Nadkarni (1996). "Comparative Profiles of Travellers on Cruises and Land-Based Resort Vacations." *Journal of Tourism Studies*, 7(2): 15-27.

National Marine Fisheries Service (NMFS) (2000). *NMFS Web Site.* Available: http:www.fakr.noaa.gov/newsreleases/2000/00_02_akr.htm. Accessed 18 October 2001.

NCTOS 2001-Clover Point Cartographics (2001). "North Coast Tourism Opportunities: Suitability and Tourism Use Mapping." Prepared for: Ministry of Sustainable Resource Management.

NCTOS 2000-Clover Point Cartographics (2000). "Forest and Fisheries Tourism Opportunities Study for the North Coast Forest District: Project Report." Prepared for: Ministry of Small Business, Tourism and Culture. Elements reprinted with permission from the Province of British Columbia.

Nickerson, C.N. (2001). "Canada Ignores Ugly Secret: Polluted Harbors". *The New York Times.* 7 June 2001.

Nizeyimana, E., G.W. Petersen, and J.C. Looijen (2002). "Land Use Planning and Environmental Impact Assessment Using Geographic Information Systems." In *Environmental Modeling With GIS and Remote Sensing*, edited by A. Skidmore. New York: Taylor and Francis.

North West Cruiseship Association (NWCA) (2003). *NWCA Web Site.* Available: http: www.alaskacruises.org. Accessed various dates. Accessed various sections.

North West Cruiseship Association (NWCA) (2002). "2002 Cruise Season Review." *NWCA Web Site.* Available: http: www.alaskacruises.org.: Accessed 24 July 2003.

Nowlan, L. and I. Kwan (2001). "Cruise Control - Regulating Cruise Ship Pollution on the Pacific Coast of Canada." Prepared for: West Coast Environmental Law.

Oceans Blue Foundation (2001). "Cruise Ship Stewardship Initiative." Available: http:www.oceansblue.org/bluetourism/chartacourse/cruiseship/.html

Oppermann, M. and K.P. Brewer (1996). "Location Decision Making in Hospitality Using GIS- A Paradigm Shift?" In *Proceedings for the 1996 Australian Tourism and Hospitality Research Conference*. Canberra, Australia.

Pattullo, P. (1996). *Last Resorts: The Cost of Tourism In The Caribbean*. New York: Cassell.

Pearce, P.L. (1995). "Tourist-Resident Impacts: Examples, Explanations and Emerging Solutions." In *Global Tourism: The Next Decade*, edited by W. Theobald. Oxford, UK: Butterworth-Heineman.

Prince Rupert Economic Development Commission (PREDC) (1998). "Prince Rupert Economic Development Strategy." Available:http:www.rupert.net/strategy.htm. Accessed September 2001.

Princess Cruise Lines (2003). Princess Web Site. Available: http:www.princess.com. Accessed various dates. Accessed various sections.

Savitsky, B., J. Allen, and K.F. Backman (1999). "The Role of Geographic Information Systems (GIS) in Tourism Planning and Rural Economic Development." *Tourism Analysis*, 4: 187-199.

Senes, G. and A. Toccolini (1998). "Sustainable Land Use Planning in Protected Rural Areas in Italy." *Landscape and Urban Planning*, 41: 107-117.

Southeast Strategies and Dean Runyan Associates (2000). "Skagway Economic Impact Study." Prepared for: City of Skagway.

Tarrant, M.A. and H.K. Cordell (1999). "Environmental Justice and the Spatial Distribution of Outdoor Recreation Sites: An Application of Geographic Information Systems." *Journal of Leisure Research*, 31(1):18-34.

Thomas, G.A. (1991). "The Gentrification of Paradise: St. John's, Antigua." *Urban Geography*, 12(5): 469-487.

Tourism British Columbia (2003). "2002 in review: Building tourism with insight." Available: http:www.tourism.bc.ca. Accessed August 4, 2003.

Tourism Concern (1997). *Tourism Concern Focus Pack: Cruise Ship Tourism*. London: Tourism Concern.

Trail Mix (2002). *Web Site*. Available: http:www.juneautrails.org/index.html. Accessed 26 July 2002. Various sections.

Twining-Ward, L. (1999). "Towards Sustainable Tourism Development: Observations From a Distance." *Tourism Management*, 20: 187-188.

United States Census Bureau (2003). *Web Site*. Available: factfinder.census.gov Accessed 27 November 2003.

United States Environmental Protection Agency (USEPA) (2000). "Cruise Ship White Paper." Available: http:www.epa.government/owow/oceans/cruise_ships/ white_paper.pdf.

United States Forest Service (USFS) (2002a). "Helicopter Landing Tours on the Juneau Icefield: 2003-2007: Record of Decision." Available:http:www.fs.fed.us/r10/ tongass/management % 20news/decisions /helirod.pdf.

United States Forest Service (USFS) (2002b). Misty Fiords Interagency Plan Meeting Minutes. Unpublished.

United States Forest Service (USFS) (2001a). "Shoreline-Based Recreation Carrying Capacity Analysis for the Admiralty Island National Monument, Hoonah, Juneau, and Sitka Ranger Districts."

United States Forest Service (USFS) (2001b). "Collaborative, Interagency Planning, Misty Fiords National Monument: Concept and Positioning Paper." Unpublished.

Wager, J. (1995). "Environmental Planning for a World Heritage Site: Case Study of Angkor, Cambodia." *Journal of Environmental Planning and Management*, 38(3): 419-435.

Weaver, D.B. (1993). "Model of urban tourism for small Caribbean islands." *The Geographical Review*, 83(2): 134-141.

Wicks, B.E., K.F. Backman, J. Allen, D. Van Blaricom (1993). "Geographic Information Systems: A Tool for Marketing, Managing, and Planning Municipal Park Systems." *Journal of Park and Recreation Administration*, 11(1): 9-23.

Williams, P.W., J.C. Day and T, Gunton (1998). "Land and Water Planning in British Columbia in the 1990s: Lessons on More Inclusive Approaches. *Environments,* 25(2-3): 1-7.

Williams, P.W., R.W. Penrose, and S. Hawkes (1998). "Shared Decision-Making in Tourism Land Use Planning." *Annals of Tourism Research*, 25(4): 860-889.

Williams, P.W., J. Paul, and D. Hainsworth (1996). "Keeping Track of What Really Counts: Tourism Resource Inventories in British Columbia, Canada." In *Practicing Responsible Tourism*, edited by L.C. Harrison and W. Husbands. Toronto: Wiley and Sons.

Wise, J. (1999). "How Cruse Ships Short-Change the Caribbean." *Fortune,* 29 March 1999.

World Tourism Organization (WTO) (2003). "World tourism in 2002: Better than expected." *World Tourism Organization Web Site*. Available: http:www.world-tourism.org. Accessed 27 January 2003.

World Tourism Organization (WTO) (2002). "Tourism proves as a resilient and stable economic sector." *World Tourism Organization Web Site*. Available: http:www.world-tourism.org. Accessed 18 June 2002.

Yin, R.K. (1994). *Case Study Research: Design and Methods 2nd Edition*. Thousand Oaks: Sage Publications.

Notes

Key Informant Discussions

[1] MSRM representative. Telephone discussion. December, 2002

[2] Ketchikan tourism representative. Personal contact (site visit). July, 2002

[3] Ketchikan tourism representative. Personal contact (site visit). July, 2002

[4] Juneau municipal government representative. Personal contact (site visit). July, 2002

[5] Juneau helicopter tour operator. Personal contact (site visit). July, 2002

[6] Juneau helicopter tour operator. Personal contact (site visit). July, 2002

[7] Juneau cruise line representative. Personal contact (site visit). July, 2002

[8] Ketchikan tourism representative. Personal contact (site visit). July, 2002

[9] Juneau helicopter tour operator. Personal contact (site visit). July, 2002

[10] Ketchikan tourism representative. Personal contact (site visit). July, 2002

[11] Juneau cruise line representative. Personal contact (site visit). July, 2002

[12] Juneau marine wildlife viewing tour operator. Personal contact (site visit). July, 2002

[13] Juneau helicopter tour operator. Personal contact (site visit). July, 2002

[14] Juneau floatplane tour operator. Personal contact (site visit). July, 2002

[15] Juneau floatplane tour operator. Personal contact (site visit). July, 2002

[16] USFS representative. Personal contact (site visit). July, 2002

[17] USFS representative. Personal contact (site visit). July, 2002

[18] Juneau tourism consultant. Personal contact (site visit). July, 2002

[19] Juneau helicopter tour operator. Personal contact (site visit). July, 2002

[20] Municipal government representative. Personal contact (site visit). July, 2002

[21] USFS representative. Telephone conversation. June, 2002

[22]Juneau hiking tour operator. Telephone conversation. August, 2002