

**ASSESSING
COMMUNITY CAPACITY FOR
ECOSYSTEM MANAGEMENT:
CLAYOQUOT SOUND
AND REDBERRY LAKE
BIOSPHERE RESERVES**

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in Partial Fulfillment of the Requirements
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By

Sharmalene Ruwanthi Mendis

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ABSTRACT

Biosphere reserves are regions that are internationally recognized for their ecological significance and work towards ecosystem management. The concept of community capacity, as developed in the resource management and health promotion literatures, was applied to two such regions that were designated in 2000: Clayoquot Sound and Redberry Lake. The purpose of this comparative research was to better understand what constitutes the collective ability, or community capacity, these places have for fulfilling their functions as biosphere reserves. Community capacity is the collective mobilization of resources (ecological, economic/built, human and social capitals) for a specified goal. A mixed methods approach was taken. Self-assessments, both qualitative and quantitative, were used to determine community capacity in focus groups with biosphere reserve management, residents, and youth (grades 9-12). The results were compared to a statistics-based assessment of socioeconomic well-being. Semi-structured interviews for a related research project provided further insight.

This comparative research made theoretical advancements by identifying key constituents of community capacity, including dimensions of the capitals and ‘mobilizers,’ or factors that motivate people to work for communal benefit. Mobilizers were found to be key drivers of the process of using and building community capacity. Four mobilizer categories were identified: the existence of, and changes to capital resources; individual traits; community consciousness; and, commitment. The practical implications of applying both qualitative and quantitative assessment methods were examined. It was found that there are several ways to conduct the socioeconomic assessment, and that adaptive methodological application is advised in research that attempts to be truly community-based—not just *about*, but *for* and *with* communities.

It was found that, while it does not ensure a biosphere reserve’s success, economic capital plays a key role in activating other resources beyond a time frame of three years, where social capital can be the primary driver for activity. Despite substantial differences politically, socially, and economically, both regions experienced similar challenges that can be largely attributed to a general lack of understanding of the biosphere reserve concept, and a lack of consistent, core funding.

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This research was approved by the Behavioural Research Ethics Board at the University of Saskatchewan. Proofreading was done by Laura Matheson. And the Department of Geography administrators, Bernice and Phyllis, were always so helpful.

This work is dedicated to the two most important people in my life who have helped me achieve my goals. My mother, who has loved me endlessly, carried me through some of my darkest days, and has supported me emotionally and financially throughout my life. And my partner, James, for all of his love, support, patience, encouragement, work on my project website, and culinary talents that kept me happily well-fed. He put up with me during my grumpy days (especially during the never-ending writing process!), and should be given as much credit for this degree as I.

DEDICATION

To my mother, Ranjini, who has always encouraged me to achieve my goals.

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LIST OF ACRONYMS

BR	Biosphere Reserve
C	City (Census subdivision type)
CBRA	Canadian Biosphere Reserve Association
CBT	Clayoquot Biosphere Trust
CLARET	Clayoquot Alliance for Research, Education, and Training
CORE	Commission on Resources and Environment
CRB	Central Region Board
CS	Clayoquot Sound
CSD	Census subdivision
CUISR	Community-University Institute for Social Research
CURA	Community-University Research Alliance
D	District (Census subdivision type)
DFO	Department of Fisheries and Oceans
FOCS	Friends of Clayoquot Sound
IMA	Interim Measures Agreement
IMEA	Interim Measures Extension Agreement
NGO	Non-governmental organisation
NTC	Nuu-chah-nulth Tribal Council
PRNP	Pacific Rim National Park
R	Reserve (Census subdivision type)
RDA	Regional District Electoral Area (Census subdivision type)
RL	Redberry Lake
RM	Rural Municipality (Census subdivision type)
SES	Socioeconomic Status
SSHRC	Social Sciences and Humanities Research Council
T	Town (Census subdivision type)
UNESCO	United Nations Educational, Scientific and Cultural Organisation
VL	Village (Census subdivision type)

WEBSITE

Results from this thesis, links to relevant websites (e.g., biosphere reserve organisations), and information about the author are available at: www.mendis.ca.

SETTING THE STAGE

Biosphere Reserves are places where nature nurtures the minds, hearts and bodies of the people, and the people strive to live gently and maintain vital processes to sustain themselves and the other species that share the biosphere.

Canadian Biosphere Reserve Association (CBRA 2004)

*If the will and spirit are not willing not much is going to happen,
no matter how ecologically important an area is.*

Ucluelet resident (U4)

Without community, there is no Biosphere Reserve.

Without social capital, there should be no Biosphere Reserve.

Without ecological capital, there is nowhere.

Hafford resident (R1)

CHAPTER 1: INTRODUCTION

1.1 Statement of problem

A paradigm shift has occurred in North American resource management wherein ecosystem management is being widely implemented as an approach to achieve sustainability (Cortner and Moote 1999). This approach emphasizes the need to manage both the ecological and human components of an ecosystem; therefore, there has been a growing interest in assessing the ability of communities to manage their ecological, social and economic resources. Several approaches to assessing a community's ability to manage its social and environmental assets have been attempted. In the past, especially in studies of forest-based communities, the concept of community stability informed policymakers on the relationship between communities and the natural resources upon which they are dependent (Nadeau *et al.* 1999). As well, quality of life (e.g., Vogel 1997) and community resiliency studies (e.g., Quigley *et al.* 1996; Harris *et al.* 1998) have attempted to assess communities in various contexts. Few studies have examined how diverse peoples within communities are able to work together to meet common objectives. In particular, research that adequately addresses what is required by communities to implement ecosystem management is lacking (Kusel 1996), with a few empirical exceptions (FEMAT 1993; Doak and Kusel 1996).

Biosphere reserves are internationally recognized, by the United Nations Educational, Scientific, and Cultural Organisation (UNESCO), as areas that promote a balance between the conservation of ecosystems and the sustainable use of resources for human activity. As such, they are meant to be “‘living laboratories’ for testing out and demonstrating integrated management of land, water and biodiversity” (UNESCO 2004a). To be considered for this distinction, community members follow a nomination process that includes demonstrating that their region is not only ecologically significant, but also that community members are committed to the goals of sustainability. Biosphere reserves are intended to serve as models of sustainability through community-

based ecosystem management. As communities outside of a biosphere reserve's official boundary may contribute to its functioning, the biosphere reserve *region* may be considered as a broader 'community.' Biosphere reserves have the potential to address the issues raised by Agenda 21 at the 1992 United Nations conference on Environment and Development in Rio de Janeiro by being places to explore means of balancing human needs and desires with protecting the environment, an important purpose in a world facing such issues as increasing population pressures.

Determining community capacity is an emerging approach to assessing how effectively communities can implement ecosystem management. Since this concept is relatively new, especially when applied to ecosystem management, its definition is still contentious (e.g., Beckley *et al.* 2002; Kusel 1996; Nadeau 2002) and there is a lack of agreement concerning its measurement, with few methods suggested (e.g., Doak and Kusel 1996; FEMAT 1993; Nadeau 2002). Levels of socioeconomic well-being have traditionally been used to assess communities and are useful tools for policy-makers, providing a 'rough and ready' snapshot of what a community has to offer. Examples include studies of community sustainability in North American rural regions (e.g., Copus and Crabtree 1996; Force and Machlis 1997; Henderson 1994; Parkins *et al.*, 2001a; Parkins *et al.*, 2001b; Parkins 1999). Other examples include the Natural Resources Canada Sustainable Communities Initiative (<http://www.sci.gc.ca/>), Criteria and Indicators (C&I) Initiative by the Canadian Council for Forest Ministers (CCFM) (http://www.ccfm.org/3_e.html), and the e-Dialogues for Sustainable Development Project led by Ann Dale of Royal Roads University (<http://e-dialogues.royalroads.ca/project.htm>).

However, researchers have found that social indicators are insufficient for capturing broader aspects of a community that are not easily measured, such as the ability to work together towards a common goal (Doak and Kusel 1996). These broader aspects, previously unrecognized in studies of well-being, can be addressed by considering local dynamics internally (by communities themselves) and/or externally (by academic or applied researchers). It is still unknown whether one strategy is a more successful and accurate means of assessing communities, or if both are required for a comprehensive community assessment.

In light of this gap, the aims of this study are twofold. The first aim is to apply two community assessment approaches to determine the capacity of the Clayoquot Sound and Redberry Lake biosphere reserve regions to undertake ecosystem management to fulfill their functions. The first approach relies on community members to assess their community capacity, while the second combines statistical data to generate a socioeconomic score, a measure of socioeconomic well-being. The second aim is to compare the community capacity self-assessments, primarily obtained in focus groups, to the socioeconomic scores to determine their relative contributions to a comprehensive assessment of a community's ability to implement ecosystem management.

1.2 Research question and objectives

The research question of this study is: **How can the community capacity to fulfill biosphere reserve functions through ecosystem management be assessed?** Following the findings of Doak and Kusel (1996), the guiding hypothesis is that a biosphere reserve's community capacity level is weakly but positively correlated to socioeconomic levels of well-being.

To answer the research question, the research objectives are twofold:

1. To determine how the concept of community capacity can be operationalized in the context of community-based ecosystem management; and,
2. To determine the relative contribution of socioeconomic status, or level of well-being, as compared to community capacity assessments, to an understanding of the capacity of a biosphere reserve to implement ecosystem management to fulfill its functions within a biosphere reserve region.

This thesis tackles these objectives to answer the research question by comparing communities and methods. I **compare communities** by discussing the relative community capacities and socioeconomic levels of well-being of the Clayoquot Sound and Redberry Lake biosphere reserve regions. I then **compare methods** by examining the relative strengths and weaknesses of their application, while drawing attention to the linkages among methods in terms of the breadth and depth of data to which they are sensitive.

1.3 Geographical context: biosphere reserves

As their purpose is centred on integrating people, places, and their environments, biosphere reserves provide an ideal context for geographical research. The designation is granted by UNESCO through the Man and the Biosphere (MAB) Programme based in Paris, France. Areas are selected to receive this recognition because of their significant ecological, economic, social, and cultural values. Local, provincial, and national levels of government must provide their endorsement for the designation to be approved. The study sites of this research, the Clayoquot Sound and Redberry Lake biosphere reserves, experience influence and support from communities outside of their official biosphere reserve boundaries; therefore, for this study, the biosphere reserve *region* will be referred to and assessed.

Biosphere reserves have three mutually reinforcing functions (UNESCO 2004a): **conservation** of landscapes, ecosystems, species, and genetic variation; **sustainable development** that takes social, cultural, and ecological issues into account; and, **logistic provisioning/capacity building** by facilitating research, monitoring, education, training, and information exchange related to conservation and development issues at all levels.

Every biosphere reserve is divided into three zones associated with one or more functions, as illustrated in Figure 1: the *core*, a legally constituted protected area with minimal human activity that includes monitoring and research aimed at conservation; the *buffer zone* that surrounds the core area, with more human activity such as environmental education and training, tourism, and recreation; and, the *zone of*

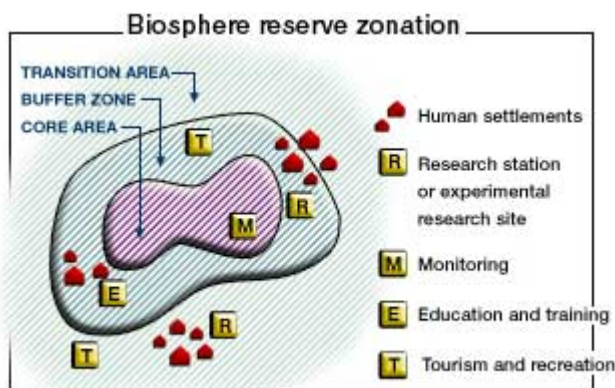


Figure 1: Biosphere reserve zonation (UNESCO 2004a)

cooperation, or *transition zone*, extending outwards from the buffer zone, and characterized by increased human activity such as settlements, agriculture, and fisheries (UNESCO 2004a).

Although the biosphere reserve designation does not come with any monetary or regulatory attachments, there are benefits to the region in which a biosphere reserve is created. First, biosphere reserves in Canada belong to the Canadian Biosphere Reserve Association (CBRA), which has a mandate is to build “community capacity to conserve, and sustain Canada’s natural and cultural heritage” (CBRA 2003) through various means, including helping communities mobilize government agencies, industries, businesses, and individuals to support local initiatives aimed at increasing economic and environmental well-being. Thus, CBRA has the potential to help a region through networking, lobbying, and connecting researchers with communities.

In addition, benefits of the biosphere reserve designation include the potential ability to: share information, knowledge, ideas, and experiences with the World Network of Biosphere Reserves; enjoy official recognition by a United Nations agency; serve as demonstration sites to address pertinent local, national and international issues pertaining to people and the environment; and, serve as areas for integrated land and resource management. As well, the designation may serve as leverage for funding opportunities associated with social, economic, and/or environmental programs aimed at sustainability. Further, biosphere reserves have the potential to be practical examples of the ecosystem-based approach to management, aiming to reconcile biodiversity conservation with development, while enhancing cultural values (UNESCO 2004a).

These potentials may translate into an unlimited assortment of benefits by creating opportunities, depending on the vision and efforts of the people within the biosphere reserve. These benefits may include attracting people to the area while maintaining a certain degree of control over the type of tourist drawn to the region through eco-tourism, garnering economic diversification projects and funds to implement these, and joining organizations with similar interests to more effectively work towards a goal. However, these potentials cannot be realized if a biosphere reserve cannot fulfill its three functions.

Biosphere Reserves follow ecological boundaries, such as watersheds, rather than social boundaries, such as Census subdivisions or municipalities. In the Canadian context, the delineations of the designation are only drawn on paper, as opposed to on the physical landscape with markers or fences. As the boundaries traverse human places and spaces associated with political regimes, economic activities, infrastructure, settlements, and cultural norms established prior to the designation, it is imperative to consider the socially-defined region in which the biosphere reserve is situated. Thus, the biosphere reserve region is considered for assessment here to include the settlements and populations within biosphere boundaries as well as adjacent municipalities that mainly fall outside of those boundaries, but which nevertheless exert direct social, economic and political influence within the biosphere reserve, as stated in section 2.2.2.

1.4 Significance of study

Community-level policy-makers and citizen activists can use community capacity assessments to a) diagnose their assets (broadly defined) and b) select appropriate actions to address social needs in the context of certain objectives. Research addressing these tasks is still developing; as Nadeau *et al.* (1999) assert, the “major challenge of community capacity assessment . . . is to identify certain attributes of a community that facilitate or impede its ability to [respond] to change” (750). Since there are no well-established practical methods to determine community capacity, this thesis research was exploratory. It was based on grounded theory in that it focused on developing theory from data (Bryman 2001) to determine the value-based and other aspects to be included for future community capacity assessments.

Two assessment approaches were applied in two case study areas to:

- build upon previous studies and inform current research on community capacity;
- ascertain the community capacity of each biosphere reserve region as perceived by local residents;
- determine the socioeconomic level of each biosphere reserve region from Statistics Canada census data;
- compare the strengths and weaknesses of both assessment approaches;

- examine the robustness of each method; and,
- determine what can be revealed about community capacity from each method.

The significance of this research lies in its conceptual and methodological contributions. First, the thesis offers substantive theoretical developments to further conceptual understandings of community capacity by offering an operational definition, framework, and criteria for assessment. Second, the research develops a mixed methods approach to community capacity assessments. A mixed methods approach, also known as multi-strategy research (Bryman 2001), refers to combining “the qualitative and quantitative approaches to the research methods of a study” (Tashakkori and Teddlie 1998: 1). The practical implications of using various methods in community-based research, involving the active participation of local people in shaping aspects of the research design, are examined. The methodology promotes what Reed and Peters (2004) term ‘adaptive methodologies’ to make the research process and outputs more meaningful to people within a study community.

1.5 Thesis overview

This thesis examines the community capacities of two Canadian biosphere reserves, as well as the efficacy of the assessment methods. The thesis continues with an overview of the literature that provided the context for this study in chapter 2. A review is given of ecosystem management, the concept of community capacity, and two approaches to community assessment—one relying on information and perspectives from within a community, the other relying on social indicators available from outside a community. Chapter 3 focuses on describing the study sites and methodology, and provides details of the evolution of this project from its methodological conception to the final application of methods. Both the community-based assessment of community capacity and the socioeconomic assessment of well-being are discussed.

The results of the community capacity assessments are given in chapter 4, with particular attention paid to a comparison of the two biosphere reserve regions. Chapter 5 focuses on the methods of assessment, beginning with a presentation of the results of the socioeconomic assessment of well-being, and continuing on with a comparison of

the quantitative and qualitative methods employed. The chapter closes by arguing for being flexible and adaptable in methodological application when conducting community-based research. A summary of findings is offered in chapter 6, along with a re-conceptualization of community capacity as informed by empirical results. Both the theoretical and methodological contributions made by this study are summarized before a theory about the early evolution of biosphere reserves is given. The thesis concludes with recommendations for Canadian biosphere reserves, implications for further research on community capacity, and the limitations of the research.

1.6 Note to the reader

When describing the research results, I mainly adhered to the language that was used by research participants, as opposed to translating words or phrases to, and thus privileging, academic terminology (‘togetherness’ instead of ‘social cohesion,’ for example). The purpose of this was to respect the local knowledge I accessed, and to use language appropriate to the social contexts framing the research.

Insights from interviews conducted for Dr. Maureen Reed’s related research in the two biosphere reserves¹ inform this work, and are referred to throughout the thesis. Interviewees are referenced according to location, with CS for Clayoquot Sound and RL for Redberry Lake, and number, to yield an interviewee code, such as CS4 or RL1. If more than one interview was conducted with the same person, interviews are distinguished by an appended letter (e.g., RL3a, RL3b). When focus group participants are quoted or paraphrased, they are referred to by their group code and participant number, separated by a period. Pseudonyms (e.g., Keith, Scott) accompany any verbal quotations to conceal the identities of participants. Group codes are as follows: C for Clayoquot Biosphere Trust, US for Ucluelet Secondary School, T for Tofino, U for Ucluelet, R for R for Redberry Lake Biosphere Reserve Community Committee, RL for Redberry Lake public, H1 for grades 9 and 10 students from Hafford Central School, and, finally, H2 for grades 11 and 12 students from Hafford Central School. For instance, the fourth participant in the Tofino public focus group is referred to as T.4.

¹ The research concerns uneven environmental management in the Clayoquot Sound and Redberry Lake biosphere reserves, and was funded by the Social Sciences and Humanities Research Council (SSHRC).

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Several bodies of literature inform this research. First, ecosystem management provides the context for this work by providing definitions, philosophies, and practices of the contemporary resource management regime associated with biosphere reserves. Second, work on community capacity offers definitions and methodological insights for studying the social dimensions of ecosystem management within and across communities, and the foundations for the development of a theoretical framework that serves as an organizational basis for community assessment. Third, relevant methods of community assessment are discussed, with particular attention paid to social indicators research to further direct how to measure social aspects. As well, this section offers examples of past attempts to assess communities by social and economic determinants, laying the groundwork for the use of a socioeconomic scale and subjective ratings of community capacity. The following sections examine each body of literature in turn.

2.2 Ecosystem Management

Across North America, many communities have employed sustainable development strategies to apply the concepts from the 1987 Brundtland Commission report (Mitchell 1997)². Ecosystem management reflects a paradigm shift in natural resource management thinking, wherein the goal to maintain ecological sustainability and/or integrity³ has replaced managing resources solely for human use (Cortner and Moote, 1999; Freemuth 1996; Imperial 1999; Slocombe 1998). Critical to this new

² As this study is situated in Canada, this literature review focuses in on the experience of developed countries, with a focus on North America.

³ Ecological integrity is also a contested term. For some, it has been defined as an umbrella for three concepts: a) ecosystem health, which is the ability to maintain normal functions under varying environmental conditions; b) the ability of the ecosystem to cope with stress; and, c) the ability of the ecosystem to continue the process of self-organization (Kay and Schneider 1994).

approach is the recognition of the need to manage for human as well as ecological community sustainability (Ender-Wada *et al.* 1998). Its concepts, principles, practices, public perceptions of, and applications have been studied widely (Bengston *et al.* 2001; Cortner and Moote 1999; Danter *et al.* 2000; Ender-Wada *et al.* 1998; Freemuth 1996; Imperial 1999; Kay and Schneider 1994; Mackenzie 1997; Mitchell 2001; Olson and Folke 2001; Raedeke *et al.* 2001; Roe and VanEeten 2001; Slocombe 1998; Steel and Weber 2001; Weber 2000; Zeide 1999).

2.2.1 Definition and principles of ecosystem management

Many definitions of ecosystem management have been borne out of these studies. An often-quoted definition is from Grumbine (1994: 31): “Ecosystem management integrates scientific knowledge of ecological relationships within a complex sociopolitical and values framework toward the general goal of protecting native ecosystem integrity over the long term.”

Four principles characterize this approach to resource management: “(1) socially defined goals and objectives; (2) holistic, integrated science; (3) adaptable institutions; and, (4) collaborative decision making” (Cortner and Moote 1999: 40). It is recognized that human behaviour is linked to ecosystem well-being (Burch 1994) and humans are considered integral parts of ecosystems, as opposed to being considered separate entities (Cortner and Moote 1999). Thus, environmental *and* human community assessments, in conjunction with one another, are required to effectively manage regions, whether ecologically and/or socially defined.

Ecosystem management, one of several approaches to achieving sustainability, emphasizes ecologically-driven regions (Mitchell 2001) and is employed by ecologists and natural resource managers (Platt *et al.* 1996; Yaffee *et al.* 1996). Other approaches include: the natural capital approach (Serageldin 1995; Viederman 1996), popular with ecological economists; sustainable urban design (Kunstler 1996; McDonough 1992; Van der Ryn and Calthorpe 1986), which is typically used by land use planners, architects, and local officials; and, metropolitan governance, employed by those who seek a regional policy approach (Hiss 1996, cited in Hempel 1999: 53). Community-based ecosystem management in rural, resource-based areas is increasingly used in North

America, and especially in the United States, with an emphasis on stewardship (Ack *et al.* 2001). Community capacity has emerged as an organizational framework with which to assess communities in terms of their ability to implement ecosystem management, recognizing that this ability does not solely rely on economic prosperity.

2.2.2 Sustainable communities within ecosystem management

Through ecosystem management, each biosphere reserve aims to be a ‘sustainable community’

to maintain and improve the economic, environmental, and social characteristics of an area so its members can continue to lead healthy, productive, enjoyable lives there...the primary goal of a sustainable local community is to meet its basic resource needs in ways that can be continued in the future (Hart 1995, cited in Beckley and Burkosky 1999: 3).

This provides a context for community capacity assessments, as the

... ability ... to follow sustainable development paths is determined to a large extent by the capacity of its people and institutions as well as by its ecological and geographical conditions. [Specifically,] capacity-building encompasses ... human, scientific, technological, organizational, institutional resource capabilities (United Nations, Agenda 21: 270 in Mazmanian and Kraft 1999: 3).

Thus, an assessment of both the existence and quality/use of resources, whether ecological, economic, human, or social, is one way of determining the capacity of people and their environments to follow a path to becoming a sustainable community.

‘Community’ is a complex term incorporating both sociological (i.e., interest-based) and geographical dimensions (i.e., place-based), one that has generated considerable debate. Each biosphere reserve encompasses several towns, rural municipalities, and/or districts that can be defined as individual communities. However, for the purposes of this research, each biosphere reserve as a region, including places (i.e., towns, villages) that are adjacent to or partially enclosed within the biosphere boundary, is considered a regional ‘community’ to provide clear boundaries for the well-being assessment. This approach is consistent with Hempel’s (1999) definition of community as the “geographic associations of people who share some social, political, historical, and economic interests” (45). Hempel’s conception of ‘community’ also corresponds with Kusel’s (2001) definition that applies to well-being assessments, that

of a geographically place-based shared identity (369). Individual towns, villages, municipalities, and First Nations Reserves within the region that the biosphere reserve boundaries overlay will be referred to as communities in this thesis, with the recognition that the ‘biosphere reserve region’ is considered a meta-community for both the community capacity and well-being assessments in this study.

Considering a biosphere reserve region as a territorial or place-based community, as opposed to one defined by interest or attachment⁴ (Crowe and Allan 1994), is justified as the residents of each are, purportedly, working toward the same goal of sustainability, and are implementing the same resource management framework, ecosystem management, to achieve this. Local commitment to addressing issues of sustainability must be demonstrated in the nomination document to UNESCO before the designation is granted. Thus, residents of the biosphere reserve region can be considered as one group working towards this objective, despite individual differences. Of course, it is problematic to attempt to classify a person into a community when s/he may identify with multiple ‘communities’ (Kusel 2001), and considerable social differences exist within the confines of the biosphere reserve region boundaries; people vary by such factors as class, ethnicity, gender, age, values, beliefs, and perceptions. As well, the term ‘community’ continues to be contested in the literature, and one could argue that place itself is a shared interest. Recognizing that these multiplicities and complexities exist, it is assumed, for the purposes of this thesis, that biosphere reserve region residents are a group of diverse peoples who form a ‘community’ that is closely tied to and responsible for their ecosystem. Their collective actions and decisions impact upon each other and the environment within the biosphere reserve borders, whether or not they were aware of, or agreed with, the designation of their region as a biosphere reserve.

⁴ According to Crowe and Allan (1994), ‘interest communities’ are comprised of those that share social aspects such as ethnic origin, religion, occupation, or leisure pursuits. A ‘community of attachment’ refers to collective activity that emerges from how people see their relationship to each other and the environment.

2.3 Community capacity

A conventional means of ascertaining a community's well-being has been to determine its socioeconomic status by employing statistical data (e.g., from a Census). As this method does not take human values and other non-quantifiable aspects of a community into account, other types of community assessment have been attempted. Examples of these include community stability (Drielsma 1984; Humphrey 1990; Machlis *et al.* 1990), community well-being (Bliss *et al.* 1998; Marchak 1990), community resiliency (Harris *et al.* 1998; Quigley *et al.* 1996), and quality of life (Musschenga 1997; Vogel 1997). However, these studies have not adequately addressed what is required of communities in order to apply the principles of ecosystem management (Kusel 1996). The concept of community capacity attempts to fill this void and has only recently been applied in the context of ecosystem management, thus providing a contemporary—although contested—approach for assessing a community's ability to achieve a goal.

2.3.1 Conceptions of community capacity

Community capacity is an emerging concept that may assist the assessment of a community's ability to facilitate ecosystem management. Much of the community capacity literature draws upon a tradition in community development, and has only more recently been applied to environmental management and health prevention (Hancock *et al.* 1999). The concept of community capacity is founded on the work of Amartya Sen (1984; 1985a; 1985b; 1987; 1993) that focuses on 'capabilities,' or the freedom and opportunities, and 'functioning,' or achievements given the state and characteristics of resources (Kusel 1996; 2001), attempting to "capture the capability of community members to collectively affect opportunities" (Kusel 2001: 374).

Several definitions applied to resource-based communities illustrate the breadth of the concept. Community capacity has been defined as "the collective ability of a group (the community) to combine various forms of capital within institutional and relational contexts to produce desired results or outcomes" (Beckley *et al.* 2002: 7) such as to (Kusel 1996):

- respond to external and internal stresses;
- create and take advantage of opportunities; and,
- meet the needs of residents, diversely defined (369).

There are two common approaches to understanding community capacity. The first focuses on taking an inventory of community assets that describe community capacity using key community characteristics; these characteristics are typically grouped into ‘capitals’ (e.g., Beckley *et al.* 2002; Kusel 1996; Nadeau 2002). The second approach examines the actions and factors that mobilize these resources through social relations, revealing not so much what capacity *is* and what enhances and restricts it, but how to *build* it (e.g., Beckley *et al.* 2002). Two theoretical frameworks of community capacity, and insights from studies within the context of resource management, demonstrate a progression in understanding of the concept and provide a basis for assessment.

The first framework was conceptualized by Doak & Kusel (1996) for the Sierra Nevada Ecosystem Project. It was informed by the work of Amartya Sen, which views well-being as comprising a community’s resources and “how they contribute to what a person can do” (Kusel 1996: 368). The foundation of the framework asserts that community capacity depends on the well-being of a community, with resources conceptualized as *capitals*⁵. Combining the work of Beckley *et al.* (2002), Doak and Kusel (1996), Gottret and White (2001), Kusel (2001) and (1996), and Nadeau *et al.* (1999), the capitals of community capacity employed in this thesis are ecological, economic/built, human, and social; these capitals are briefly defined in turn.

Ecological capital refers to the natural endowments and resources of a region (Collados and Duane 1999; Deutsch *et al.* 2000; Power 1996; Roseland 1999; Schiller *et*

⁵ This has allowed for the use of established accounting schemes to permit measurement of environmental and community assets for the purposes of environmental management with the aim of sustainability (Hempel 1999). Cost-benefit analysis is one such application (Auty 1995). Capital theory, as conventionally applied to the concept of sustainability, asserts that the same or more stock of capital must be left for future generations to compensate those in the future for damage that present activities may cause (Turner 1995). This application to resource management, however, is problematic in that it assumes that non-material aspects of a community may be adequately valued in monetary terms, and also presumes that one capital may replace another; such issues have been contested (Common 1995; Stern 1997). This usage of capital theory is not the intention here; instead, the concept of ‘capital’ is used to break down the components of a community as a framework for assessment.

al. 2001), including the stock of natural resources (i.e., forests, clean air, water, arable land, soil, genetic resources) and environmental services (nutrient cycling, carbon sequestration). The financial resources of a community, along with the built infrastructure of a community, comprise the economic/built capital of an area (Berkes *et al.* 1994; Deutsch *et al.* 2000; Flora 1999), which includes financial capital, or liquid assets such as municipal budgets, individual and household savings, and operating funds. Economic/built capital also accounts for infrastructure, or fixed assets, which include utilities (i.e., transportation, water, institutional buildings), business property (i.e., stores, factories, productive machinery, trucks, equipment), and technology.

Human capital concerns the skills, education, experiences, and general abilities of individuals (Côté 2001; Flora *et al.* 1992; Johnson and Stallman 1994), encompassing formal and informal education, traditional and naturalized knowledge, job experience, health, entrepreneurship, and leadership. Finally, social/cultural capital⁶ will be simply referred to as social capital, implying the inclusion of cultural capital. Social capital is a complex concept that refers to relational, as opposed to individual, aspects of society. It can be both a capital stock and a mobilizing force, and can be viewed as a close relation of cultural capital (Putnam 2001; Roseland 1999; Woolcock 2001). Beckley *et al.* (2002) identify three types of social capital as put forth by Woolcock (2001): *bonding* social capital, or relations among family, close friends, and neighbours; *bridging* social capital, which are the relations between loosely connected, but demographically similar individuals; and, *linking* social capital, alliances with sympathetic individuals in positions of power beyond the community. Interrelated elements of this capital also include informal social networks and the associational life of a community, which influence the ability and willingness of residents to work together for community goals, and the norms and networks that facilitate collective action.

⁶ Different combinations of capitals are referred to in the literature. For instance, Kusel (1996) identifies three capitals (physical, human and social), and five in his later work (2001) (physical, financial, human, cultural, and social), whereas Nadeau *et al.* (1999) identify four (physical/financial infrastructure, social, human, and environmental). I have chosen to combine economic and physical, or built, capital since the two concepts overlap considerably; the built environment can be seen as a composition of commodities, as it can be considered equal to having monetary value and is exchanged and traded as such. Cultural capital, “. . . the myths, beliefs, and norms that organize groups and facilitate survival” (Kusel 2001: 375) is excluded as a separate construction here as its aspects are evident in the examination of social capital, which encompasses norms and relationships that both facilitate and influence decisions and actions.

The first three capitals, as listed and defined above, are somewhat straightforward concepts and, thus, do not require extensive explanation. Social capital, on the other hand, is an area of extensive study all unto its own. A myriad of debates exists as to how to define and measure it, its links to social cohesion and community capacity, as well as how it affects social outcomes (e.g., Burt 1998; Falk and Kilpatrick 2000; Flora 1998; Glaeser 2001; Hancock *et al.* 1999; Lochner *et al.* 1999; Mohan and Stokke 2000; Pennington and Rydin 2000; Putnam 2001; Rudd 2000; Schuller 2001; Wall *et al.* 1998; Willms 2001; Woolcock 2001; Veenstra 2001).

Researchers generally agree that social capital is a necessary component for building community capacity for a sustainable future (Hall 1999)⁷. The prevalent view asserts that social capital enhances other features in society, such as economic growth, education levels, literacy levels, and community vitality (Wall *et al.* 1998; Willms 2001), forms the ‘glue’ of social cohesion (Hancock *et al.* 1999), and “is a primary determinant of economic development and community capacity” (Kusel 1996: 369). In the context of ecosystem management, social capital is defined as “those features of social life – networks, norms, and trust – that facilitate citizen association and enable participants to act together more effectively to pursue shared objectives” (Cortner and Moote 1999: 92). This definition relates to two principles of ecosystem management: defining goals socially and making decisions collaboratively.

Beckley *et al.* (2002) present a second conceptual framework (Figure 2). They believe that community capacity encompasses a wide range of assets and outcomes, with feedback mechanisms articulating its processes, how it is exhibited, and how it is reproduced. Here, community capacity is comprised of three key elements: capital stocks (as in the previous framework), relational processes, and capacity outcomes. Their framework illustrates the process of how resources, defined as capital stocks, are used within established social relations to create and manage the capacity to produce desired outcomes, thus providing the context for how people accomplish tasks, legitimize their actions, distribute resources, and structure their institutions.

⁷ This agreement stands despite potential problems of placing too much emphasis on community responsibility for building social capital, such as underplaying “the role governments have in constituting civil society” (Hancock *et al.* 1999: 13).

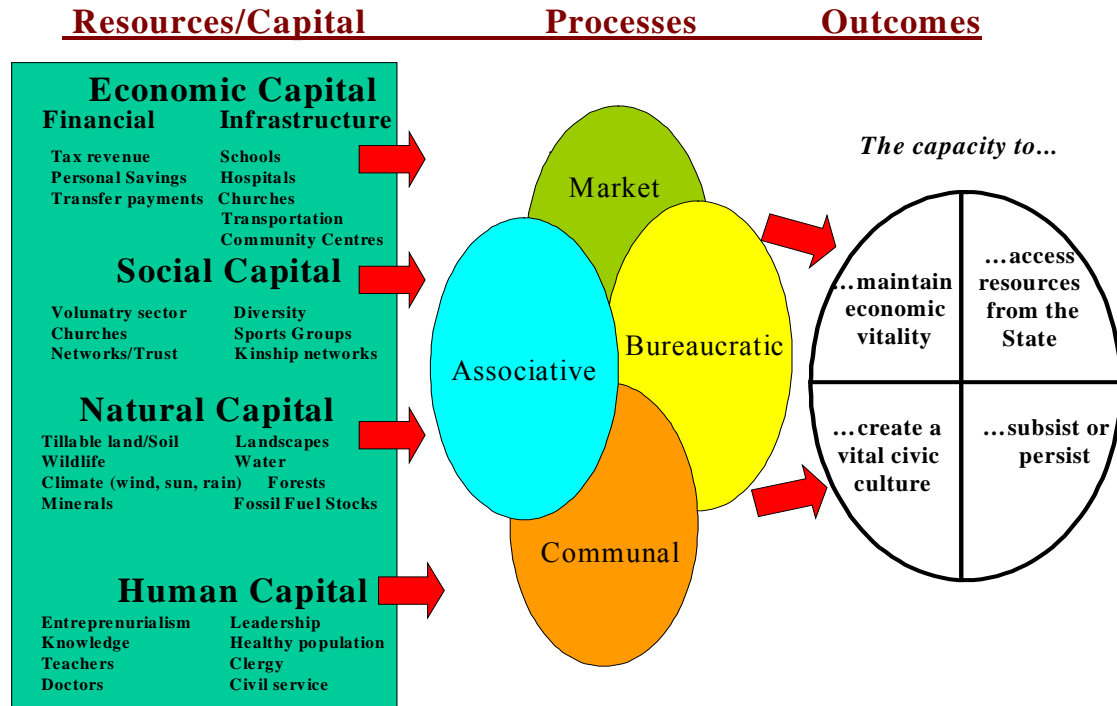


Figure 2: A model of community capacity by Beckley *et al.* 2002

The work of Beckley *et al.* (2002) focuses on producing outcomes with an emphasis on the question, *the capacity to do what?* Four outcomes are suggested; the capacity to:

- maintain or enhance economic vitality;
- access resources from the state;
- create or maintain a vital civic culture; and,
- subsist or persist.

I argue that *all* outcomes are necessary to increase the well-being of a community. The work of Nadeau (2002) offers further insight. She states that adopting an historical perspective and examining attitudes towards community capacity not only deepens the understanding of capacity development, but also uncovers the factors influencing how people contribute or do not contribute to it. These approaches reveal a) the dynamics that produce and sustain a certain capacity, and b) the extent to which concerns about specific issues vary throughout a community that may affect the ability of groups within a population to contribute to capacity. The historical perspective is useful because lessons can be learned from how communities have coped with previous

unexpected changes, such as natural hazards or international market pressures on local production. As Nadeau (2002) posits, “such events might even produce a chain reaction and induce major changes in several components, thus profoundly reshaping overall capacity” (38).

Two bioregional studies that included assessments of forest-based communities offer a few final insights concerning the concept of community capacity. Both the Forest Ecosystem Management Team (FEMAT) and the Interior and Upper Columbia Basins Ecosystem Management Project (ICBEMP) suggest that a small, rural community’s ability to adapt to changes is constrained by: limited infrastructure; limited economic diversity; low active leadership; dependence on nearby communities; and, weaker links to centers of political and economic influence (Harris *et al.* 1998). Further, Harris *et al.* (1998) identified critical dimensions of community character and conditions, one being community preparedness for the future. Other dimensions include economic diversity, community leadership, community government effectiveness, resource dependence, and community services. According to Harris *et al.* (1998), all dimensions affect a community’s capacity to adapt and respond to change—the capabilities needed to work towards a common goal.

2.3.2 A new framework of community capacity

Building on these frameworks and insights, an original conceptual framework was developed to guide initial data collection and analysis (Figure 3). In this framework, community capacity is viewed as the combination and interrelation of resource capitals and ‘mobilizers’ of action. The arrows indicate the interconnectedness of the capitals and mobilizers. Factors that stimulate people to take action towards realizing a community goal, or to become involved in their communities, are labeled as mobilizers. Mobilizing forces have the potential to affect all of the capitals, which in turn affect one another and the mobilizers. Factors that inhibit community action are termed here as ‘demobilizers;’ these are not explicitly referred to in Figure 3, as the framework is meant to illustrate what builds, not hinders, community capacity. Negative influences on the any of the framework components result in decreased community capacity. In this thesis, the term ‘de/mobilizers’ denotes instances when

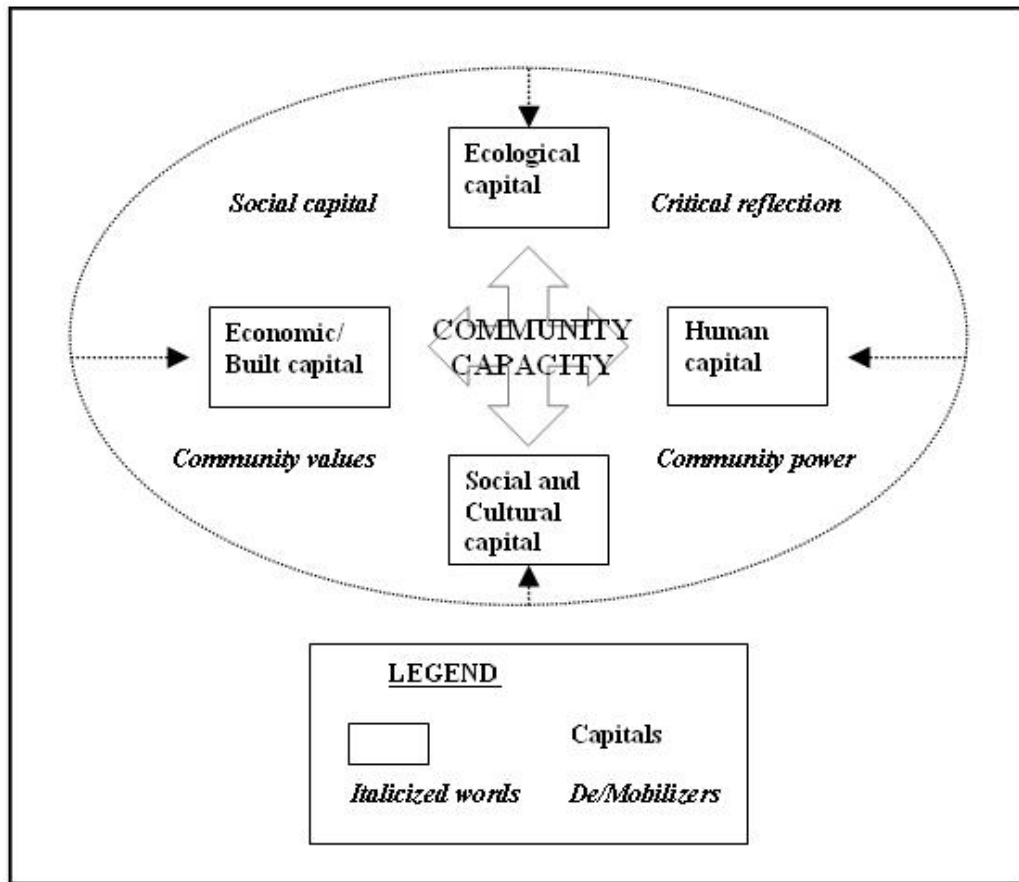


Figure 3: Conceptual framework of community capacity (adapted from Nadeau *et al.* 1999, Goodman *et al.* 1998, Doak and Kusel 1996, and Kusel 1996).

Note: The mobilizers given in this figure are not a comprehensive list of all mobilizers that may be pulled from the literature. Instead, they are given as examples.

both mobilizers and demobilizers, or positive and negative influences on activating people to work towards community goals, are described.

The addition of mobilizers to understanding community capacity was inspired by the work of Goodman *et al.* (1998), who presented an alternative conceptual framework for community capacity in the context of determining an appropriate assessment strategy for health promotion and disease prevention programs. Their study identified the dimensions of community capacity as follows: citizen participation; leadership; skills; resources; social and inter-organisational networks; sense of community; understanding of community history; community power; community values; and, critical reflection. These dimensions were incorporated into the framework as components of capital or mobilizing factors.

The original framework combined what a community has in terms of assets or capital resources with how these capitals are used and mobilized. Both elements were considered key to understanding the ecological and human elements of biosphere reserves. Thus, in this framework, community capacity can be viewed as a process as well as an outcome; it is a complex, multidimensional concept that operates at individual, group, organizational, community, and policy levels (Goodman *et al.* 1998).

2.4 Community assessment approaches

Among the different approaches that may be taken when assessing communities, two are introduced here: community-based, ‘internal,’ and conventional, ‘external,’ assessments. The former approach informs self-assessments of community capacity by focus group participants and key informant interviews, while the latter informs the tabulation of a socioeconomic scale that is comprised of social indicators.

2.4.1 Self-assessments: a community-based approach

There are no well-established, practical methods to determine community capacity. Assessment is difficult since its theoretical base is broad and includes non-tangible, value-based aspects of a community’s perspectives, previously unrecognized in community research. In addition, the concept includes socioeconomic factors that are not readily ascertained by employing quantitative measures, such as objective indicators. As mentioned previously, Nadeau *et al.* (1999) suggest that the “major challenge of community capacity assessment . . . is to identify certain attributes of a community that facilitate or impede its ability to [respond] to change” (750). Once those attributes are identified, how can they be effectively assessed?

Community-based approaches that charge residents with determining their own capacity provide one possible answer; the following examples of community capacity assessments offer methodological guidance. Several studies provide examples of the usefulness of generating qualitative data from community capacity assessments. In the Canadian rural context, Nadeau (2002) conducted interviews in Haut-St-Maurice, a forestry region in Quebec, to uncover aspects deemed important for creating and maintaining capacity over time. She found that, while natural resources were crucial for

building initial capacity, community capacity declined and improved over time due to factors such as industry downsizing and change of industry ownership, respectively. Nadeau (2002) concluded that an historical perspective revealed the richness and complexity of the relationship between forests and communities. Gathering differences in attitudes towards issues of concern uncovered important aspects of the community capacity of Haut-St-Maurice, such as economic diversity and networks of civic organizations. She also pointed out that “differences noticed between diverse groups within the community point to weak areas that may impair the community’s capacity to adapt to change” (92). This finding signals the need to determine the distribution of costs and benefits within communities, which may expose barriers to building capacity requiring attention from policymakers. Attention to inequities (i.e., differential access to resources, income disparities) is especially important if capacity building strategies are to be effective for people with varying levels of socioeconomic standing.

The Simon Fraser University Community Economic Development Centre develops strategies for community capacity assessments for community economic development (CED). For example, Ameyaw (2000) outlined several methods for this purpose: advisory or working committee discussion; attitude survey; group discussion; resident interviews; key informant request; aggregate quantitative analysis; profile document; and, questionnaire. He then provided a contingency model to evaluate each method according to the following criteria: resident involvement; involvement of community leadership; time required; cost; and, relevance of qualitative data. Basing analysis on his contingency model, he suggests that all of the methods have merit, with the strongest ones appearing to be the survey questionnaires and resident interviews.

One way of determining community capacity is to get both community ‘experts’ and local residents to carry out a self-assessment. These two groups are distinguished by position and involvement in the community, with the former referring to community leaders that may or may not be local residents, and the latter group referring to those residing in a community⁸. This technique has been employed in several studies that have approached communities in terms of social assessment (FEMAT 1993), quality of life (Parkins *et al.* 2001), and community capacity, itself (Chaskin 2001; Doak and

⁸ Having said this, all local residents can be considered experts of their community; the distinction is made here to reflect the terminology used the literature.

Kusel 1996). The latter three studies highlight how community capacity can be measured qualitatively. Findings from these studies inform this research.

First, Parkins *et al.* (2001) provided a step-by-step process for measuring community capacity that involved conducting workshops with local experts who were then charged with identifying the components that have the greatest impact on overall community capacity. Second, Chaskin (2001) applied information from interviews with ‘key informants’ engaged in community-building efforts and case study data on the implementation of a Neighbourhood and Family Comprehensive Community Initiative (CCI) to his definitional framework of building community capacity. While he does not refer to the ‘capitals’ of a community as a framework for analysis, his work is useful in conceptualizing community capacity in terms of evaluating the implementation and objectives of a program; in his case it was a CCI, in this study it is the UNESCO Man and the Biosphere Programme. This type of organizational capacity assessment was done by Sian (2000), who evaluated the infrastructure of Canada’s biosphere reserves by five criteria, including whether they had a clear mandate and the human capacity to devote to biosphere reserve activities. Third, Doak and Kusel (1996) conducted workshops with ‘local experts’ to gather qualitative descriptions about the community in the Sierra Nevada Ecosystem through discussion and self-assessment forms.

In sum, the literature suggests that community capacity is defined by capital resources, outcomes, dimensions, and historical context. It also offers methodological guidance that provides multiple approaches to assessment that draw on community expertise, statistical data, and historical documents. The methods associated with community capacity contrast the assessments that solely rely on social indicators.

2.4.2 Social indicator assessment: a conventional approach

Social indicators have and can be used to assess communities in the context of ecosystem management. Indicator studies fall traditionally within the realm of development and economics, measuring variables such as income level, employment, and literacy. Social indicator research stems from quality of life studies that emerged with the social indicators movement of the late 1960s, which addressed measuring well-

being in non-traditional economic terms (Beckley and Burkosky 1999). Thus, quality of life studies provide models for measurement of the social component of sustainability.

The definitions and consequent applications of social indicators have progressed during the last four decades. Recent interpretations place an emphasis on their accessibility to the public and usefulness to decision makers. Social indicators are defined as a

set of specific indices covering a broad range of social concerns. Their purpose is to yield a concrete, comprehensive picture of individual living conditions that can be easily understood by the general public (Vogel 1997, cited in Parkins *et al.* 2001).

Force and Machlis (1997) take this definition a step further by applying social indicators to ecosystem management:

[S]ocial indicators for ecosystem management [represent] an integrated set of social, economic, and ecological measures available to be collected over time and primarily derived from available data sources, grounded in theory and useful to ecosystem management and decision making (Force and Machlis 1997: 371).

This second definition illustrates the current recognition of the usefulness of referring to both quantitative and qualitative data for decision making.

Many studies have been and are being devoted to creating a suite of indicators that reflect the community capacity for sustainability in rural regions of Canada and the United States (Copus and Crabtree 1996; Force and Machlis 1997; Henderson 1994; Parkins 1999; Parkins *et al.* 2001a; 2001b). Yet, to date, no studies have created a set of community capacity indicators, though attempts are underway. Maxim *et al.* (2001) are developing a community capacity index for assessing the ability to accept and implement the transfer of programs to First Nations communities, and Beckley *et al.* (2002) are developing process indicators to explain how ecological, economic, and social factors produce different outcomes, complementing profile indicators that illustrate current community conditions. Examples of process indicators include: leadership (quality and quantity); volunteerism; social capital (number and strength of ties); entrepreneurship; and, sense of place.

There are several advantages to using social indicators for ecosystem management, as outlined by Force and Machlis (1997). If developed with policy relevancy in mind, they provide a means for systematic comparison across spatial units

and over time, describe socioeconomic conditions, are accessible and easily interpretable, and aid in decision making processes. Five main applications of social indicators are relevant to ecosystem management. First, they enable comparisons to be made between different regions to aid managers in deciding on priorities for action. For example, education or poverty levels could inform managers as to what type of public participation activities for collaborative decision making would be most effective. Second, managers can determine what conditions are unique to their area. Third, they inform what impacts ecosystem management decisions have on the community over time. Fourth, indicators aid in the early identification of potential problems and those social areas at risk. Fifth, they can help managers set priorities. Other potential applications include: satisfying legal requirements; planning public involvement activities; education and research; and, providing information to government bodies (Force and Machlis 1997: 380). Thus, there is widespread support for the use of indicators in assessing communities for ecosystem management.

All indicators may be considered subjective, in that they reflect the needs, interests and, therefore, the biases of those who chose them. As Hancock *et al.* (1999) maintain,

What we chose to measure, how we choose to measure it and the significance we attach to the results have more to do with philosophy, values and politics than to science—or more precisely, perhaps, science is a reflection of our philosophy, values and politics and not a neutral and objective practice that exists outside of these frameworks (17).

However, the literature makes a clear distinction between the two types of indicators. Objective indicators are considered those drawn from secondary sources, such as statistical data (i.e., income, labour force divisions, population below the poverty line). Subjective indicators refer to self-assessments that rely on individual perceptions, which are obtained through such methods as key informant interviews and surveys (Beckley and Burkosky 1999). Objective indicators are associated with an external assessment research approach, whereas subjective indicators are generated when an internal assessment approach is taken.

The literature highlights advantages and disadvantages to both types of indicators. Objective, socioeconomic measures may mask distributions within

communities. Also, while they report what resources a community may have, objective indicators generally do not specify how effectively individuals *use* these resources to improve community well-being. Kusel (1996) points to wealthy residents who may have a high socioeconomic level, but who do not necessarily use their wealth or skills for the common good. Another example further illustrates this point. Statistics of expenditures on healthcare, education, and infrastructure may indicate that the well-being of a community was improved through investments in social services. However, how effectively the services met the needs of residents can only be speculated upon if objective indicators are the sole source of information. Subjective indicators are exactly that—subjective—therefore, their use may prove difficult for comparative studies. For example, the perception of happiness is very personal, and individuals may set their standards according to what they believe they can achieve. Given that neither approach is satisfactory on its own, recent scholarship advocates utilizing both objective and subjective approaches (e.g., Beckley and Murray 1997; Crabbe *et. al* 1995; Hancock *et al.* 1999; Kusel 1996).

There are further limitations of social indicators as given by Force and Machlis (1997). Data for smaller scales of inquiry or units of analysis may not correspond with typical data collection areas and/or may not be available. As well, there is the assumption that a chosen indicator is meaningful and corresponds with the variable in question. Both the data collection process and the data may be inconsistent, and some social conditions may be difficult to define and track with indicators (i.e., social tensions within political units, ethical values). Finally, social indicators can only *describe, not explain*, why changes occur or what conditions influence those changes.

Relying on indicators to assess communities has its problems. Yet, the fact remains that indicators are widely used in assessing communities. An example is the determination of a socioeconomic scale that combines social indicators in a formula to produce a numerical value; this is insufficient in and of itself for assessing the extent to which communities will cohere to achieve common objectives. Thus, new approaches have been attempted, such as community-based self-assessments. The next chapter discusses the methods used in this study after the study sites are described.

CHAPTER 3: STUDY SITES AND METHODOLOGY

3.1 Introduction

This chapter begins with a short historical context of biosphere reserves, followed by a description of each study site. Fieldnotes and interviews help develop a background discussion about the origins of the biosphere reserve designation. The methodology for this study follows, with a description of the socioeconomic scale and the evolution of the focus group method to obtain self-assessments of community capacity.

3.2 Biosphere Reserves: Historical Context and Study Sites

The biosphere reserve concept originated at a United Nations Educational, Scientific and Cultural Organisation (UNESCO) ‘Biosphere Conference’ in 1968 that addressed the reconciliation of the conservation and use of natural resources. It was recommended that a programme be created to formally establish terrestrial and coastal areas representing the world’s main ecosystems to protect their genetic resources through research, monitoring, and training. Further, the need for countries to develop cross-disciplinary research that linked to policy and management for environmental conservation and cautious resource management was highlighted (CBRA 2003). In response, the Man and the Biosphere (MAB) Programme was created in 1970; one of its mandated projects was to create a coordinated world network of protected areas to be models of sustainability—biosphere reserves (UNESCO 2003). Over three decades later, the MAB Programme continues its tradition of designating and facilitating linkages between these “special places for people and nature” (UNESCO 2003).

Currently, Canada boasts twelve biosphere reserves spanning eight provinces (see Table 1)⁹. The first was designated in Mont. St. Hilaire, Québec in 1978, and the

⁹ As a point of comparison, the United States boasts 47 biosphere reserves (however, 31 of those were designated in the 1970s and there has been little activity connected with the MAB Programme since),

most recent candidate is the Bay of Fundy, extending to parts of Nova Scotia and New Brunswick. They are connected by the Canadian Biosphere Reserve Association (CBRA), incorporated in 1997, which is a member-driven, non-profit organization “forged out of the desire to blend the benefits of national coordination with the energy and dedication of individual biosphere reserves and their communities” (CBRA 2004). Its purpose is to provide support and facilitate networks between local biosphere reserve organisations and the researchers that work in them. One notable achievement occurred in 2002 when CBRA received federal government support to develop cooperation plans to help ten biosphere reserves to identify the challenges, goals, roles, resources, and intended actions for partnerships with other agencies and organizations (CBRA 2004).

Table 1: Canadian biosphere reserves and their year of designation as of July 2003 (UNESCO 2004b)

<u>Year of designation</u>	<u>Canadian Biosphere Reserve</u>
1978	Mont. Saint Hilare, Québec
1979	Waterton, Alberta
1986	Long Point, Ontario
1986	Riding Mountain, Manitoba
1988	Charlevoix, Québec
1990	Niagara Escarpment, Ontario
2000	Clayoquot Sound, British Columbia
2000	Redberry Lake, Saskatchewan
2000	Lac Saint Pierre, Québec
2000	Mount Arrowsmith, British Columbia
2001	Southwest Nova, Nova Scotia
2002	Thousand Islands-Frontenac Arc, Ontario
Candidate	Bay of Fundy, Nova Scotia and New Brunswick

While some countries establish biosphere reserves through legislation (UNESCO 2004a), Canadian sites have most frequently taken advantage of the legal protection and logistical support of existing national, provincial, and regional parks. Canadian biosphere reserves depend upon logistical support that may or may not be granted by local, provincial, and federal levels of government, thus partnerships as identified in the CBRA cooperation agreements become a key ingredient for success in fulfilling their

while Russia has 31, China has 24, Mexico has 14, Germany has 13, Australia has 12, and France has 9 (UNESCO 2004b).

three functions. The United Nations holds no authority over these areas and does not act as a funding agency. As Canadian biosphere reserves are not accompanied by legislative recognition, jurisdictional restrictions over land and resource use, or logistical support (with the exception of Clayoquot Sound, described in the next section), the management of biosphere reserves completely rests on volunteer efforts.

3.2.1 Clayoquot Sound

Clayoquot Sound is located on the West Coast of Vancouver Island in British Columbia. The region is internationally recognized for its stunning scenery with old growth temperate rainforests, coastal estuaries, beaches, islands, and waves for surfing. Clayoquot Sound contains the largest remaining intact wilderness areas left on Vancouver Island. It is a region of complexity, with a diverse array of people, services, organizations, and resource-based industries.

The population of the region is highly diverse, with five Nuu-chah-nulth First Nations (Tla-o-qui-aht, Hesquiaht, Ahousaht, Ucluelet, and Toquaht), the District Municipalities of Tofino and Ucluelet, and an overlay of Regional Districts Alberni-Clayoquot A and B. Tofino and the first three First Nations mentioned are placed within the outer biosphere reserve boundary, while Ucluelet and the Ucluelet and Toquaht First Nations lie just south of the boundary in Barkley Sound. Although the land mass of the latter three communities is technically not a part of the biosphere reserve, these communities are politically involved in decision making, hold economic interests within the Clayoquot Sound region, and are signatories on the biosphere reserve nomination document. Thus, these communities are included as part of the study site. Only 42 kilometres apart, Tofino and Ucluelet are longstanding rivals. The area is 93 kilometres from the City of Port Alberni, which is the home of the Nuu-chah-nulth Tribal Council (NTC) and commuters to the West Coast of Vancouver Island. According to the 2001 Census, the population of the region, excluding Port Alberni, is approximately 4 400, with Tofino and Ucluelet containing 1 512. Between 1996 and 2001, Tofino experienced a 25.3% increase in population. This is a particular concern, given that Tofino occupies only 10.64 square kilometers of land (Statistics Canada 2001) and

affordable housing is becoming scarce. With this rate of increase, Tofino would double its population of 1 466 to 2 932 by the year 2020¹⁰.

The economy of the area has experienced a shift in recent decades from a primary reliance on logging and fishing to economic diversification. The economy is primarily focused on forestry by the companies Interfor and Iisaak that practice variable retention logging and conduct community input processes (known as “community insult processes” among some local environmentalists (CS34a)). Tourism is “flourishing” (T1) and increasingly catering to high-end resorts, while also spawning eco-tourist operators. Aquaculture is a growing industry but is being met with opposition and controversy. Finally, the area hosts a dwindling fishing industry that was once a mainstay for the region’s population.

The region has been subject to intense political pressures and media scrutiny because of long-standing controversies centred on resource use and environmental issues. The most notable of these occurred in 1993, when land-use disputes involving forestry companies, First Nations, environmental organizations from the local to international scales, and local workers, culminated in the largest civil disobedience in Canadian history, with the arrest of over 800 protesters (Gill 2004). The local history leading to this event is complex. Pacific Rim National Park (PRNP) was created in 1970, spanning 500 square kilometers of traditional Tla-o-qui-aht territory (WCWC 2004). In 1984, the Tla-o-qui-aht First Nation and the Friends of Clayoquot Sound (FOCS) led the first blockade in Clayoquot Sound to protest logging practices on Meares Island by MacMillan Bloedel. A court case followed in 1985, with the NTC seeking to establish their aboriginal claim to the forests of Meares Island, a case as yet unresolved (WCWC 2004). In the early 1990s, Vancouver Island was subject to a Commission on Resources and Environment (CORE) process to determine land use; Clayoquot Sound was purposely excluded to allow the local land-use processes of the Clayoquot Sound Sustainable Development Steering Committee¹¹ to continue. This Committee, which conducted the first research-based decision making in the area, was unable to reach a consensus on land-use and consequently handed a package of their

¹⁰ This finding concurs with Reed (2004) who calculated Tofino’s population to double by the time period of 2016-2021. This is based on a slowed population growth rate of 3.8% per year from 1999-2003.

¹¹ This Steering Committee was established in 1989/90 and disbanded in 1992.

reports to the provincial government without having reached any firm agreements on land use in Clayoquot Sound (CS26b). After meeting with various interest groups from Clayoquot Sound, including First Nations (CS26b), the logging industry, and environmentalists, the provincial government pronounced the Land Use Decision that included the preservation of 34% of Clayoquot Sound, almost 900 square kilometers that includes “the largest intact watershed on Vancouver Island” (Environment Canada 2001). However, “protection comes at significant economic cost” (MSRM 1996) with timber rights removed from forestry companies and significant forestry-related job losses (MSRM 1996). The Clayoquot Land Use Decision created a public outcry that provoked the now-infamous protests of 1993.

Another result of the controversy surrounding the Clayoquot Land Use Decision was the establishment of an independent, 19-member Clayoquot Sound Scientific Panel for Sustainable Forest Practices in 1993 that included First Nations resource management experts and leading scientists. The panel made 179 final recommendations in 1995, which were subsequently accepted by the provincial government. Having initially rejected the recommendations, the Province promised to fully implement them (Environment Canada 2001) after facing pressure from a coalition of environmental organizations (CS34b).

More than a decade later, the aftermath of the 1993 controversy is still prevalent, with socio-economic impacts such as changed logging practices, reformed political dynamics among communities within the region and the province, and the entrenchment of personal and interest-based group conflicts. One such outcome arose out of the Nuu-chah-nulth First Nations concerns regarding the implications of the Land Use Decision for Treaty settlements. After extensive negotiations with the government, an Interim Measures Agreement (IMA) with the Ha’wiih (Hereditary Chiefs) was signed in 1994, creating the Central Region Board (CRB) that formalized a political arrangement between First Nations and the Province of British Columbia to be in place until Treaty entitlements are settled. The CRB consists of the five Central Region Nuu-chah-nulth First Nations and five non-First Nations representatives to jointly manage land and resources within the region. The IMA has been extended twice, with the most recent Interim Measures Extension Agreement (IMEA) signed in 2000 (CRB 2004).

From this complex history of land use processes and disputes, the biosphere reserve was designated. The events leading up to designation are contested, with several versions of the story circulating within the region, as recounted by interviewees. Discrepancies exist as to who first proposed the idea of designating Clayoquot Sound as a biosphere reserve, but it is understood that the designation came to fruition through the involvement and support of local to national levels of government and non-governmental organisations (NGOs). A Nomination Working Group was formed, which subsequently received funding from the provincial government to hire a consultant¹² to appropriately address the diverse interests and concerns within the region in preparing the biosphere reserve nomination document. The Working Group also consisted of a Nuu-chah-nulth Central Regions First Nations representative, the Mayors of Tofino and Ucluelet, and elected representatives from the two Alberni-Clayoquot Regional Districts. Even though the biosphere reserve designation is meant to recognize a shared vision for social, environmental, and economic sustainability (Environment Canada 2001), the general perception in the region is that the designation was not a grassroots endeavour, but more a concept that was touted by the provincial and federal governments as a way to unite the disparate groups within the region fragmented by the controversy over land use management.

Designated on January 21, 2000, Clayoquot Sound is British Columbia's first of two biosphere reserves, illustrated in Figure 4, with a total area of 349 947 hectares (ha) with core areas of the Pacific Rim National Park (PRNP) totaling 110 281 ha (19 869 ha of which is marine), 60 416 ha of buffer zones (including 1 680 ha of marine), and, finally, zones of cooperation occupying 179 250 ha (of which marine total 62 693 ha) (UNESCO 2004c). The core, buffer, and transition zones respectively occupy 31.5%, 17.3%, and 51.2% of the total biosphere reserve area. Clayoquot Sound encompasses three of the remaining five intact watersheds on Vancouver Island (Gill 2004); originally there were eighty-nine (WCWC 1993). With significant old growth coastal temperate rainforest dominated by western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*), the ecology of the area is awe-inspiring, with salmon spawning habitats, streams, rivers, freshwater lakes, and marine coastal ecosystems such as eelgrass

¹² The consultant was well-respected in the region, having previously served as Co-Chair of the CRB.

(*Zostera marina*) and bull kelp (*Nereocystis luetkeana*) (UNESCO2004c). A wide variety of research, monitoring projects and numerous decision making processes have and are taking place in the area. These include research on terrain stability and hydorrarian water quality, monitoring of forestry and fishing practices, and monitoring impacts of tourism and ecotourism.

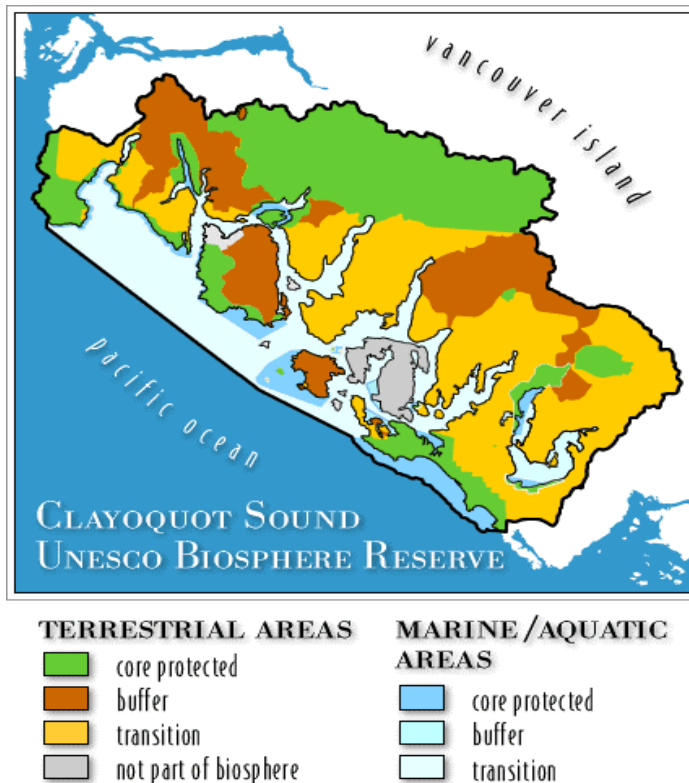


Figure 4: The Clayoquot Sound biosphere reserve zonation map (CBT 2000)

To celebrate the biosphere reserve designation, then-Prime Minister Jean Chrétien paid a visit to the area in May 2000. His reception was mixed. The biosphere reserve designation was not greeted with welcome by some who considered it as yet another layer of bureaucracy associated with the provincial and federal government (CS9) and/or a threat to the economic livelihoods of residents. Protests in Ucluelet went largely ignored, overshadowed by the concerns of two First Nations (Fieldnotes, February 14, 2003). Frustrated by being ignored in a decision to assign the control of airport land by Tofino to the Regional District of Alberni-Clayoquot C, the Tla-o-quiath First Nation boycotted the biosphere reserve designation ceremony to get the attention of the federal government, and the Hesquiaht First Nation followed suit in a show of

solidarity. The Tla-o-quiaht and Hesquiaht subsequently chose not to officially endorse the biosphere reserve; to date, this issue has not been resolved (CS21).

The Clayoquot Biosphere Trust (CBT) is the administrative body responsible for managing a \$12 million Trust fund for research, education and training activities that was granted by the federal government under the leadership of Prime Minister Jean Chrétien, who has long-standing ties with the area, having been responsible for creating the PRNP in the 1970s. The CBT is distinct from the biosphere reserve and is held to a specific mandate to use the Trust for research, education, and training; this is in line with the biosphere reserve's function of logistic provisioning/capacity building (recall section 1.3). However, it has taken on the role of being the administrative arm of the biosphere reserve, which, some feel, should have a 'Friends of the Biosphere Reserve' organization that could have a broader mandate to oversee biosphere reserve activities.

Clayoquot Sound is unique in that it is the only biosphere reserve in Canada to have received core funding to carry out its activities and meet its goals. This funding proved to be a "double-edged sword" (CS13a), with in-fighting essentially halting progress for the first few years over how to use the money. However, the funding allowed for a full-time Executive Director to be hired, as well as for projects to be funded that were proposed by local residents and selected by the CBT Board. The funding of these projects has made strides in making the biosphere reserve a tangible and useful entity for residents.

As well, the biosphere reserve has greatly benefited from the Clayoquot Alliance for Research, Education and Training (CLARET), a formalized partnership with researchers at the University of Victoria that was successful in securing a Community-University Research Alliance (CURA) grant from the federal Social Sciences and Humanities Research Council (SSHRC) in 2002. The CURA provided the funds to hire Co-op¹³ students from the University of Victoria, fund community projects such as the Nuu-chah-nulth Language Project, and host the November 2003 Clayoquot Science Symposium, which was successful in highlighting community efforts while bringing residents together with organizations, government representatives, and academics to discuss issues of importance to local people, such as the impact of tourism.

¹³ Co-op is a program where internships to gain work experience are part of an undergraduate degree.

3.2.2 Redberry Lake

The Redberry Lake watershed was designated on January 21, 2000, the only biosphere reserve in Saskatchewan. With an agriculturally-based economy, the watershed is home to diverse wildlife populations, and a strong cultural and spiritual community¹⁴. It is the efforts of individuals committed to the goals of sustainability for improving the conditions of people's lives and the environment that have resulted in the area receiving international recognition. For example, a group of concerned local citizens, known as the Redberry Environmental Group, was successful in halting a 400 cabin development at Redberry Lake in 1985 (Kingsmill 2001). Hafford Central School serves as one focal point for the biosphere reserve activities (e.g., meetings), providing logistical support. The school has been recognized for its innovative environmental and community-building educational efforts, along with its active student-driven environmental group. It was recently accepted as part of the UNESCO Associated Schools Project Network, the first school in Saskatchewan to do so.

Experiencing rural-depopulation, the Biosphere Reserve Region includes the town of Hafford, located approximately 100 kilometres northwest from the city of Saskatoon, which saw a 5.4% decrease in population between 1996 to its present population of 401 in 2001 (Statistics 2001). Additionally, the biosphere reserve boundary includes Treaty Lands belonging to the Lucky Man First Nation that is based in Saskatoon, as well as the majority of the Rural Municipality (RM) of Redberry (RM 435) with 461 people (Statistics Canada 2001). With portions of Meeting Lake (RM 466), Great Bend (RM 405), and Douglas (RM 436), the population is approximately under 1 000 people within the biosphere reserve boundary and 2 565 people within the region. Significant Ukrainian, Polish, and Belgian French populations create a strong cultural community. For instance, the Ukrainian culture is expressed in many ways, from bilingual street signs in Hafford and homemade perogies, to traditional dancing, religious practice, Easter egg decoration, and an annual Ukrainian New Year's festival, Malanka, that, in 2004, attracted over 500 people to join in the celebration (Email

¹⁴ This is the image portrayed to the outsider. However, it is recognized that there are always competing majority and minority groups within any community, and, given the strong cultural and religious ties, it is likely that strong exclusionary tendencies exist.

correspondence, January 8, 2004, Hafford resident). The people of the Lucky Man First Nation do not live in the area; thus, their cultural activities are not described here.

The area is also facing issues common to rural Canada, such as a loss of social services. In the past decade, Hafford lost its grain elevator, a traditional landmark of the prairies. Abandoned Omnitrax railcars cars mar the town's aesthetic landscape and pose a safety hazard. Of great concern is the recent loss of the resident doctor and consequent closure of the hospital (that now functions as a part-time clinic), forcing an out-migration of people who are in need of regular medical attention.

Covering 112 200 hectares, this biosphere reserve is renowned for its namesake, Redberry Lake, an ecologically significant saline lake approximately ten kilometers in diameter with four islands. The lake forms the legislatively protected core area of 5 600 ha (UNESCO 2004b), illustrated in Figure 5. Lake levels have been dropping over the past century, exposing sandy beaches and making way for a succession of vegetation from bluegrasses to lakeshore woodlands of balsam poplar, river birch and aspen (Finley 2003). The buffer zone (6 300 ha) and area of cooperation (100 300 ha) are characterized by prairie and aspen parkland. The core, buffer, and transition zones, respectively, occupy 5%, 5.6%, and 89.4% of the total biosphere reserve area. Annually, over 180 bird species reside near or visit the lake. One of Saskatchewan's important bird areas (IBA), the lake has been determined as globally significant due to the presence of one of the world's largest colonies of American White Pelicans (*Pelecanus erythrorhynchos*), with approximately 800 breeding pairs and 1 000 non-breeders who nest on the lake's islands. Redberry Lake has also been recognized as nationally significant since the globally vulnerable and nationally endangered Piping Plovers use the lake's shore (Schmutz 1999). The lake boasts the largest known breeding concentration of White Winged Scoters and is part of the migration route of North America's rarest bird, the Whooping Crane (Ecocanada 2001).

There are several regulatory designations that recognize the critical importance of Redberry Lake as a breeding ground for waterfowl and staging point for migrating waterfowl and shorebirds. It has been a Federal Migratory Bird Sanctuary since 1925, and the islands have been Provincial Wildlife Reserves since 1970. The area was also a candidate representative natural area under the International Biological Programme early

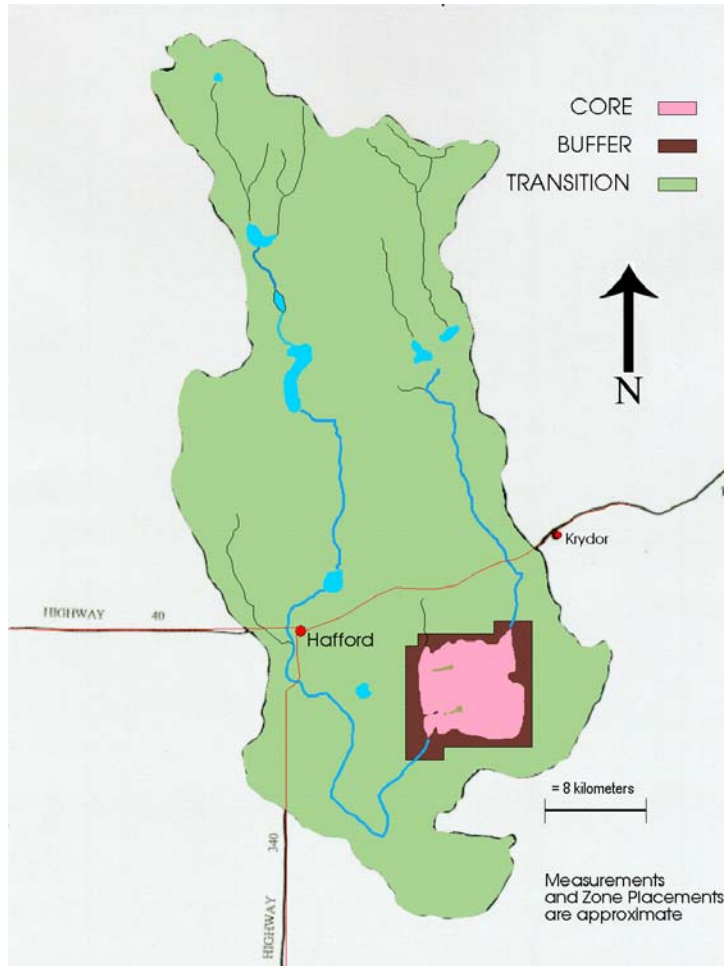


Figure 5: The Redberry Lake biosphere reserve zonation map (Peter Kingsmill, Redberry Pelican Project, 1998; modified by James Millard, 2004)

in the 1970s, while upland habitat of 920 hectares is protected under the provincial Critical Wildlife Habitat Protection Act. The core and buffer zones are also part of the Federal Ecological Monitoring and Assessment Network (EMAN) and the Provincial Representative Areas Network (RAN), with a Regional Park in the buffer. At the local level, zoning regulations passed in 1988 by the Rural Municipality (RM) of Redberry (435) protect the lake and surrounding area from environmentally inappropriate development, while advertisements by the Redberry Pelican Project (Canada) request that boaters to avoid a 1 000 foot radius around nesting islands (IBA 2003).

Many conservation measures are in place in the area as a result of groups of progressive people who strive to improve their quality of life and live in a sustainable manner with long-term goals in mind. Past research in the area includes monitoring of water quality and studies on lake limnology, climate change, pesticide drift analysis, and

recreational impacts (UNESCO 2004b). Education, research, and conservation measures are/have been carried out in the community by such organizations as Canadian Wildlife Service, Ducks Unlimited, The National Water Research Institute, The Redberry Pelican Project (Canada) Foundation, the RM of Redberry, Saskatchewan Environment and Resource Management, and local residents.

The biosphere reserve is managed by the Redberry Regional and Economic Development Agency (REDA) Corporation and administered by the Redberry Lake Biosphere Reserve Community Committee. The biosphere reserve relies on volunteerism and partnerships to drive its activities, and it is through these efforts that significant achievements have resulted, despite limited resources of the biosphere reserve. Since its designation, the Community Committee has taken steps to realizing the biosphere reserve's potential through attempts to practice ecosystem-based management. In 2001, the Community Committee initiated a multi-sectoral, integrated planning process to gain public input and foster community learning about sustainable community development concepts (Sian 2001: 1). Over forty community members within and surrounding the biosphere reserve were actively engaged. Through planning meetings and workshops, a Community Plan for Sustainability for improving social, economic, and environmental well-being based was developed, drawing on the regional sense of place as well as community concerns (Sian 2001). Through discussion, a community vision with corresponding goals and objectives was drawn up, and strategic actions were identified and prioritized according to short- (1-2 years), medium- (3-5 years), and long-term (6-10 years) objectives. This planning process was the first of its kind in Canada, and has become the model that CBRA, with government support, has established for other biosphere reserves to draw up similar cooperation plans between biosphere reserves and organizations with which they have a relationship (e.g., Parks Canada). This cooperation plan initiative, which drew upon over ten years of active community involvement by the Redberry Pelican Project (Canada), marked a transition in sustainable community development with local people re-assuming the power and responsibility of managing the region for collective benefit.

The region's desire to follow the principles of ecosystem management is reflected in their vision:

We who reside within the Redberry Lake Biosphere Reserve live and work together in a healthy landscape under a common banner of equality, dignity, and respect. Democratic processes are fundamental to our community decision-making at every level, and community and economic growth are managed in an orderly and considered fashion that can be seen by others as an ideal for human community living and sustainable environmental practice (Sian 2001: 9).

The Community Committee has achieved varying degrees of success in their efforts to establish new contacts and acquire expertise to forward various projects. One such project is the creation of effective displays for the Research and Education Centre to educate locals and visitors on the biosphere reserve and its activities. Small steps such as these are encouraging in informing people of the importance and integrity of biosphere reserves, but they do not financially sustain continued research without the core funding or committed partnerships enjoyed by the biosphere reserve in Clayoquot Sound. A comparison between communities may highlight other factors that impair or encourage efforts towards biosphere reserve goals; two community assessment approaches for this purpose are described in the remainder of this chapter.

3.3 Community-based assessment of community capacity

Research done for, by, or with communities is termed ‘community-based research,’ an approach that I chose in an effort to make the research results more meaningful to the biosphere reserve populations. This research also took an iterative approach, meaning that the data collection process was modified over time upon reflection and experience (Bryman 2001). This approach sought the input of community participants to inform and modify the literature-based conceptual framework, as well as the methods of assessment, thus creating the opportunity for the co-creation of knowledge between the participants and myself, the researcher, in a way that was sensitive to local context and incorporated local knowledge. This section outlines the fieldwork process, with an emphasis on the adaptation of the focus group method.

3.3.1 Fieldwork

There were two phases to the fieldwork. First, I immersed myself in the community, introduced myself, made contacts, and conducted informal interviews

before the intensive data collection phase. This meant a fieldwork period of one month in the Clayoquot Sound region in the spring of 2002, where I made Ucluelet my home from late April to late May, and several, shorter trips to the Redberry Lake region over the course of a year during which I resided in Hafford. I returned to Clayoquot Sound for six weeks of fieldwork in the winter of 2003, from January 6 to February 15. During this second phase of fieldwork in British Columbia, I conducted thirty-four semi-structured interviews for Dr. Reed, took participant observational fieldnotes, gathered relevant documents, and conducted four focus groups. Over four months in the spring of 2003, I made several short-term trips to Redberry Lake to conduct twenty-four mainly semi-structured interviews for Dr. Reed, and for a smaller project on the social capital of Redberry Lake as an intern for the Community-University Institute for Social Research (CUISR) (of these, four were informal and six were with couples or a small group of people), took participant observational fieldnotes, and held four focus groups. Thus, my primary data for this thesis consist of fieldnotes, focus group worksheets and transcripts, and informal interviews. My secondary data are comprised of semi-structured interviews, documents, and Statistics Canada data for the calculation of the socioeconomic level of well-being of each biosphere reserve (Figure 6).

Interviewees were selected through both a purposeful sampling procedure by seeking out the biosphere reserve management first, and then by the 'snowballing' technique (Bryman 2001), wherein 'gatekeepers' or 'key informants' referred me to residents in the region who they felt had insights to share. The purpose of the semi-structured and informal interviews was to learn, in-depth, about the factors and events that led up to the designation of the biosphere reserves, the perceived strengths and weaknesses of the biosphere reserves, the social and cultural aspects of the regions, and historical context. Qualitative data garnered from these interviews complement the data collected from the focus groups and provide a richer understanding of the local context. However, the interviews are not analysed in depth. The main focus of my primary research was to obtain self-assessments of community capacity through focus groups sessions in each biosphere reserve region.

3.3.2 ‘Community Checkups:’ focus group evolution in application

The focus group is a qualitative method of social research, wherein typically small groups of people are selected according to certain criteria to participate in a nondirective ‘focused interview’ to discuss and share their perspectives on a topic (Krueger and Casey 2000). The qualitative data generated in these focus group sessions reflect the beliefs, experiences and perspectives of people that emerge in a group dynamic (Hamel 2001). Traditionally, as a method, focus groups are to be homogenous in nature, comprised of people possessing similar characteristics. The rationale is that people feel more at ease sharing their personal stories with like-minded or similar people. However, this thinking has changed recently, as studies have found that grouping comparative strangers may be better suited in certain contexts, such as in discussions of sensitive subjects where people may feel freer to share their views if they feel they are unlikely to meet again socially (Holbrook and Jackson 1996).

Although some social researchers studying rural places have employed the focus group method (Claridge 1998; Kritzinger 2000; Tigges *et al.* 1998), it is not widely used in rural research (Pini 2002). While the application of the focus group method necessarily had to change to fit local contexts, producing uneven results, I found the data collected and the observations of applying the method yielded valuable results in terms of what contributes to and hinders community capacity. This theme will be further explored in chapters four and five.

3.3.2.1 The intent: Great Expectations

Focus groups were incorporated into this research for several reasons. First, this qualitative method values the ‘insider’s perspective,’ and can deal with the complex, interwoven, and intangible variables that characterize the features of community capacity (i.e., feelings of trust, willingness to work together) (Bryman 2001). Second, it is a well-established qualitative method that it allows attitudes and perspectives negotiated in the public realm to emerge (Hamel 2001), thus corresponding with the epistemological assumption of reality as socially-constructed that underlies community-based assessments. Third, it has been recommended and demonstrated as an appropriate method for community assessments; for example, Jackson *et al.* (2003) conducted focus

groups, along with semi-structured and open-ended interviews, to identify and measure facilitating and constraining socioeconomic conditions that impact the effectiveness of health programs. Parkins *et al.* (2001) recommend determining community capacity by conducting workshops with local experts responsible for identifying its key influencing factors. Similarly, Doak and Kusel (1996) conducted workshops in the Sierra Nevada Ecosystem with local experts to determine the top three important factors of community capacity. Participants were asked to rank community capacity from 1 to 7 and write a brief description to justify the numerical selection. In using a seven-point scale, the assumption is that the difference between 1 and 2 is the same as 2 and 3, and so on. The data collection process in the workshops can be replicated in the focus group setting, with the additional benefit of the focus group terminology carrying connotations of a research agenda, so that participants are not misled.

I wanted to delve deeper to understand the key components of each of the capitals that comprise community capacity, thus I made significant modifications to the self-assessment worksheet Doak and Kusel (1996) that used. These modifications included a rating and ranking exercise relating to all the capitals, as well as accompanying written descriptions of each capital and community capacity (Appendix A). My hope was that the more detailed worksheet, used as a tool both for framing discussion and assessment within the focus group format, would help us (researcher and participants) reach deeper, more explicit, and more nuanced understandings of the key community attributes and issues that influence the creation and maintenance of community capacity. I hoped that an open discussion of what community capacity meant to residents would offer insight to the literature-based theoretical framework of community capacity to make the concept relevant to the local context. Employing the qualitative focus group method has been found useful for exploratory work in that, through conversation, theory emerges from the knowledge, feelings, attitudes, emotions, and perceptions of the participants (Winchester 2000). Focus groups also allowed for residents to steer the conversation to crucial issues that I might otherwise not have been aware of. Further, I envisioned the focus group exercise as a demonstration of community capacity in action, allowing me to observe group dynamics, which might

have revealed insights as to how diverse residents collectively work towards a common goal.

In addition to changing the self-assessment worksheet, I further modified Doak and Kusel's (1996) study by holding focus groups not just with 'local experts,' but also with other segments of the population whose voices might have been overlooked or marginalized in past rural and social research. The reasoning was that different perspectives create a richer knowledge that could be meaningful to various members of the population and not just speak to a select few. Moreover, by bringing different people together to learn from each other and discuss issues, I hoped the focus groups could potentially *build* community capacity and not just assess it. Focusing on assets and capacities instead of needs, as McKnight (1995) advocates for, creates a "process of . . . assessment [that] should itself contribute to the capacity of people and communities, and thus contribute to improving community health" (Hancock *et al.* 1999: 25), with health being analogous to well-being.

Originally I proposed two focus groups: one with 'community leaders,' deliberately choosing people who, by the nature of their civic position, "understand community issues, institutions and resources" (Kusel 2001: 376); and, one with the 'participatory public,' referring to those who had participated in any biosphere reserve public processes. In qualitative research, the participant selection process is not primarily concerned with deriving generalizations with respect to the greater population, but with selecting people who have informed opinions (Bryman 2001). My intention was to select 8 to 10 people for each session based on leadership position for the first and affiliation for the second. A stratified random sample was to be used to select people from different segments of the population so that a variety of perspectives would be present at each group. As well, I intended to send letters, including the worksheet, to potential focus group participants so that they could reflect upon the concepts of community capacity and the four capitals for the session.

3.3.2.2 Final results: balancing research and community interests

Application of the focus group method varied according to lessons learned from previous sessions, and in relation to local context and community desires/needs. The

location, food and beverages, presentation content and format, and introductory letters were targeted for each focus group session. In negotiating my role as a community-based researcher, I constantly grappled with meeting the needs of the research while meeting the needs and desires of the people in the communities. I attempted to give equal weight to the academic methodological guidelines and research goals, as well as to community needs and desires, but invariably one would take precedence over the other at different stages of the research process.

Figure 7 illustrates the results of the focus group selection process, indicating the number of participants in each session, ranging from 3 to 41. In Clayoquot Sound, focus groups were held between February 6 and 14, 2003 with youth (grades 10-12), Tofino public, Ucluelet public, and the CBT. In Redberry Lake, the focus groups took place with the Redberry Lake Biosphere Reserve Community Committee, the public, and youth (grades 9-12) between April to June 2003. Appendix A was used as the research instrument to gather the assessment data.

During my introductory fieldwork period, I presented my research proposal to various individuals and organizations, including the CBT and Community Committee, to elicit suggestions and feedback. Both committees were interested in involving their youth in biosphere reserve activities, as well as in finding out whether or not they planned to stay in the community after graduation, and what factors would influence their decision. As a consequence of this interest, I incorporated youth focus groups into the research.

Clearly, my original methodological intentions deviated from what was carried out, which is further described here to highlight key methodological modifications that were made once in the field to adapt to local and group contexts. An overview of the differences between the focus group sessions is presented in Tables 2 and 3, revealing the unevenness of methodological application and consequent results in terms of logistics and data collection.

As for the sampling procedure, during my time in Clayoquot Sound I realized that it would be more useful to have a focus group with just biosphere reserve management than trying to recruit other community leaders, as the former are nominated representatives from the region interested in increasing the area's community capacity to

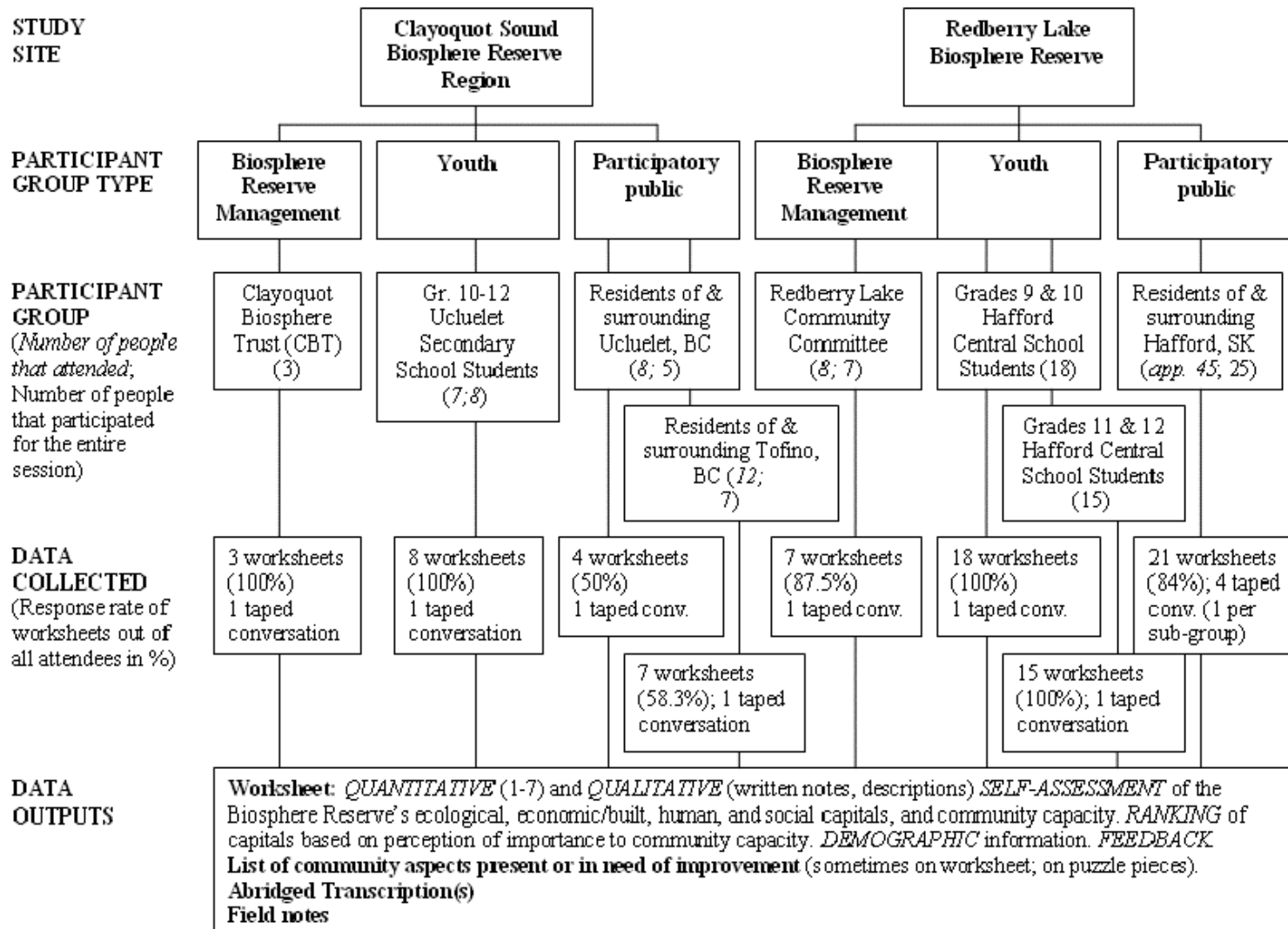


Figure 7: Focus group data collection

Table 2: Focus group logistics: differences among sessions

FOCUS GROUPS BY PARTICIPANT GROUP							
	<i>Biosphere Reserve Management</i>		<i>Youth</i>		<i>Participatory public</i>		
FOCUS GROUP ELEMENTS	Clayoquot Biosphere Trust (CBT), BC	Redberry Lake Biosphere Reserve (RLBR) Community Committee, SK	Ucluelet Secondary School (USS), BC	Hafford Central School (HCS), SK	Tofino, BC	Ucluelet, BC	Hafford, SK
Date (chronological order)	Friday, February 14, 2003 (4)	Wednesday, April 9, 2003 (5)	Thursday, February 6, 2003 (1)	Tuesday, May 13, 2003 (6) Wednesday, May 14, 2003 (7)	Wednesday, February 12, 2003 (2)	Thursday, February 13, 2003 (3)	Tuesday, June 24, 2003 (8)
Time	3-4pm	8:15-9:30pm	3:15-5pm	GR1=Gr. 9 & 10: 10-noon GR1=Gr. 11 & 12: 11am-12:30pm	7-10:30pm	7-10:15pm	6-9pm
Location	Boardroom, Pacific Rim National Park (PRNP) Admin. Building	Boardroom, Rural Municipality of Redberry No. 435 Building	Social studies classroom; USS	Social studies classroom; HCS	Rainforest Interpretive Centre (RIC)	Long Beach Model Forest (LBMF)	HCS gymnasium with a BBQ outdoors

Table 3: Focus group data collection: differences among sessions

	<i>Biosphere Reserve Management</i>		<i>Youth</i>		<i>Participatory public</i>		
FOCUS GROUP ELEMENTS	Clayoquot Biosphere Trust (CBT), BC	Redberry Lake Community Committee, SK	Ucluelet Secondary School (USS), BC	Hafford Central School (HCS), SK	Tofino, BC	Ucluelet, BC	Hafford, SK
Sampling procedure	Invited the CBT Board and Executive Committee	Invited the RLBR Committee	Invited all grades 10-12 students	Invited all grades 9-12 students	Open to the public. Posters displayed and faxed invitations to: five First Nations, Tofino, Ucluelet, several organisations. Article and 'around our towns' ad. in local newspaper (The Westerly).	Open to the public. Posters displayed, faxed invites to: five First Nations, Tofino, Ucluelet, several organisations. Article and 'around our towns' ad. in local newspaper (The Westerly).	Open to the public. Posters displayed in and faxed invitations to: Hafford, BR Rural Municipalities. Article in local newspaper (Riverbend Review).
Taped conversation	Engaged in discussion; constructive critique of CC framework for local context; expressed desire to use assessment again in future; agreed that focus group was timely.	Engaged in a short discussion; agreed focus group was timely.	Lively discussion; engaged. Could not stop them from talking! Would challenge one another's ideas. Shared rankings they chose to conclude.	Gr. 9 & 10 - limited; a few were engaged; Gr. 11 & 12 - mostly questions about how to fill out the worksheet; a few were active participants. I did most of the talking in both cases.	Engaged in conversation between participants; challenged one another; five-year old child was a big distraction and talked over a lot of the tape.	Engaged in discussion; participants challenged one another, took over conversation.	People split themselves into four groups. Each engaged in discussion while working on puzzle together. One table had an intense conversation about a local issue, but erased tape because they wanted it kept private.

move biosphere reserve goals forward. In terms of recruiting the ‘participatory public,’ I learned that there were not many people who participated in the CBT’s early visioning workshops; those who did attend were termed “the usual suspects” (CS35), representing individuals who would regularly attend public meetings and likely participate to defend their interests. As well, participant lists were not readily available, so I had to change my sampling strategy. I decided against narrowing my target sample group because I was interested in the perspectives and functioning of the whole community.

My focus group invitation was consequently extended to the general public, with the rationale that only the interested, participatory public would make the effort to attend. As well, I did not want to run the risk of excluding anyone who wanted to be part of the research or who felt they had something to contribute. If I had limited my recruitment to names from previous meetings, I would have missed newcomers to the area, as well as those who had, for whatever reason, not been able to attend those meetings even if they *had* been interested.

I was advised to hold two public focus groups in Clayoquot Sound instead of one—one in Tofino and the other in Ucluelet—for ease of access, and to avoid tensions among community members. A few people suggested, instead, that I hold focus groups with each of the five Nuuchahnulth First Nations; time and resources were my limiting factors. I did attempt to hold a youth focus group with youth of the Ahousaht First Nation, Maaquutsiis School students, and had proposed the idea and received the principal’s approval in May 2002. However, I was not successful in contacting the principal in the winter of 2003 to make the necessary arrangements, nor did I receive a response from the Ahousaht First Nations Band office to my written request to hold the focus group. This lack of communication was understandable, most likely due to the scarce time and resources of the First Nations people that are necessarily siphoned off to enter Treaty negotiations. Consequently, I held two public focus groups called: ‘Community Checkup: A conversation about community capacity’ upon an interviewee’s suggestion (CS8), and let the participants select themselves.

Further, the people who chose to participate in the focus groups and share their demographic information varied by gender, age, place of residence, time lived in the area, income, and education level (Table 4). It is important to consider who did and who

Table 4: Demographic characteristics of focus group participants compared to the study regions

	Clayoquot Sound			Redberry Lake		
	Region ^a	Adults	Youth	Region	Adults	Youth
# of people	22 685	12	7	2 565	26	32
% male/female	50%/50%	50%/50%	25%/75%	51%/49%	38%/54%	47%/53%
Place of residence	6% Tofino 7% Ucluelet 5% Reserves 3% Regional Districts 78% Port Alberni	58% Tofino 42% Ucluelet	100% Ucluelet	16% Hafford 18% RM Redberry 3% Speers, 9% Borden 38% RMs Douglas & Great Bend 18% Meeting Lake	50% Hafford 27% RM Redberry 8% Speers 8% RMs Douglas & Great Bend	50% Hafford 28% RM Redberry 16% Speers 6% RMs Meeting Lake & Douglas
Time lived within biosphere reserve	N/A	3 months to 30 years	Whole life 37.5% 2.5-3 yrs 37.5% 8 months 25%	N/A	Whole life 46% 23-26 yrs 8% 14-26 yrs 15% 3-6 yrs 15%	Whole life 66% 8-13 years 6% < 5 years 19%
Age in years (mode)	80.5% are over 15 years 14.5% are over 65	Average = 36	17-19 (17)	81.3% are over 15 years 21.9% are over 65	Average = 46	15-18 (16)
% visible minority	0.07%	0%	0%	0%	0%	0%
% First Nations	16.9%	0%	0%	5.3%	0%	0%
Average household income: range (mode)	Average income: \$15 388 Median income: \$11967	<\$10 000 to > \$90 000 (\$30 000 – 49 000)	N/A	Average income: \$13 089 Median income: \$9 033	<\$10 000 to > \$90 000 (<i>Tie: \$10 000-29 000; \$30 000-49 000; \$50 000-69 000</i>)	N/A
Highest level of formal education: range (mode)	5.6% have an undergraduate degree or higher. 17.3% have gone to college. 72.0% have had some form of education.	Completed community college' to 'Received graduate degree' ('Received undergraduate degree')	N/A	4.3% have an undergraduate degree or higher. 11.5% have gone to college. 74.1% have had some form of education.	Elementary school' to 'Received undergraduate degree' ('Some university')	N/A

^a The statistics for this table include all ten census subdivisions in the Clayoquot Sound region, including all Indian Reserves.

did not participate in the focus groups to reveal potential biases in the results. For example, there were neither visible minorities nor First Nations among the participants. As well, the focus groups attracted people who were either very interested in and already engaged in biosphere reserve discussions and activities, or, as was more the case in Redberry Lake, were curious to learn more about the biosphere reserve.

I took the lessons I had learned from the Clayoquot Sound experience and applied them in the Redberry Lake biosphere reserve region, where I held two focus groups with the youth because the Principal of Hafford Central School enthusiastically encouraged all youth, from grades 9 to 12, to attend my focus group. In Redberry Lake, I found that the Community Committee and residents associated research success with the number of focus group participants. Community perceptions of my research and me as a researcher partly depended on how ‘successful’ I was in getting people to show up for the public focus group—the more the better. My experience with the Tofino and Ucluelet focus groups was that it was difficult to get people to complete their worksheets. This was compensated by enlightening and intense conversations that erupted, but the fact remained that the worksheets were not as well received as I had hoped. In Redberry Lake, I found that people diligently filled out the worksheets, but the focus groups with the Community Committee and youth did not spark as much discussion as I had hoped. For the public focus group in Hafford, I asked myself: how could I change the focus group method to make it more interesting, to engage people, to involve them?

After much deliberation, I decided to make the focus group into a family event—families being the primary focus of the area—and have a barbeque to entice people to attend. I also added an activity to familiarize residents with the biosphere reserve concept and help them fill out the worksheet while building capacity by working in groups. The activity was entitled, ‘Build your own biosphere reserve.’¹⁵ People were charged with piecing together a puzzle to illustrate the strengths and needs of their community using colour-coded cardboard pieces that represented the capitals of community capacity (Figure 8).

¹⁵ The ‘your’ was used deliberately to emphasize that people were living in a biosphere reserve that they had the power to take ownership of and responsibility for.

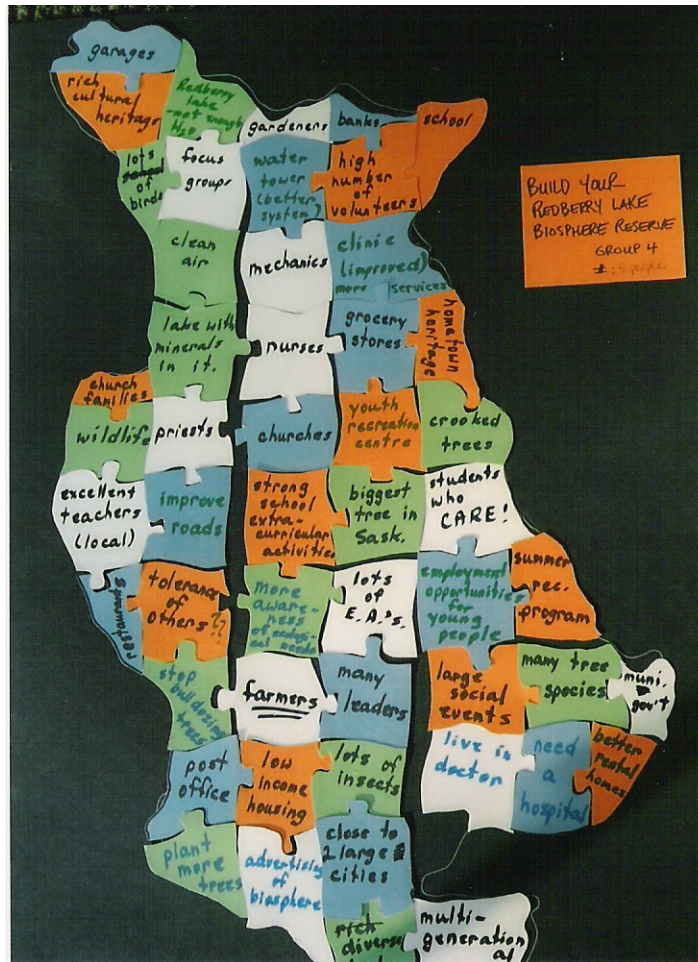


Figure 8: Sample puzzle: ‘Build your own biosphere reserve’

This is one of four puzzles completed in the Redberry Lake public focus group, highlighting contributors to and needs concerning capital resources in the region.

The activity was a resounding success. It not only made participation enjoyable, but it also helped people generate ideas of the strengths and weaknesses of their community in terms of ecological, economic/built, human, and social capital, concepts that were new to most of the residents. My research findings concur with Krueger and Shannon’s (2000) assertion that civic social assessments are important to gain a more complete understanding of social systems and help people better understand themselves and their community.

Because of the changes made to the application of the focus group method, the public event was more successful in terms of meeting community needs and desires. Forty-one people attended (a good turnout), and people told me during the event and day after that they really enjoyed the puzzle activity (21 people participated and split into 4

groups to work on one puzzle each). People left knowing more about biosphere reserves, and some members also found the puzzle helpful for filling out the worksheet because they began thinking about their community differently (my intended result).

In terms of meeting research needs, as with the youth of Hafford Central School, the larger number of people made the focus group environment difficult to create. However, as each table had between 5 and 7 participants, and because they had to work together and discuss how to construct their puzzle, each table did have a focused discussion related to community capacity in that they had to negotiate with each other on what aspects of their community should be written on the puzzle pieces. Perhaps if I had been able to hire moderator assistants whose task would have been to observe and prompt discussion at each table, the public event could have been a more effective modification of the focus group method by having four sub-focus groups within a larger venue.

Given the changes made in applying the focus group method, one might ask, were all of the focus group sessions *really* focus groups? Table 5 provides the basis for analysis in comparing the key ingredients of the sessions according to Krueger and Casey (2000). It seems that the critical component that determines whether a session is a focus group or not is the quality of discussion, which is negatively affected by larger group sizes. The larger focus groups (Redberry Lake youth and public) neither met the recommended requirements of the focus group method nor the purpose of holding focus groups to observe and gather data from discussions, and the CBT focus group did not meet Krueger and Casey's (2000) sample size criteria of 4-12 people. However, as Table 5 demonstrates, all of the sessions in this study met the requirements of a focus group, albeit in variable ways. For example, with only three people, the discussion generated in the CBT focus group was detailed and constructive; as one participant said, "We may not be many but we sure are intense!" (C2).

A review of Tables 2, 3, and 5 reveals that, despite their differences, all sessions produced positive intended and unintended results, qualitative data, and quantitative data (from the worksheets). Although Krueger and Casey (2000) are emphatic about what *is* and what *is not* a focus group (see 10-12; 187-192), they also admit that:

Table 5: Critical ingredients of a focus group and meeting community needs

<i>Participant group</i>	<i>Biosphere Reserve (BR) Management</i>		<i>Youth</i>		<i>Participatory public</i>		
<i>Meeting academic needs:</i> (Krueger and Casey 2000: 10-12)	Clayoquot Biosphere Trust (CBT)	Redberry Lake Community Committee	Ucluelet Secondary School	Hafford Central School GR1: Gr. 9, 10 GR2: Gr. 11, 12	Tofino, BC	Ucluelet, BC	Hafford, SK
People (4-12) are involved...	No - 3 attended (all male); would be a mini-focus group if had 4.	Yes - 8 attended (7 male, 1 female); 7 stayed (6 men, 1 woman)	Yes - 8 attended (2 male, 6 female); 7 stayed (2 male; 5 female)	GR1: No - 18 attended (8 male, 10 female); GR2: No - 15 attended (7 male, 7 female, 1?)	Yes - 12 attended (4 male; 8 female**); 8 stayed (3 male, 5 female)	Yes - 7 attended (3 male, 4 female); 5 stayed (2 male; 3 female)	No - 55 attended; 21 + unknown amount stayed (of the 21, 4 male, 15 female, 2?)
...who possess certain (common) characteristics...	Administrative body/management for the BR; all live in region	Administrative body/management for the BR; all live in BR Region	Youth - gr. 10-12; all student union and all live in Ucluelet	Youth - gr. 9-12; students present at school attended; all live in BR.	Residents of Tofino; all live in the BR.	Residents of Ucluelet; all live in the BR Region.	Residents of and surrounding Hafford; all live in the BR.
...and provide qualitative data...	Yes - taped discussion; written comments	Yes - taped discussion; written comments on worksheets	Yes - taped discussion; written comments	Yes - written comments; and No -taped limited conversations.	Yes - taped discussion; written comments on worksheets	Yes - taped discussion; written comments	Yes - written comments; and No - taped conv. indecipherable.
...in a focused discussion...	Yes	Yes	Yes	Yes and No - very limited discussions	Yes	Yes	Yes - discussions at each table; No - not led by moderator.
...to help understand the topic of interest.	Yes - community issues discussed.	Yes - four capitals discussed.	Yes - CC of youth discussed.	Yes - worksheets filled; No (see above)	Yes - discussed BR and local issues	Yes - BR and community issues	Yes - puzzles and worksheets done; No-(see above)
Meeting community needs/desires: OTHER PURPOSES SERVED	Generated discussion about CC framework and local context; helped CBT consider bigger picture for annual general meeting.	Helped process of planning next steps. Provided education (CC, capitals). Lent support for their efforts. Highlighted importance of academic linkages.	Provided education on BRs, CC, and capitals. Some showed willingness to become involved with BR (e.g. attend meetings).	Provided education on BRs, CC and capitals; A few students became enthused about BR and wanted to be more involved in BR activities.	Provided info on BRs, forum for conversations about BR and sustainability. Sparked informal discussions about BR before and after the session.	Provided education on BRs, CC, and capitals. Sparked informal discussions about BR among residents before and after session.	Provided education on BRs, CC, capitals. Attracted those with no/limited knowledge, interest in BR. Sparked informal discussions about BRs in community.

In the coming decades, other styles will emerge that will reflect other needs. Throughout all these styles, the focus groups still retain their distinctive quality of having a planned discussion using predetermined questions, guided by a skillful moderator, conducted in a permissive and non-threatening manner, for the purposes of providing insight (169).

They mention that each study is unique and that modifications are made to the focus group method given a particular situation, yet the divisions *within* academic research are not articulated. I argue that community-based research must be given special consideration and attention, and its methodologies should therefore be judged by a different standard than that of traditional academic work. It should meet such community-based requirements as:

- Did this research fulfill a community research need?
- Did the people of the community want it done?
- How involved were the community in the planning and execution of the research?

Krueger and Casey (2000) strongly state that focus groups are not appropriate if education is involved, or when the researcher has relinquished control of critical aspects of the study, such as participant selection and question development, to others. They caution against this especially in participatory research (where community members are involved as researchers in the study). However, I argue, in community-based research control *should* be shared, and even relinquished, depending on the degree of citizen participation one seeks when conducting research.

My focus groups served several purposes, as stated in Table 5. I chose not to select the participants but, instead, extended an open invitation to all members of the public who were interested in sharing their views on their community's capacity to meet biosphere reserve goals, and to people who wanted to learn more about and become involved in biosphere reserve activities. As such, even though my larger focus groups (with the students of Hafford Central School and the Redberry Lake public) may not have met all the traditionally accepted criteria for being methodologically sound, the attempt to balance community needs with academic requirements was successful,

producing valuable data as well as positive social results and change. The following quotes support this assertion.

. . . In your favour, if the way you did your research wasn't conventional, then personally I definitely think yours was the more effective approach and therefore more informative and valuable results were likely acquired. It has been the feeling in the past that most local people aren't fully informed of the 'goings on' of the BR. Arguably, they have to participate to become informed, but the way you made the effort to be a part of the community helped your work to be received on their level and really helped to have some new people get involved

Redberry Lake Community Committee member
(Email correspondence, July 18, 2003, RL.3).

...I think your project has probably done more to promote the biosphere reserve here than anyone or any thing else so far – thanks – it is up to us now to see what we can follow up with.

Ucluelet resident after attending the Ucluelet public focus group (Email correspondence, February 16, 2003).

In conclusion, focus groups were used throughout this comparative study in two biosphere reserves with different participant groups for several reasons. The literature engaged with in order to develop the methods for assessing community capacity within a grounded theory framework highlighted the potential utility of focus groups. Participants focused on a small set of questions to define their community's capacity. As well, the sessions, themselves, provided the opportunity for participants to engage in the capacity-building exercise of talking, in a focused manner with a moderator, about what biosphere reserves are and how to make them meaningful to their communities. Academic rigour was a factor, as the data collected needed to be collected in a structured, standardized way so that the results could be comparable to one another. Finally, the focus groups in this research attempted to reach what Pini (2002) argues as the potential of focus groups in rural research as

an empowering strategy for participants . . . not just of importance to feminist scholars, but to all rural social researchers who are interested in engaging less hierarchical research relationships, in producing knowledge which is contextualized, and in contributing to political and social change (Pini 2002: 339).

3.4 Qualitative data analysis

The qualitative data analysis concentrated on the written descriptions from the focus groups that concerned the contributions to, and hindrances of, the capitals and community capacity. Oral discussions from the focus groups were transcribed if they were decipherable, providing additional insight to what was written on the worksheets. The remaining qualitative data, from the interviews, were drawn upon to support or challenge the themes that emerged from the worksheets, as well as to piece together the historical context of each biosphere reserve's designation. Quotes from the focus group discussions and interviews were selected as illustrative examples of the data that either strengthened, or offered alternatives to, ideas about community capacity and the biosphere reserve designation that arose from the focus group worksheets.

Grounded theory, defined as “theory that was derived from data, systematically gathered and analyzed through the research process” (Strauss and Corbin 1998: 12), provided the basis for analyzing the written descriptions from the focus group worksheets. Since community capacity is a developing concept in the literature, the purpose of placing the analysis within a grounded theory framework was to allow understandings of community capacity to emerge from data provided by the research participants. Participants were considered to be the experts on their communities.

Rules to adhere to when analyzing qualitative data remain to be well-established (Bryman 2001). To apply a content analysis to the written worksheet responses, I adapted the steps of description and classification that Kitchin and Tate (2000) suggest for analyzing interview transcripts. The data were already ‘described’ onto paper by the research participants, and preliminarily classified by the worksheet structure (refer to Appendix A) into broad, conceptually-grounded categories. These categories consisted of the four capitals and community capacity, as defined by the literature, and the mobilizer concept from my guiding conceptual framework (see section 2.3). Thus, I began analyzing the data by classifying them through the complex process of coding.

Open coding, “the process of breaking down, examining, comparing, conceptualizing and categorizing data” (Strauss and Corbin 1990: 61), was the strategy I chose to be consciously receptive to the possibility of new ideas that had not been uncovered in the literature. First, I read over the worksheets to become familiar with the

data, limiting myself to one category at a time. The informal coding strategy of making cursory notes in the margins (Kitchin and Tate 2000) helped me think about the data as I read. Second, I read the worksheets again, category by category, and assigned codes to words, phrases or sentences. These pieces of text are what Kitchin and Tate (2000) label ‘databits;’ I refer to them as ‘data segments.’ A mixture of ‘socially constructed’ and ‘in vivo’ codes developed. Socially constructed codes rely on the analyst’s terminology (Kitchin and Tate 2000); codes derived from the terminology of research participants are referred to as ‘in vivo codes’ by Strauss (1987, cited in Bryman 2001: 396). By using the language appropriate to the social contexts from which the data were obtained, I attempted to convey the meanings the participants had intended.

Third, I sorted the data by typing the coded data segments into a table to organize them according to the broad categories that followed the worksheet structure. Each data segment was identified by the focus group participant it was written by (e.g., RL.1, U.4). If a data segment added insight to more than one category, it was placed under multiple categories. Fourth, similar data segments were grouped into sub-categories. Each category was internally (with text within the category corresponding with one another) and externally (with data being meaningful in relation to data in other categories) consistent (Kitchin and Tate 2000: 239). The criteria for appropriately including data segments into relevant sub-categories were conceptually and empirically grounded; in other words, they directly related to the guiding conceptual framework of community capacity, and to the themes that emerged from the data. Fifth, codes were modified as new insights emerged from the data, which involved ‘splitting’ and ‘splicing’ after re-evaluating how the data was organized within sorted categories and sub-categories (see Kitchin and Tate 2000: 244-246). Sixth, the data segments were re-coded and re-sorted to remain consistent with the revised set of codes. I paid careful attention to which themes applied to both biosphere reserves, and which were only applicable to one. The final set of codes evolved from five iterations of the fifth and sixth stages of this coding process. These codes provided the basis for addressing the research aim to determine the community capacity of the Clayoquot Sound and Redberry Lake biosphere reserves and the two research objectives.

3.5 Socioeconomic assessment of well-being

Quantitative Census data were employed to determine the socioeconomic level of well-being (referred to, from this point forward, simply as ‘well-being’) for each biosphere reserve region. Statistics were used to generate a socioeconomic status (SES) score for each of six variables (see Appendix B for the formulas) that were then converted to a measure of well-being following a socioeconomic scale formula. The formula, given below, was adapted from a formula by Wilkes (2002), who modified the socioeconomic scale used by Doak and Kusel (1996) for the Canadian context:

$$X = \sum_{s=1}^6 [(Z/A - B) * (100 / (C - B))]$$

where: X = socioeconomic score
Z = standardized score of each of the scale categories.
Negative one is multiplied to the poverty score.
A = 2 if Z is poverty intensity; otherwise A = 1
B = 2 (two standard deviations below the mean)
C = 2 (two standard deviations above the mean)

Doak and Kusel (1996) chose to exclude income from their formula¹⁶ while acknowledging that it “is a commonly used indicator of socioeconomic status and well-being” (380). Wilkes (2002) considered income as negatively affecting well-being¹⁷. However, for this study, I consider income as positively influencing well-being, which is consistent with quality of life (e.g., Olson *et al.* 2004) and social indicators of well-being (e.g., Diener *et al.* 1999; Hsieh 2004; Helliwell 2003; 2001; Myers and Diener 1995; Parkins *et al.* 2003) literatures. Other studies argue that well-being is dependent on more than just income levels (Bookwalter and Dalenberg 2004; Warren and Britton 2003), implying that income has traditionally been employed as an indicator of well-being. Thus, condition ‘A’ only applies to poverty intensity, and not income.

¹⁶ The reasons for this decision were that measures of income from American census data are problematic, and income was deemed to be closely correlated with most of the variables used in their formula.

¹⁷ Why might income negatively affect well-being? I surmise this assumption may refer to a case where upper-class individuals place accumulation of wealth and material status as their primary goal. However, I assert that well-being necessarily depends upon receiving income, especially in the North American context, to purchase shelter, food, weather-appropriate clothing, and access to health care to sustain basic human needs. Meeting basic human needs are crucial to a person’s well-being, and additional income is required to afford people the opportunities to enjoy a standard of living to suit their desires.

The formula is based on the Shannon-Weaver Diversity Index (1963), widely used in studies of biology and ecology. The assumption of this index is that a greater economic and social diversity is desired, as it allows a community to better cope with change and stresses. So, for example, if one economic sector becomes unviable, other options are available in a diversified economy, thus allowing people to still make a living and keep their community alive in the face of change.

This study includes this formula as my research design closely follows that of Doak and Kusel (1996), which is the only study, to date, to attempt a quantitative measurement of community capacity. In their study, community capacity was determined by a self-assessment rating of 1-7 that was statistically compared to well-being, calculated on a seven-point scale. The subjective indicators of community capacity were found to be positively correlated to the objective indicators of well-being. Thus, the socioeconomic scale is an example of a conventional means of assessing community well-being, to which community capacity self-assessments can be compared.

Census data from 2001, a secondary source, were used to generate the socioeconomic assessment. Statistics Canada is the best source of social and economic information that is available for both areas, providing a consistent means of gathering the same information obtained in the same way from both provinces. Thus, these data can be confidently compared from one biosphere reserve to the other.

Canadian Census divisions and subdivisions do not correspond with biosphere reserve boundaries. As well, it is important to make a distinction between a biosphere reserve region as opposed to a biosphere reserve, because there are populations and territories that extend outside of the official biosphere reserve boundaries that play a significant role in the functioning of the biosphere reserve and its administrative organization; this is especially relevant in Clayoquot Sound. Therefore, I had to make a judgment on which subdivisions to include in the calculation of each biosphere reserve's socioeconomic level.

In Clayoquot Sound, biosphere reserve and political activities regularly transcend to international levels; however, the highest degree of interaction occurs within the Clayoquot biosphere reserve *region*, which includes the Census subdivisions listed in Table 6. Residents from these subdivisions have consistently been represented

Table 6: Census subdivisions used in the calculation of the socioeconomic well-being of the Clayoquot Sound and Redberry Lake biosphere reserve regions

Clayoquot Sound	Redberry Lake
Port Alberni (C)	Great Bend No. 405 (RM)
Ucluelet (DM)*	Borden (VL)
Tofino (DM)*	Redberry No. 435 (RM)*
Alberni-Clayoquot B (RDA)	Hafford (T)*
Alberni-Clayoquot A (RDA)	Douglas No. 436 (RM)
Ittatsoo 1 (R)	Speers (VL)
Marktosis 15 (R)	Meeting Lake No. 466 (RM)
Opitsat 1 (R)	
Esowista 3 (R)	
Refuge Cove 6 (R)	

Please note: An asterisk (*) indicates an ‘active’ community.

Census subdivision types:

C = City; DM = District Municipality; RDA = Regional District Electoral Area; R = Indian Reserve; RM = Rural Municipality; VL = Village; and T = Town.

at the table of the many processes that have taken place in that region (CS26b), thus they were all taken into account for this study. I make a further distinction between the region and the ‘active’ communities of the biosphere reserve, indicated with asterisks in Table 6. The active communities are the places of the most influence and activity concerning the biosphere reserve. In Clayoquot Sound, the active communities are Tofino and Ucluelet.

In Redberry Lake, most of the biosphere reserve involvement and the vast majority of the biosphere reserve’s geographical area fall within the confines of the RM of Redberry (No. 435), which includes the town of Hafford. These subdivisions also happen to be the active communities for this socioeconomic assessment, as indicated in Table 6 that also lists the census subdivisions included for the regional assessment of well-being.

The next chapter presents the data, produced by focus groups participants, that pertain to what constitutes and hinders the community capacity of their biosphere reserve regions before the results of the socioeconomic well-being assessment are given.

CHAPTER 4: COMPARING COMMUNITY CAPACITIES

4.1 Introduction

This chapter presents the quantitative and qualitative ‘snapshot’ assessments of each biosphere reserve region’s community capacity acquired from focus groups. The assessments yielded three sets of data, corresponding with the three parts of the focus group worksheets: numerical ratings of community capacity and capitals from 1-7, or subjective indicators; qualitative rankings of the capitals in order of importance for building and maintaining community capacity; and, written descriptions of what contributes to and hinders each capital and capacity, along with perceptions of the importance of the designation. The results of each data set are presented in turn. A comparison of the similarities and differences between the community capacities of the biosphere reserve regions is given, followed by the key emergent elements of community capacity that were found to be common to both study sites.

4.2 Quantitative data: rating community capacity and the capitals

Referring to the assessment worksheet in Appendix A, focus group participants were asked to *rate* their biosphere reserve community in terms of each capital and overall community capacity from 1-7 and *describe, in writing*, why they chose that number. The quantitative results are displayed in Table 7, presenting the assessments offered by adult, youth, and all participants considered together. Some of the qualitative data from focus groups and interviews augment the quantitative data offered here, with the descriptive qualitative data presented in section 4.3.2. For the analysis, the quantitative ratings were conservatively¹⁸ treated as interval data by averaging the ratings of each capital given by those who rated that capital. The averaged ratings were

¹⁸ The term ‘conservative’ is used to emphasize the fact that the ratings were not treated as pure interval data. The rounding of the averaged ratings was a deliberate attempt to retain the ordinal nature of the original ratings data.

then converted back to ordinal data by rounding the values to the nearest whole or 0.5 number, reflecting the smallest meaningful difference people discerned (0.5) when filling out the worksheets, as evidenced by markings between rating levels on some worksheets (e.g., a mark between 4 and 5 indicated that a participant gave a particular capital a rating of 4.5). To acknowledge this rounding technique, averaged ratings are referred to as ‘conservative averages’ in this thesis. Minimum and maximum sample sizes (N) are applied because people may have rated some capitals but not others; ‘N mode’ refers to the most frequent occurrence of participants who completed the ratings.

Table 7: Community capacity ratings assessment

FOCUS GROUP	CLAYOQUOT SOUND						REDBERRY LAKE					
	ALL	<i>O</i>	Adults	<i>O</i>	Youth	<i>O</i>	ALL	<i>O</i>	Adults	<i>O</i>	Youth	<i>O</i>
Community Capacity	5.0	2	5.0	2	5.0	2	4.5	2	4.5	2	4.5	2
Ecological	6.0	1	6.0	1	6.0	1	4.5	2	5.0	1	4.5	2
Eco./Built	3.5	4	3.5	3	4.0	3	3.5	3	3.5	3	4.0	3
Human	4.5	3	5.0	2	4.0	3	4.5	2	4.5	2	4.5	2
Social	5.0	2	5.0	2	6.0	1	5.0	1	4.5	2	5.5	1
<i>N min</i>	18		12		7		54		22		33	
<i>N max</i>	22		14		8		58		25		33	
<i>N mode</i>	21		14		7		57		23		33	
<i>out of N participants</i>	31		23		8		61		28		33	

KEY: 1 = very low; 2 = low; 3 = medium low; 4 = medium (neither high nor low); 5 = medium high; 6 = high; and 7 = very high.

O = Rank Order (from highest to lowest rated capital)

Note: A rating of 1 is very low, whereas a rank order of 1 is high.

ALL = conservatively calculated averages for the ratings given all participants from one biosphere reserve region

All of the ratings for the capitals in Clayoquot Sound were slightly higher or the same as those given in Redberry Lake, indicating that, overall, participants from Clayoquot Sound perceived their community capacity to be at a marginally higher level than participants from Redberry Lake. The ecological capital in Clayoquot Sound was given the highest average rating of 6.0, or high, out of all the capitals from both biosphere reserves. People within each biosphere reserve region tended to perceive

themselves the same way. For example, community capacity was given a conservative average rating of 5.0, or medium high, by all participants in Clayoquot Sound, whereas participants in Redberry Lake gave their region a conservative average of 4.5 when all focus group sessions were accounted for, a rating that falls between medium and medium high.

Residents in both biosphere reserves viewed themselves as having similar levels of capacity, as reflected by the numerical ratings in Table 7. In all sessions, economic/built capital was viewed as contributing the least to community capacity, reflective of the pressing need for greater, consistent core funding, especially for the Redberry Lake biosphere reserve, and challenges to livelihood both regions are facing. Interestingly, perceptions of economic/built and human capitals were similar across biosphere reserves despite vast differences in funding, logistical support, and individual traits, with Clayoquot Sound benefiting from a \$12 million trust fund, active partnerships, and in-kind support, whereas Redberry Lake has very limited public funding. In fact, Redberry Lake has been unable to open its Research and Education Centre (formerly the Pelican Project Interpretive Centre) since its designation due to lack of funding. This contributes to a diminished or sometimes non-existent visibility of the biosphere reserve that reinforces notions of it not seeming ‘real’ or ‘of use’ to the public, despite the enthusiasm, commitment, and vision of the Community Committee that manages the Redberry Lake biosphere reserve activities. Yet, the ratings reflect neither these disparities nor the great differences between biosphere reserve regions.

Further, Clayoquot Sound has a more highly educated and more diverse assortment of professional/trades population according to Statistics Canada Census 1996 and 2001 data, many more organizations devoted to environmental and social issues, more logistical support (through PRNP, CLARET, CBT), more attention by government, media, and non-governmental organisations at all scales, and more established academic partnerships than Redberry Lake. As well, Clayoquot Sound has full-time and part-time staff hired by funds from the Trust and a CURA grant; Redberry Lake has one half-time communications coordinator. So, despite large differences, residents from both biosphere reserves viewed themselves in similar ways, which influences their perceived abilities to take collective action.

The largest difference between biosphere reserves was found in the ratings of ecological capital, with an overall average difference of 1.5. All focus groups in Clayoquot Sound allotted a conservative average rating of 6.0, while the Redberry Lake adults and youth gave conservative average ratings of 5.0 and 4.5 respectively. These ratings attest to the differences in ecological assets between biosphere reserves, with Clayoquot Sound possessing a richer diversity of environmental assets.

Differences between focus groups within each biosphere reserve are also evident. Patterns of difference between adult and youth ratings are as follows: adults rated human capital as being stronger than youth in Clayoquot Sound, while Redberry Lake adults rated ecological capital higher than youth. Reasons for this may include the greater extent that adults are engaged in environmental research and the formal economy than youth are. Also, perhaps, adults possess greater levels of political and social awareness, and are more cognizant of the trades, skills, and education of community members. A high regard for the environment may be the main reason for involvement by adults in the research. Youth, who rated their social capital highest in both biosphere reserves, tended to be more optimistic about the state of their community, focusing their discussion on potentials and positive social components.

In all Redberry Lake focus groups, the majority of respondents identified social capital as the primary contributor to community capacity. The Community Committee was the only group to identify ecological capital as being second most important over human capital. This anomaly is most likely due to the heightened awareness of environmental issues and knowledge of research in the area being, in some cases, both a reason for and consequence of the Committee members' involvement with the biosphere reserve. This insight is based on field observations; the ratings can illuminate patterns and provide a point of departure for discussion, but they cannot provide the reasons for why people rated their capitals and capacity as they did. Section 4.3.2 addresses the factors that came to people's minds as they rated their capitals by presenting the results from the third, written component of the worksheet.

4.3 Qualitative data

4.3.1 Rankings the capitals: what capitals were viewed as most important?

Table 8 provides the results of how focus group participants *ranked* their capital resources, according to the importance of the capitals in building and maintaining community capacity to fulfill biosphere reserve functions. Unlike the ratings exercise, when it came to filling out the rankings, everyone who started the rankings completed them. Therefore, the sample size of participants who completed the rankings, N, is compared with the total number of people who attended the focus groups, as opposed to maximum and minimum numbers of people, as in Table 7.

Table 8: Ranking assessment of the capitals

<i>O</i> (Rank Order)	Clayoquot Sound			Redberry Lake		
	Adults	Youth	<i>ALL</i>	Adults	Youth	<i>ALL</i>
<i>1</i>	ECOL - HUM	ECOL - SOC	<i>ECOL</i>	SOC	SOC	<i>SOC</i>
<i>2</i>	SOC	HUM - SOC - ECB	<i>SOC</i>	HUM	HUM	<i>HUM</i>
<i>3</i>	ECOL - ECB	HUM - ECB	<i>ECB</i>	ECOL	ECB	<i>ECOL</i>
<i>4</i>	ECB	ECOL - HUM - ECB	<i>ECB</i>	ECB	HUM - ECB	<i>ECB</i>
<i>N</i>	<i>10</i>	<i>7</i>	<i>16</i>	<i>17</i>	<i>33</i>	<i>50</i>
of	23	8	31	28	33	61

Key to abbreviations:

ECOL = Ecological Capital
 ECB = Economic/Built Capital
 HUM = Human Capital
 SOC = Social Capital

Comparing the *O*, or rank order, columns in Table 8 and Table 7, it is apparent that the rankings mostly correspond with the ratings people provided, indicating that the rating and ranking data support each other. Despite different and important local contexts, commonalities between biosphere reserves emerged. For example, as with the

ratings, economic/built capital was ranked last in terms of importance in contributing to community capacity. This low ranking reflects what Kusel (1996) highlighted as a recognition that financial wealth does not necessarily lead to improving one's well-being or achieving community goals.

Differences between ratings and rankings indicate disparities between people's perceptions of the state and potential of their community capacity, which is comprised of capital resources. For example, the adults of Redberry Lake rated the state of their capitals in the following order, from highest to lowest: ecological, social/human (tie), and economic/built. The adults ranked the capitals, from highest to lowest importance, as follows: social, human, ecological, economic/built. So, while social capital was considered imperative for community capacity, the adults perceived their social capital to fall short of its potential peak level; this suggestion was supported by participant descriptions (section 4.3.2) that accompanied the rating and ranking assessments.

Unlike the adults and youth of Clayoquot Sound, participants in Redberry Lake shared similar views that were evident by the almost identical order in which the capitals were ranked by both adults and youth. Ecological capital appeared prominently in Clayoquot Sound, whereas social capital was paramount in Redberry Lake. Differences between biosphere reserve rankings reflect the regional prominence a particular community aspect is given. For instance, the high rankings of ecological capital in Clayoquot Sound reflect how significant the environment was to participants. In contrast, community spirit and pride were perceived as very strong in Redberry Lake, as reflected by the high rankings of social capital, with the written descriptions heavily emphasizing cultural events, neighbourliness, and upholding small town values.

Clayoquot Sound's high placement of ecological capital in both rankings and ratings is not surprising, given the politicization of conservation issues in the region. Haegle (2001) inventoried the NGOs on the West Coast and found that, of the 64 NGOs identified, 23—more than one-third—had an environmental component or mandate. Historically, the people of Redberry Lake have demonstrated a strong ability to pull together for projects, such as fundraising for and constructing Hafford's Communiplex; the Communiplex is now home to many of the regular community events of the area, from weekly Bingo nights to annual graduate celebrations. This ability may be the main

reason that social capital was the primary focus of both the ratings (the state of the capital) and the rankings (the potential of the capital). However, these observations are circumstantial evidence as to the reasoning behind the subjective indicators and qualitative rankings people provided. To understand the motivations behind the ratings and rankings, as intended by the research participants, we must turn to what people wrote and said during their focus group sessions.

4.3.2 Descriptions from the worksheets: Clayoquot Sound

On the worksheets, participants described key aspects that both contributed to and hindered the capitals and the community capacity encompassing those capitals. Responses from the Clayoquot Sound biosphere reserve region focus groups are given first, followed by those from the Redberry Lake biosphere reserve region. Insights from the taped discussions contribute to this discussion in a small way, due to the uneven quality of the recordings. The self-assessment of Clayoquot Sound's ecological, economic/built, human, and social capitals is portrayed before the importance participants attributed to the designation is discussed. This section concludes with a summary of the overall community capacity of the biosphere reserve region.

4.3.2.1 Clayoquot Sound: the capitals

Ecological capital: People passionately referred to the region's unique marine and terrestrial ecosystems, and its rich biodiversity with abundant animal and plant life. Table 9 provides a summary of the ideas that participants in Clayoquot Sound shared of what contributes to, and how to improve, their ecological capital. The environment was characterized by old growth forest in the core region of the biosphere reserve, beautiful landscapes with a backdrop of mountains, beaches and ocean, and one of five remaining larger intact watersheds on Vancouver Island. Other environmental assets mentioned include large predators (i.e., wolves, orcas, cougars, and bears), clean waters, clean air, and natural processes (also termed ecological services, with nutrient cycling being one example).

TABLE 9: Summary of key elements of ecological capital in the Clayoquot Sound biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
ECOLOGICAL CAPITAL of CLAYOQUOT SOUND	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Environmental assets (mountains, ocean, lakes, beaches, whales, bears) ▪ Accessibility of diverse ecology ▪ Environmentally sound practices ▪ Valuing the environment ▪ Recreational activities (hiking, fishing, surfing, diving) 	<ul style="list-style-type: none"> ▪ Environmentally sound practices: recycling, reusing, cleaning up ▪ Preservation ▪ Limits to resort development
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Environmental assets: high ecological terrestrial and marine biodiversity, beautiful landscape, wildlife, one of last intact watersheds on Vancouver Island, untouched wilderness, natural processes, unique ecosystem, clean air and water, scenic views ▪ Accessibility (to towns, cities) ▪ Legislation for sustainable ecosystem management ▪ Preserved and Protected areas (e.g., Pacific Rim National Park) ▪ Potential for sustainable activities (e.g., research, education, recreation) ▪ Resource-based industries (fishing, forestry) ▪ Knowledge of impacts 	<ul style="list-style-type: none"> ▪ Long-term, best-management practices concerning resource use ▪ To encourage local, not industrial, logging ▪ Monitoring of activities, emphasis on stewardship, and sharing of information ▪ Education based on research to determine threats and opportunities, and then address threats (e.g., aquaculture) ▪ Sewage treatment ▪ To lessen the housing and resort footprint by attending to impacts of tourism and population growth (i.e., limited land). ▪ Regional partnerships to oversee sustainable activities ▪ To value ecological capital more To preserve the last intact watersheds and conserve biological diversity

The adults observed that the ability to benefit from (e.g., recreational activities) *and* damage the environment (e.g., logging intact watersheds) is high, and that the value of the relatively pristine environment increases with non-disturbance. Growing concerns in the communities are the ever-decreasing land base for future development and preservation/conservation, and an even more limited amount of high-value land (i.e., ocean front real estate), as a result of current levels of development. One participant suggested that partnerships be formed among Parks Canada, the Department of Fisheries and Oceans (DFO), forestry companies (Interfor, Iisaak), the CRB, and community

political bodies for the development and coordination of integrated sustainable environmental activities.

According to participants, increased knowledge based on ‘objective research’ (my emphasis) to determine opportunities of and threats to the environment (e.g., impacts of aquaculture) would enhance the ecological capital of the area through increasing human capital. People wrote about the need to restore/enhance streams and second-growth forests, decrease the ecological footprint of housing and resort development, and increase stewardship within integrated management areas. To improve the area, adult participants called for monitoring of fish farms and other resource extraction activities, ensuring that the last five intact watersheds on Vancouver Island remain that way, refusing open-system salmon farming operations in the area, and increasing efforts to keep the region clean. One respondent desired the discontinuation of industrial and non-local logging, an issue that has been a focal point of controversy in the region. Most participants wanted to continue focusing on developing best management practices for the terrestrial and aquatic ecosystems, with the minimum requirement that practices not deteriorate from existing standards of environmental conservation and care.

The youth communicated their love of the nature that surrounds their communities, adding their appreciation for the accessibility of a variety of environmental assets and activities that the environment affords, such as whale watching, fishing, surfing, hiking, diving, and the recently popularized storm watching. They mentioned that the small islands and breathtaking sunsets heighten the aesthetic beauty of the region. The youth wanted to see a recycling program in the area, and for people to try to decrease their waste and be more mindful of littering. They urged decision makers to preserve the forests and retain their wildlife, both for residents and to maintain tourism. One youth wrote, “I don’t think we properly preserve our environment” (US.7). Although one youth perceived British Columbia as boasting the best reforestation practices in the world, the youth expressed sadness and anxiety at the increased development and former logging practices: “When I walk outside on a beautiful day I look up and see a mountain covered with bald patches. The beautiful forest between my house and Big Beach is going to be clear-cut to make room for more

houses” (US.8). Another wrote, “Don’t ruin the recreational area at Big Beach” (US.7). During the taped discussion, all demanded that resort development be curbed so that the communities will not turn into a “tourist shrine” (US.8), a term used by one of the youth. This concern was echoed by one adult, who reminded noted that the West Coast has been dubbed ‘the next Whistler,’ implying that the region will eventually cater to high end tourists, forcing a higher cost of living that would make it difficult for residents of less than high socioeconomic status to remain in the area.

Economic/built capital: “Tourism flourishes, but at what cost?” (T.1) pondered one participant, voicing the question of the social and environmental consequences of the climbing tourism industry that residents are facing in the assessment of economic/built capital, summarized in Table 10. Residents are increasingly apprehensive at the diminishing affordable housing options, as most new development is built with the affluent tourist in mind. The high rent and low availability of residential housing and buildings for businesses is a concern; this is especially problematic for those who work in the tourism industry on a seasonal basis. Although permanent residents in Tofino were viewed as fairly wealthy, it was acknowledged that those who work in the service sector often do so for minimum wage, drawn to the area for the laid-back lifestyle and recreational opportunities. The increased amount of resort development also reduces beach access for residents, while a growing problem concerns the water and sewage systems that are overused by tourists, holiday renters, and the increasing resident population of the area. Sewage from Tofino is dumped directly into the ocean, thus raising serious priority issues about the water and sewage distribution problems. Addressing these concerns at an appropriate (small) scale, according to one resident, would include removing and improving septic fields in rural areas. To address these problems, one participant suggested that wealthy part-time residents and tourists be required to contribute financially to infrastructure needs.

Despite a small population base, the region is fairly developed with a paved highway enabling easy access to the area. Infrastructure, such as the four schools in the biosphere reserve region (Ucluelet Elementary, Wickaninnish Community, Ucluelet Secondary, Maaqtusiis School), and facilities in Tofino and Ucluelet, such as the

TABLE 10: Summary of key elements of economic/built capital in the Clayoquot Sound biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
ECONOMIC /BUILT CAPITAL of CLAYOQUOT SOUND	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Tourism ▪ Businesses, services, housing ▪ Investment in the community ▪ Buying local products 	<ul style="list-style-type: none"> ▪ To increase the variety of jobs available for youth and adults ▪ A sewage system in Tofino ▪ More affordable housing ▪ Recreational facilities for youth
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Tourists/visitors ▪ Fairly developed area with business and services: hospital, library, community hall, community theatre, schools ▪ Limited development ▪ Knowledge of infrastructure and resources ▪ Fairly wealthy population in Tofino ▪ Commitment to area through time, tax dollars, fundraisers ▪ Change of economic base 	<ul style="list-style-type: none"> ▪ Improvements to waste management at a small scale: sewage system in Tofino, recycling, water distribution ▪ Financing for alternative energies ▪ To assess the costs of tourism (e.g., over taxation of water/sewage system) ▪ Affordable housing options for all, especially seniors, families, young single people ▪ To address low availability of housing and business space ▪ Wealthy, part-time residents and tourists to financially contribute to infrastructure ▪ Long-term goals when making decisions (“tourists do not want to see ‘what once was’” T6) ▪ To address economic restructuring and controversy of resource-based economies through expansion and diversification of green economic opportunities and conservation ▪ To address the needs of small, coastal, isolated communities that lack financial capital and infrastructure ▪ A place for discussing diverse ideas ▪ Social recreational and academic facilities: e.g., swimming pool, bookstores, libraries, theatres ▪ A middle school in Tofino

community and Lions’ halls, community theatre, libraries, and hospital, were cited as contributors to this economic/built capital. Youth appreciated the sponsors who keep their schools funded. Along with government funding, local commitment to the region through tax dollars and fundraisers are other large contributors to the area’s economic/built capital. Adults noted that Tofino and Ucluelet have better services in contrast to the small coastal, isolated communities of the region that lack infrastructure and financial capital. Lack of employment options, and gaps in facilities (e.g.,

bookstore, library for researchers) were noted as detriments to this capital. Participants called for alternate/green local energy to be developed, a middle school in Tofino to be built, transportation corridors to be improved, and affordable housing, especially for seniors, youth, young families, and single people, be given priority. As well, participants wanted to see an expansion and diversification of economic opportunities, especially so that youth are not forced to leave the area.

The area has undergone major economic transition and restructuring, with the fishing industry nearly dead and the redefinition of forestry. Portions of the community refused to change in the face of these shifts, according to one person, who commented that the existing infrastructure and economies are based on outmoded industries. People have varying ideas of what economies should be developed for the future, with one adult suggesting that a sustainable resource economy is the key, while another wanted the financial and infrastructure system to change to service energy production and education.

Key to improvement is to create a space/place where diverse ideas can be discussed in a non-threatening way. Funding is needed to develop a recycling system and improve waste management systems, as well as to explore alternative energy sources and increase recreational options (e.g., swimming pool, ice rink). The businesses, roads, housing, and restaurants contribute to this capital that one youth described as “average.” Another youth noted that this economic/built capital is enhanced by people buying locally, raising the local economy, as well as by more investment occurring in Ucluelet.

The lack of employment opportunities, especially those unrelated to the service sector, was a key concern for youth, and the primary reason given for leaving the area after high school. The second main concern for youth was the strong need for a sewage system in Tofino; as one youth stated, “Get Tofino a sewage system and don’t waste the money you get on stupid things” (US.7). Another observed, “Considering Tofino spent thousands of dollars on saving a tree when they don’t even have a sewage system shows that someone needs to straighten out their priorities” (US.7). Major concerns also included limited housing and high rents, a lack of facilities for teens (a skate park was one suggestion), and the need for an improved water system. One Ucluelet youth

wanted more services and facilities to be built in her/his district to attract tourists while another suggested that the road to Ucluelet be improved. These desires were countered by concerns that overdevelopment would result in loss of natural vegetation and wildlife. One youth noted that a detractor to this capital was the diminishment of an unspecified major industry, presumably forestry.

Human capital: For a relatively small population, the area contains a high level of human capital with a highly educated, skilled, motivated, concerned, talented, engaged, and interested populace and an active arts community (Table 11). The engaged people in the area are attempting to influence decision-making regarding the

TABLE 11: Summary of key elements of human capital in the Clayoquot Sound biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
HUMAN CAPITAL of CLAYOQUOT SOUND	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Skills, experiences and knowledge (of teachers, business managers, scientists, professionals) ▪ Attitudes ▪ Generosity of school sponsors 	<ul style="list-style-type: none"> ▪ To offer practical educational opportunities for youth, especially for post-secondary education prerequisites ▪ For youth to stay/move back ▪ More opportunities to gain skills, trades and work experience
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Education of non-First Nations by living among/close to First Nations ▪ High diversity of people ▪ Highly educated, skilled, experienced, motivated, engaged, knowledgeable, talented people with vision ▪ Individual leadership ▪ Lively arts community ▪ Commitment to region ▪ New people to the area with different attitudes and beliefs 	<ul style="list-style-type: none"> ▪ Treaty settlements ▪ To address the dichotomy between communities and intercommunity inequalities. The income and education levels of some are low, especially among long-term residents ▪ Enhanced educational programs for all ages, tailored to community needs ▪ To address problems of unemployment, welfare, stress, and lack of strong leadership ▪ Economic opportunities for people to develop their skills, and incentives to keep skilled individuals for long-term ▪ Work for the underemployed ▪ Affordable living costs so people are not forced to leave ▪ More people engaged ▪ A common vision ▪ Willingness: to do something and make decisions ▪ To value human capital more

development of the area. The diversity of both permanent and temporary residents was highlighted by adults as a key contributor to human capital, with diversity defined in terms of skill sets and degrees of community involvement, as well as in binary terms of First Nation and non-First Nation, new arrivals and long-term residents. Living in close proximity with First Nations was seen as a great advantage for the education of non-First Nations people. People have visions for the area, and individual leadership was viewed as key factor for ‘making things happen.’

One respondent noted that, although the region does not offer job opportunities for people to either fully apply their skills or to develop new ones to keep up with changing times, people take the opportunity to exercise their diverse sets of skills through volunteer work for a variety of community groups (U.1). As such, engaged people in the area are very busy and experiencing volunteer/process/political/research burnout; participants highlighted the need to engage *more* people to join community societies and discuss issues. Developing a common vision for the biosphere reserve and the region, through incremental steps, was seen as paramount. A *willingness* to take initiative and make decisions and creating a forum to effectively communicate ideas were viewed as needs.

People are committed to the region, attracted to the area for its environmental amenities and lifestyle. One adult noted that many of these people are semi-retired, escaping the ‘rat race.’ Changing demographics were welcomed by some who would like to see more of an influx of people, with new ideas and without ‘old baggage,’ to change attitudes and beliefs in the region. The rising cost of living in the area is a growing concern and a cause of out-migration.

Lack of Treaty settlements and the history of the Department of Indian Affairs in dealing with First Nations are major hindrances to human capital, as one respondent observed. Further detail was not given, but from personal observation I suggest that, because the human capital of First Nations is necessarily focused on Treaty negotiations, the result is that there are fewer human resources to engage in biosphere reserve and/or other community events and activities. Adults also wrote of vast inequalities in the area, given the situation of depressed and small, isolated communities, as well as the underemployment, unemployment, welfare, and stress people face in the area.

People suggested increased and enhanced educational opportunities to improve this capital, such as outdoor and environmental programs, training for those without a high school education, and an international exchange for school children and community members. Youth noted that the recreational activities in the area are catered to tourists and are unaffordable for local youth, who consider themselves lucky if they find a minimum wage service job; they feel they cannot access the recreational activities of the region, such as surfing and scuba diving, and suggested that local operators offer discount recreational courses for residents.

The youth also viewed the area to be filled with skilled and knowledgeable people, referring to scientists, their teachers, entrepreneurs, and industry workers. Their main concern was the lack of key courses such as French 12 and Physics 12 that would make them competitive when applying to post-secondary education institutions. They would like to see more practical educational opportunities for youth to include all grade 12 courses and trades skills, such as metal shop; as one youth stated, “I feel we should be given more chances to get somewhere in life” (US.3), while another stated, “Our school offers limited courses so Ucluelet graduates are automatically underskilled. This town doesn’t help you make it in the world, so why would you want to stay?” (US.7). The youth also talked about the difficulty of gaining skills or experience in an area with limited job availability and a lack of a post-secondary institution.

Social capital: In describing the region’s social capital, adult respondents highlighted the population’s strong networking abilities that include the capability to reach out to society at the global level and ‘get things done’ with informal networks. Table 12 provides a summary of the contributors and areas in need of improvement to the social capital of Clayoquot Sound, as assessed by focus group participants. The area’s excellent non-governmental organizations contribute to social capital, with one person referring to an exercise conducted by the Ucluelet Visioning Group that demonstrated connections between these organizations that facilitate an exchange of ideas. However, recall that the ratings of social capital given by the youth were higher than those provided by adults (Table 7), indicating a lower level of social cohesion among the latter group as compared to the former. An excerpt from the Ucluelet public

TABLE 12: Summary of key elements of social capital in the Clayoquot Sound biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
SOCIAL CAPITAL of CLAYOQUOT SOUND	<i>Youth</i>	<ul style="list-style-type: none"> ▪ High community spirit, neighbourliness, closeness, interactions, friendliness, small town atmosphere, working together, relationships, feeling of security. ▪ Many community events ▪ Volunteerism ▪ Fundraising ▪ Past experience: problems handled 	<ul style="list-style-type: none"> ▪ Trust; promises kept ▪ Cooperation/coordination: working together to solve community's problems ▪ Youth activities and more gathering places (theatres, swimming pool)
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Strong networking ability within and outside of community ▪ Excellent NGOs and informal societies that work for community betterment with an overlap of people that facilitates exchange of ideas ▪ Engagement and involvement; people volunteer time to many groups ▪ Controversies ▪ Political and media attention ▪ Commitment to region ▪ Willingness to cooperate and work together towards biosphere reserve goals and wellbeing ▪ Common focus: diversifying and improving the economy, trying to influence decision making ▪ Small town friendliness and valuing relationships ▪ Diversity of population 	<ul style="list-style-type: none"> ▪ To encourage community members to work together to overcome divisiveness ▪ Partnerships among government agencies (Parks), industries, and communities to develop sustainable activities; regional vision, cohesion, and coordination ▪ More trust and cooperation to overcome continued issues of mistrust between: 'greens' and 'browns'; First Nations and non-First Nations; and Tofino and Ucluelet. ▪ Time to let anger and frustration dissipate ▪ Willingness to work together and change ▪ A clear place for communication of issues, with education and discussions in accessible discourse ▪ To address 'process burnout' by getting more people involved New people in the community ▪ More volunteering, giving and engagement, with willingness to work for the community good, not out of self interest and fear ▪ Continued political and media attention ▪ Maturity of CBT

focus group discussion reveals the complexity of community capacity exhibited in Clayoquot Sound at different scales, with an observed high capacity of organizations that is offset by lack of cohesion to enable that capacity to be effective at larger scales:

Betty: . . . I've been in this community just over two years, and one thing I've really noticed is it seems like there's little groups of people working in different directions and what they're doing is really important to them and they're all off separately on the same note. . . .but there isn't really any sense of cohesiveness. People aren't friendly, well some people are, but everyone is doing their own thing.

(Ucluelet public focus group, February 13, 2003)

This divisiveness is linked to the role of historical events and more recent social controversies in not only creating factions and dichotomies among communities, but also in providing the impetus to build capacity. One participant perceived the population as containing “the ‘positive’ (the people who are willing to work/cooperate on goals of biosphere/community well being in general) [who] are balanced by the ‘negative’ (those working more out of self interest, fear, etc.)” (U.4). Although the population was seen as engaged, with people volunteering for many organisations, it was observed that it is the same group of people who are most/continually involved. Another observer noted that there is a distinction between volunteers and activists in the region, with activists not really working for the community so much as for a cause (Fieldnotes, November 25, 2003, speaking with a local government official of Tofino).

Residents value relationships with others and would like to see more cooperation between all communities, levels of governments and industries. Continued issues of mistrust between the self-described ‘greens’ (environmentalists) and ‘browns’ (industrialists), Tofino and Ucluelet, and First Nations and non-First Nations hampers the social capital of the area. Building trust and willingness to work together is needed to dispel divisiveness, but it was recognized that it takes time to heal from long-held anger and frustration (U.2). Having a clear place to communicate issues, more cooperation, and increasing the numbers of volunteers were described as keys to improvement. There is a strong need for regional cohesion, vision, and networking, which the CBT can facilitate. The maturity of the CBT, a willingness to change, more coordination between groups, and an influx of new people in the community would also improve the social capital of the area, according to the adults.

The youth had a different perspective on social capital. They focused on describing Ucluelet as a small town where everyone knows each other, with high community spirit, a friendly atmosphere, and a feeling of closeness and safety. Pleased

with the neighborliness and willingness to help others, the youth cited the number of community events, high level of volunteerism, and generous support of the secondary school as contributors to this capital. One respondent observed that people can be selfish and two-faced, detracting from social capital, while another wanted to see promises kept regarding programs to be offered. Suggestions to improve the social capital of the area included more activities for youth, more places to get together, such as a theatre or swimming pool, and increased efforts to work together to solve community problems.

4.3.2.2 Importance of the biosphere reserve designation

This topic was raised verbally in the youth focus group, and was found to be an important issue that should be addressed. Consequently, the question of whether or not the biosphere reserve was important, and why, was incorporated into subsequent worksheets for the adult and Redberry Lake sessions. The youth appreciated the recognition the designation gave to their homes, and expressed a desire to learn more about their own biosphere reserve so that they would be informed when talking with tourists. As well, the youth wanted examples of the activities of other biosphere reserves around the world.

The designation was seen as important by adults for a number of reasons. First, they believed the designation has the potential to provide an opportunity for cooperation, to bring people together in a locally-controlled forum in a step towards healing and reconciliation. Second, people appreciated the inherent requirement for protection of the designation as well as the promotion of research and education, with the caveat that more community members could be more involved in research and benefit from the results if shared by academics. Third, the designation brought more global recognition to a threatened valuable environment and to communities that need ideas for how to change. Fourth, people also expressed a willingness to become more involved in biosphere reserve activities if they were demonstrated as relevant to their daily lives and interests, and wished for a forum to discuss issues in a non-threatening way¹⁹. The

¹⁹ Note: this does not necessarily mean non-political.

biosphere reserve²⁰ was seen to have the potential to create such a forum that can encompass all issues of concern for residents and facilitate regional cohesion and vision.

Fifth, people looked forward to showcasing the region as one that has generated new ideas and continues to strive for sustainability. Emphasis was placed on the motivation to live up to the name ‘biosphere reserve’; as one person commented, the designation “brings a focus to the area and challenges us to continue with all of the processes that have gone on in Clayoquot Sound where we’ve worked very hard to be progressive in ideas/planning processes, etc.” (T.4). Sixth, attention was drawn to how past and present efforts fit the biosphere reserve concept of being a ‘living laboratory,’ as the region is the scene of many innovative approaches to conservation, sustainable forestry, incorporation of First Nations perspectives into management and daily living, and regional management of fisheries; “these are very challenging endeavours and deserve attention and support – the lessons learned, from successes and failures, should be shared” (U.2).

These responses indicate that there is a complex, dynamic interaction between the building and use of community capacity (a starting point, process, and outcome) and achieving the biosphere reserve designation (an outcome and, subsequently, a starting point). A region’s community capacity enables it to earn the biosphere reserve designation. In turn, the designation, and the international status that accompanies it, leads to the building and use of community capacity, as residents attempt to ‘live up to the name.’ As capacity is built, with people focused on creating a functioning biosphere reserve, the cycle continues. This suggests that feedback loops exist between a community’s capacity and its biosphere reserve status.

The people who filled out the worksheet held a mainly positive and hopeful view of the biosphere reserve. An excerpt from the Ucluelet public focus group taped discussion highlights a perspective that was missing from the worksheets handed in, and illustrates how understandings of differing viewpoints can be gained when people from different backgrounds and interests engage in a focus group setting. Here, Scott (a pseudonym), an active participant in biosphere reserve activities, talks with Todd, an ex-logger from Ucluelet:

²⁰ Recall that the biosphere reserve does not equal the CBT.

Scott: Can I ask you a question?

Todd: Sure!

Scott: What would you like the biosphere reserve to do or be? For you, for what you see as community.

Todd: Some of the things I see here are research, education and training. You can only research for so long without *doing* something. You can only educate so much, and what I see now is all academic education; there is nothing vocational, absolutely zip. I would like to see that turned around so that people who live here learn something. Training—I used to love that when I worked in the forest service. “What do you want to be trained on?” I don’t know—I just wanted to be trained.

(Ucluelet public focus group, February 13, 2003)

Todd refused to fill out a worksheet; this taped conversation offers the *only* perspective of a focus group participant who felt marginalized from and unhappy with the biosphere reserve project. His perspective is so important, yet his views were not captured in the self-assessments of community capacity.

4.3.2.3 The community capacity of Clayoquot Sound

Despite difficulties, participants wrote that a high level of capacity exists in the community, especially when people worked together with a common focus, for ecological preservation and protection, for example (Table 13). On average, participants rated their community capacity with a rating of 5.0—medium high. One respondent noted that people in the region feel strongly about issues, generating social interaction and debate. However, adults said that this capacity could be used more effectively if complemented by local control over social and economic processes, and if people learn to work together and respect one another. As well, the election of leaders open to a diverse array of ideas was seen as important; according to one participant’s point of view, resistance by Ucluelet’s local government to change or anything perceived as “eco” or “green” hinders capacity-building between factions within the community. Cooperation, trust, understanding, communication among communities, and more opportunities to share ideas and move goals forward for change were cited as keys to improvement. There was also a call for creating incentives to retain skilled and experienced individuals in the area, but specific examples were not suggested.

TABLE 13: Summary of key elements of community capacity in the Clayoquot Sound biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
COMMUNITY CAPACITY of CLAYOQUOT SOUND	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Community pride: “We can do anything if we put our minds to it” (US.2) ▪ Commitment to and caring for the community ▪ Cooperation/coordination ▪ Recognition of room for change with the willingness to improve ▪ Environment: important for economic viability (i.e., tourism) 	<ul style="list-style-type: none"> ▪ Cooperation and consideration in decision-making ▪ Preservation of ecology while improving economy with sustainable industries ▪ To prioritize goals (e.g., address sewage problem first) ▪ More educational opportunities ▪ To create diversified activities for youth
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Great potential ▪ Recent social controversies have stimulated community capacity (T1) ▪ Human and social capitals ▪ Common focus has led to achievements (e.g., preservation) by engaged, motivated, interested population ▪ Potential for sustainable resource-based industries combined with a sense of and commitment to community gives the biosphere reserve concept relevance ▪ Commitment to sustainability of community ▪ Community appreciation ▪ Ecological preservation and protection 	<ul style="list-style-type: none"> ▪ More education – raise awareness of role people can play in biosphere reserve ▪ Continued engagement: work together to build on past efforts while considering social needs in the face of increasing tourism (affordable housing, literacy, health, etc.) ▪ More involvement ▪ Communication/sharing of ideas ▪ Consider that people are tired of process, unsatisfied with past results ▪ To address the consequences of becoming a resort community ▪ To provide youth with social, educational, and recreational spaces. ▪ Incentives to keep skilled and experienced people in the region ▪ Local control over industry and socio-economic decision making ▪ To move ideas forward for change; to make firm decisions, not watered-down ones in attempts to build consensus: “while trying to please everyone, we please no one” (T4) ▪ To overcome resistance to change and eco/green ideas ▪ To learn to work together and reduce bickering by building trust and understanding ▪ Leadership with honor, respect, trust ▪ Regional, non-threatening communication

A youth that rated community capacity as ‘7 = very high’ wrote, “We can do anything if we put our minds to it” (US.2). One youth reflected, “I believe that Ucluelet

and Tofino care for their communities but they just need to get their priorities straight” (US.8), referring to the urgent need for a sewage system in Tofino, given an increasing population and flourishing tourism economy. Youth observed that, while capacity is enhanced by the tight knit community of Ucluelet, people need to stick together and make wise decisions together, preserve the area’s ecology while developing sustainable industry, and encourage youth to participate in activities to dampen the feeling that ‘there is nothing to do here.’

Overall, there is great potential in the Clayoquot sound biosphere reserve region, as reflected in comments on innovations/successes, incorporation of First Nations perspectives, and regional management with local involvement. Community capacity is inhibited by factors that apply to all biosphere reserves, such as a lack of understanding and interest, financial support, and legislative recognition. As repeated in several sections of the worksheet and in oral discussion, participants stated that it is also hindered by lingering social divisions and frustrations among different geographical, political and social communities within the area (i.e., between the self-proclaimed “greens” and “browns”). However, people expressed that these divisions are not clear cut, that different groups have values in common that are stifled because they are ‘pigeonholed.’ Surprisingly, the Pacific Rim National Park was not mentioned by participants as a facilitator or a hindrance, with the exception of a positive reference by a Parks Canada staff member, even though it provides expertise, trained staff, infrastructure, legislation, links to various levels of government, and financial support to the region. Comparing these focus group results to the experiences and perceptions in a very different biosphere reserve region illuminate both regionally-specific and common themes, which will be explored in section 4.4 after the results of the Redberry Lake focus groups are presented.

4.3.3 Descriptions from the worksheets: Redberry Lake

People of the Redberry Lake biosphere reserve assessed their community capacity in terms of the contributors and hindrances to their capital resources and overall capacity. The self-assessments of Redberry Lake’s ecological, economic/built, human, and social capitals are presented first, before the importance of the biosphere reserve

designation is addressed and a summary of factors influencing overall community capacity is provided.

4.3.3.1 Redberry Lake: the capitals

Ecological capital: A main contributor to this capital is the contained watershed with a relatively healthy ecosystem that exists within an agricultural regime (Table 14). The area boasts relatively rich soil, mixed vegetation, birds, wild fruit trees, wild mushrooms, and wetlands. As well, the Northern lights and ability to see a sky-full of

TABLE 14: Summary of key elements of ecological capital in the Redberry Lake biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
ECOLOGICAL CAPITAL of REDBERRY LAKE	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Redberry Lake, its variety of wildlife (i.e., pelicans) and amenities (i.e., golf course, campsites, cabins, concession, Regional Park) ▪ Diversity of vegetation, including the unique ‘crooked bush/trees’ and native plants ▪ Peaceful – not overdeveloped or over populated ▪ Clean air ▪ Close proximity to Hafford ▪ Caring for the environment through environmentally-sound practices, such as use of natural fertilizers 	<ul style="list-style-type: none"> ▪ To improve the Interpretive Centre to educate locals about biosphere reserve ▪ Improvements to the Regional Park ▪ A reduction of chemical use ▪ To combat the smell of nearby hog barns ▪ A swimming hole ▪ Mosquito control ▪ To bring back fish to the area (to the lake or nearby pond) ▪ To reduce salinity of Lake ▪ To improve the soil quality
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Relatively healthy ecosystem under an agricultural regime ▪ Minimal development ▪ Diverse landscape (i.e., prairie, wetlands, forests, hills) ▪ Relatively rich soil ▪ Diverse wildlife and vegetation (i.e., birds, wild fruit trees) ▪ Appreciation of area (i.e., stars, uniqueness, Northern lights) ▪ Safe drinking water, clean air ▪ Redberry Lake ▪ Regional Park ▪ Respect for environment ▪ Environmentally-sound practices (e.g., walking instead of driving) ▪ Watershed resources drive the economy 	<ul style="list-style-type: none"> ▪ Standardized environmentally-sound land use practices for all activities (i.e., fishing, camping) ▪ Expansion of recycling facilities and some clean-up of area ▪ Education about interactions between land use practices and environment and balancing nature and human activity ▪ Awareness of what we do have ▪ Coping strategies for drought ▪ Improved water and soil quality ▪ To curb use of agricultural chemicals ▪ To reduce human greed

stars enhances people's appreciation of the area. Respect for the environment is another main contributor. Many people, both adults and youth, mentioned the desire for the Interpretive Centre to be redesigned to educate locals, not only tourists, about the Redberry Lake and other biosphere reserves, as well as about all that the area has to offer ecologically, culturally, and socially. Adults highlighted the need to expand the recycling facilities, control the air and water pollution created by the hog barns adjacent to the biosphere reserve, reconsider and curb the profuse use of agricultural chemicals on the land, and, importantly, provide *more education*. Respondents desired education about the interactions between land use practices and effects on the environment (water, soil, etc.), ways to improve water and soil quality, and balancing human and environmental considerations.

Most youth mentioned Redberry Lake as an important site not only for its diverse wildlife, but also for the recreational amenities associated with it (the golf course, cabins, campsites, Regional Park, playground, and concession stand). The pretty and relatively undeveloped, peaceful landscape of the watershed, including the unique 'crooked bush/trees,' native flora and fauna, open fields, and clean air all contribute to this capital. Hafford's close proximity to the lake was viewed as a benefit. Major detractions from the capital, according to youth, are the saltiness of the lake that results in coarse sand and discourages boating, smell of the hog barns adjacent to biosphere reserve, and lack of fish in the lake. Youth would like to have a swimming hole built, improvements to the soil to be made, and better playground sand. Recalling stories told by their families about the Fish Frys that took place in the community until the mid-1980s, they wanted work be done to bring back fish to the area either to the lake directly or to a fish pond.

Economic/built capital: Contributors to the economic/built capital, as perceived by the adults, were the local businesses and low cost of purchasing buildings for businesses, as well as the resource base of the watershed that provides direct or indirect livelihoods (Table 15). Hindrances mentioned include: low government funding levels (i.e., tax returns); the decline of agricultural economies; low commodity prices; government lack of respect for the rural sector; the loss of the family farm; the

TABLE 15: Summary of key elements of economic/built capital in the Redberry Lake biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
ECONOMIC /BUILT CAPITAL of REDBERRY LAKE	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Hafford Central School is the focus of the community ▪ Places to socialize, such as the Communiplex ▪ Businesses and services (i.e., hospital/clinic, bank, grocery store, gas stations, Co-op, restaurants, curling rink, bottled water plant, pharmacy, cafes, grocery store) ▪ Economically viable crops 	<ul style="list-style-type: none"> ▪ To improve Interpretive Centre to educate people about the biosphere reserve ▪ More places to gather: for recreation, movie nights, bowling, pool ▪ To renovate the Rose Bowl ▪ To renovate and use old buildings, otherwise demolish them ▪ New housing ▪ Economic diversification; encourage new business and industry ▪ Increased support for farmers ▪ Better and more employment opportunities ▪ Road improvements ▪ To reverse/prevent the loss of social services such as the grain elevator
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Local businesses ▪ Low cost to purchase buildings for businesses ▪ Watershed resources drive the economy 	<ul style="list-style-type: none"> ▪ Education of economically viable options to help people ‘think outside of the box’ ▪ A long-term, holistic approach to agriculture and community planning ▪ Consistent consciousness for sustainable resource use ▪ Government funding to increase to encourage positive action ▪ Greater respect of the rural sector from the government, with policy changes to revitalize, not deplete, the agricultural economy ▪ Higher commodity prices ▪ To reverse the loss of the family farm, which has led to rural depopulation ▪ To reverse the loss of social services, such as the grain elevators ▪ Better coping strategies for drought and pestilence ▪ Economic diversification ▪ An increase in retail stores and businesses to employ youth ▪ To renovate and use old buildings ▪ Improved transportation networks

loss of retail stores; and, the recent loss in 2003 of nearby grain elevator in Borden, forcing producers to haul grain to larger centres. As well, drought and pestilence (e.g., invasions of grasshoppers) have hindered the area’s economy. A recommended

improvement was to renovate old buildings to house new business that would employ young people. Increasing education to help residents work towards a long-term, holistic approach to agriculture and community planning was another suggestion. As one resident wrote, “Educate, educate, educate. Ask community people for help, then they will learn” (R.1).

Most youth, not surprisingly, viewed the school as the area’s focal point. Other major contributors to this capital mentioned were the Communiplex, Hospital/clinic, bottled water plant, and restaurants. The infrastructure of the area was seen as “just enough to keep people here,” with a few stores, cafes, pharmacy, gas stations, the K-Bar, and Co-op, to name a few examples. A major concern was the lack of employment opportunities for youth. Another major hindrance is a lack of places for social and recreational activities (i.e., bowling alley, movie theatre, pool hall), although the curling rink was mentioned as a place where different generations could spend time and work on activities together. The youth suggested that the Rose Bowl be renovated and used again for concerts and school functions. Again, improvements to the Interpretive Centre figured prominently, as was the need to renovate and use old and abandoned buildings.

Human capital: In the assessment of human capital, from both the adult and youth perspective, residents are: diverse in skills, talents, education, opinions, and ideas; very committed to the community; always willing to help one another; willing to learn; respectful; mindful of how individual decisions impact on others; and, hard-workers. Adults and youth highlighted the urgent need for a live-in doctor, and that human capital is hindered by a declining population. The adults noticed that it is especially their most educated youth that leave the area (for jobs and educational opportunities that can only be found outside the area, for instance); one person posed the question, “What are we doing to bring our young people back?” (RL.2). When youth were asked whether they would eventually return to the area to live, many said they would, to be close to family and friends, raise their children in such a wonderful place to live with such a great school, and live the small town life with more security and tranquility than city life could afford.

TABLE 16: Summary of key elements of human capital in the Redberry Lake biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
HUMAN CAPITAL of REDBERRY LAKE	<i>Youth</i>	<ul style="list-style-type: none"> ▪ Dedication and commitment to the community ▪ Importance of respect ▪ Elders to listen to, learn from ▪ Population educated about environmentally-sound practices such as impacts of land use and chemical safety ▪ S.A.F.E. (Students All For the Earth) organizers educate others ▪ Willingness to learn ▪ Willingness and desire to care for and respect the environment ▪ High level of education provided by Hafford Central School ▪ Variety of skilled and trained people (nurses, teachers, farmers) ▪ Use of skills to fullest extent ▪ Strong work ethic 	<ul style="list-style-type: none"> ▪ Education for all generations about the biosphere reserve and what makes the area special (including culture) awareness of land use options, boat safety, environmentally-sound farming methods, and effects of land use on environment. ▪ A live-in doctor ▪ Job opportunities to keep the human capital in the area ▪ To increase the population ▪ To reintroduce Ukrainian classes in the school
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ High potential ▪ Strong community loyalty and commitment ▪ Strong cultural base ▪ Strong family ethic ▪ Strong religious beliefs ▪ Diversity of people with variety of skills, talents, ideas, education levels, experience, including great educators ▪ Strong leadership ▪ Dedication and hard work ▪ Sharing of information with others 	<ul style="list-style-type: none"> ▪ More information about the BR ▪ Mindsets challenged to overcome certain ‘rigidity of thought’ by some ▪ Increased communication between groups and greater collective efforts ▪ Intergenerational sharing of skills ▪ Pride in and sharing of backgrounds ▪ An inventory and publicizing of residents’ skills and qualities ▪ A live-in doctor ▪ Increased education levels of adults ▪ Leaders to ‘train’ others ▪ Increase number of volunteers ▪ To attract people, especially youth, to the area, and to encourage the educated youth to remain in the area ▪ Job creation and new industry ▪ More religious faith ▪ Increased course availability, such as higher-level French

According to the adults, residents have a strong cultural base, family ethic, work ethic, and religious belief system. The community has high potential, with a variety of experienced, talented, and trained individuals (i.e., teachers, nurses, mechanics) and strong leaders who are ‘willing to get things done.’ Hindrances include some

stubbornness and rigidity of thought, and the fact that it is often the same volunteers who ‘do everything.’ Suggestions on how to improve this capital include: more education; taking pride in and sharing of cultural backgrounds; intergenerational sharing/teaching of skills; gaining more input into government decisions (on economic diversification and funding); encouraging faith; developing a new industry to attract a younger population base; and, creating and advertising an inventory of skilled people and qualities to build community pride and capacity. One person noted that improvements to the agricultural economy would help maintain, and also relieve, some stress experienced by the population.

The youth take pride in the community, the school, and the S.A.F.E. (Students All For the Earth) club. Elders were viewed as contributors to this capital, for others to listen to and learn from, and residents were observed to utilize their skills to the fullest extent. Although residents are well educated and stay informed about environmentally safe practices (e.g., handling chemicals, recycling oils), the youth want residents, and especially farmers, of *all* generations to receive more education about the Redberry Lake and other biosphere reserves (“Everyone should be educated about the Biosphere” (H1.3)), the latest, *practical* farming methods/techniques, boat safety, and the effects of farming practices on the environment (e.g., grazing cattle near creeks that feed into the lake, use of chemicals). Youth also wanted Ukrainian classes to be reintroduced in Hafford Central School, and voiced their desire to learn more about the area’s cultural heritage. They also expressed interest in having forums to showcase what makes their community and area special (with presentations, posters). A hindrance was the lack of a few classes important for those who want to pursue post-secondary education, including higher-level French.

Social capital: Levels of social capital are high in this region (Table 17). Almost everyone talked about how well everyone in the community gets along and works together. “Not much can be improved” (H2.15) claimed one youth, although greater collective efforts were noted as needed. ‘Everyone knowing everyone’ leads to a sense of belonging and a responsibility to volunteer. There is a high rate of volunteerism with a willingness and great potential to ‘get things done,’ resulting in

TABLE 17: Summary of key elements of social capital in the Redberry Lake biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
SOCIAL CAPITAL of REDBERRY LAKE	<i>Youth</i>	<ul style="list-style-type: none"> ▪ High level of togetherness and cooperation, with a great ability and willingness to ‘pull together’ to accomplish goals and help each other, and a lack of cliques ▪ Daily, weekly, and annual community events for all ages and religions that also attract people from different communities ▪ Great community mindedness, commitment and dedication, including regular community fundraising events and contributions to students as well as high volunteerism of all ages (e.g., youth involvement includes church activities, working Bingo) ▪ Strong cultural heritage ▪ Willingness to share with others ▪ Hafford Central School ▪ Extra-curricular activities (i.e., S.A.F.E. program, inter-community sports activities, Student Council) 	<ul style="list-style-type: none"> ▪ More spaces to interact, with more socializing and less gossip ▪ For everyone to get along ▪ More youth and senior activities, with higher caliber sports teams and improvements to the curling rink to encourage intergenerational interactions ▪ More communication with the city ▪ More volunteers ▪ More youth involved in community decisions ▪ Old fashioned values and racism challenged ▪ New people with new ideas and a willingness to volunteer
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ High rate of volunteerism ▪ Community mindedness ▪ Togetherness/cooperation, with a great ability to ‘pull together’, resulting in many accomplishments for a small population ▪ Willingness to work hard to achieve goals ▪ Many community events ▪ Strong family ethic ▪ Rich cultural heritage ▪ Caring for others 	<ul style="list-style-type: none"> ▪ Education to get people ‘onside’ and everyone involved with the biosphere reserve goals and functions ▪ To encourage open mindedness, especially of seniors ▪ To overcome dissention over ethnic and agricultural issues ▪ To motivate, encourage people to take initiative on a large scale ▪ Greater cooperation, communication, togetherness, and collective efforts among groups and local organizations ▪ Increased population base, which will result in more volunteers ▪ Increased youth activities

“many accomplishments for a small population” (R.2). Many weekly and annual community events and activities bring people of all ages and religions together. As one youth stated, “lots happens for a small place” (H2.12), while another observed that they are a “close-knit community that pulls together for fundraisers [and] events [and are]

very willing to accomplish goals” (H2.7). For example, the January 2004 Malanka (Ukrainian New Year) celebration was “a blast! Over 600 people were fed, and others showed up for the dance and the booze . . . wow. And our Ukrainian Dance troupe was as good as it has ever been - excellent coaching, great presentation” (Hafford resident). Another example is the weekly Bingo fundraiser night held at the Communiplex by the Recreation Board.

Youth saw the school as a major contributor to social capital, with its encouragement of the S.A.F.E. Program, drama, and sports. Social gatherings and activities such as Ukrainian dancing, parties, ‘coffee row,’ church events, and celebrations/fundraisers such as Winterama, Polkafest, Music Fest, Bingo and graduation are main contributors that also build connections across communities, drawing residents from places outside the biosphere reserve. Inter-community sports (i.e., with Borden, Radisson and Blaine Lake) are a great contributor to social capital because the “youth become friends, establish bonds, so the communities support each other” (H2.14). The absence of cliques at Hafford Central School, and the immense willingness of people to help each other were cited as strongly contributing to a high level of social capital. Participants observed that people are always supporting students and fundraising for the community, which demonstrates a very high amount of community cooperation. Youth observe that it is easy to get volunteers and that “people who move here are able to get involved pretty easy because we need the numbers to keep activities going” (H2.15); an organizer just has to phone up people and ask them for specific goods or services for an event (RL.8). People give what they can, through, for example, the ‘Hospital Share’ program that accepts donations of food and clothing for those in need.

Most youth mentioned a pressing need for more spaces to interact and activities to bring people together, especially those that would cater to the needs of youth and seniors in the area. They also wanted: more involvement of youth in community decisions; more socializing and less gossip; new people to move to the area with fresh ideas and thoughts on how to improve the area; less racism/old-fashioned values; more cooperation among different groups; and, improved communications with ‘city people.’ The youth saw people excluding themselves by not getting involved in the community,

and pointed to the need to get more people to volunteer so as to not just continually rely on the same people. As one youth asserted, “You need to experience volunteerism before you WANT or need to” (H2.14).

Adults noted that a strong family ethic is a main contributor to social capital, along with caring for others, a rich cultural heritage, and the efforts of small, well-intentioned groups. Despite all of the positive aspects of this community’s social capital, there is room for improvement. Adults noted that ethnic and agricultural issues often cause dissention; other hindrances include a lack of initiative and motivation on a broader scale, a limited pool of people to draw upon given the low population, and the lack of some people’s ability to listen with an open mind. Residents want to attract more people to the area, partly to increase the volunteer base and increase social capital.

Getting people on side with the biosphere reserve concept and improving communication between groups are the keys to building the area’s social capital, especially if groups share interests and have the potential to work together more effectively than separately. Increasing knowledge of each others’ qualities and goals would break down perceived and real barriers and allow people the ability and willingness to work together (R.5). The biosphere reserve committee structure is a start toward this as the committee includes local representatives who can exchange ideas and information about the biosphere reserve in different arenas. Local organizations also need to take the initiative to become aware of the potential benefits and uses of, as well as how they contribute to, the biosphere reserve to encourage more local involvement. In Clayoquot Sound, the biosphere reserve is seen by some as providing a forum where similar and divergent interests may work together to address local issues through constructive conversations. These conversations are taking place in both biosphere reserve regions, but not every interested party always participates, and other factors, unidentified by participants, may play an inhibiting role (see discussion in section 6.4).

4.3.3.2 Importance of the biosphere reserve designation

The adult participants all viewed the biosphere reserve designation as a positive influence in that it offers a “platform to seek academic, social and political respect” (R.1). Just as in Clayoquot Sound, the biosphere reserve is one means of organizing to

increase community control of development. The designation was viewed as a way to show the world the ecological and cultural diversity that the Redberry Lake region has to offer and enhance local pride. Cognizant of challenges associated with rural depopulation and a declining agricultural economy, the adults saw the biosphere reserve as a focus to increase education and awareness of the area and environmental issues, showcase the strengths of the community, and draw on the strong leadership within the community to create harmony and, importantly, togetherness. Some people hoped that the designation would challenge mindsets and result in more coordination and cooperation among different groups.

The biosphere reserve designation was seen as important by almost all youth participants for a number of reasons; only two out of thirty-three youth did not answer ‘yes’ when asked if the designation was important because they did not understand how the biosphere reserve helped or could help the community. The rest of the youth talked about the positive aspects of the designation, including opening the area up to opportunities (H2.14). They saw the importance of protecting the environment for future generations, as well as the need and desire to have the designation draw attention to the community, giving it ‘a boost’ (H1.13) so that “people will realize actually how important little places can be” (H1.4). They noted that the designation provides a unique focus for residents to raise awareness about how to “grow the community responsibly” and take better care of the environment. One youth hoped that other communities would follow Redberry’s example (H2.13), while several others hoped that the designation would mean more education of locals about biosphere reserves and the local area.

4.3.3.3 The community capacity of Redberry Lake

People saw the great potential of and took pride in their community (Table 18). “We have great strength when motivated” (R.1) one Community Committee member asserted. Although people agree the area is a good place to live in, there is recognition of the need, and willingness, to improve. “There is a lot of capacity, but not put together” (R.4) another Committee member observed, akin to a Hafford resident’s statement that “we have the potential, it just has to be realized” (RL.18). According to

the adults, the ‘togetherness’ of the community was a great contributor to their capacity, but could be improved with more people becoming involved in the biosphere and increased communication among common interest groups. Perceived hindrances of capacity include: the feeling of some that some residents are not truly community-minded, uninterested in getting involved if it does not benefit them directly; misunderstandings about the biosphere reserve; and, an aging community. Keys to improving the community’s capacity to fulfill biosphere reserve functions are: sparking the motivation and community involvement to carry out visions; time, and “educating the reluctant” (R.17) to better understand the biosphere reserve goals and get people onside (i.e., to make people realize it is ‘not just about the pelicans’!); encouraging new people to the area (such as researchers, ‘green’ industry, and ‘young blood’ to achieve

TABLE 18: Summary of key elements of community capacity in the Redberry Lake biosphere reserve region. Drawn from the written component of the focus group worksheets.

	Focus group	What contributes to it?	To improve, need:
COMMUNITY CAPACITY of REDBERRY LAKE	<i>Youth</i>	<ul style="list-style-type: none"> ▪ High potential ▪ Community pride/appreciation ▪ Community mindedness, commitment and dedication ▪ Togetherness/cooperation ▪ Willingness to improve ▪ Determination and hard work to achieve goals with available resources ▪ Motivators: extracurricular activities and family ▪ Desire to raise family in the community/being mindful of future generations 	<ul style="list-style-type: none"> ▪ Education/promotion of biosphere reserve to get people ‘onside’, interested ▪ Cooperation by <i>all</i> ▪ Financial and political support ▪ Greater employment opportunities ▪ More youth activities ▪ To increase the population ▪ More volunteers ▪ More opportunities to gather and fundraise
	<i>Adults</i>	<ul style="list-style-type: none"> ▪ Great potential waiting to be realized ▪ Great strength when motivated ▪ Togetherness/cooperation ▪ Common interests held by different groups 	<ul style="list-style-type: none"> ▪ To get people ‘onside’, interested and involved with the biosphere reserve through education/promotion of it (especially for the ‘reluctant’) and importance of sustainability to overcome misunderstandings ▪ Time to better understand biosphere reserve concept and goals ▪ Coordination of capacities ▪ More togetherness ▪ Financing for human resources ▪ To convince all residents to become community-minded ▪ To attract young people to area

goals and for the community to remain viable); and, finally, financial resources for community projects.

The youth agreed that Hafford has a good atmosphere and that people do a lot with what they have (H2.12). Some expressed their appreciation for their community and their desire to return to the area, as exemplified by this youth: “There are things such as the school, extra curricular activities and our families that motivate us to keep everything going. Because we appreciate this place we want it there for us to come home to and to raise our kids” (H2.14). Despite limited financial and human resources, one youth asserted that “We can do almost anything if we put our mind to it” (H1.9), coincidentally coining the same phrased used by an Ucluelet Secondary School youth. The youth emphasized the following as key to improving their community capacity: promote and generate enthusiasm about the biosphere reserve through education and activities/events; create more opportunities for youth to gather, such as volunteer days with fundraiser hamburger sales at the lake associated with environmental activities (i.e., campsite clean-ups, tree planting); recruit new people to volunteer/get involved in the community; and, entice people to move to the area to increase the people power and money invested to accomplish community goals. Other key needs they mentioned were government support for the biosphere reserve and job creation so people are not forced to move away.

Overall, the Redberry Lake biosphere reserve was seen as possessing great potential, reflected in people’s strong ability to work well together, willingness to learn and improve, and caring for their environment and one another. As well, most people were, at the very least, interested in the research being carried out in their area, and many were very willing to participate and assist in any way they can. This was evidenced in the relatively large amount of participation in this research, and that of Sherry Sian who facilitated the development of Redberry Lake’s Community Plan for Sustainability (Sian 2001), a ground-breaking initiative that is now being followed by the rest of Canada’s biosphere reserves. Community willingness and interest make community-university partnerships, like the ones that the biosphere reserve have developed with the University of Saskatchewan’s Department of Geography and

Community-University Institute for Social Research (CUISR), relatively easy to foster and mutually beneficial.

Redberry Lake's community capacity is mainly inhibited by factors that apply to all Canadian biosphere reserves, namely a lack of understanding of and interest in the biosphere reserve, financial support, and legislative recognition²¹. A start would be to convey the biosphere reserve concept as "a basic way of life" (RL.3), as one public focus group participant wrote. The Lucky Man First Nation has not participated in biosphere reserve activities even though their Treaty lands extend to within the biosphere reserve boundary. Perhaps the First Nation would be encouraged to become involved if the biosphere reserve concept and activities were presented as applicable to their lives, philosophies, needs, and goals; this would take effort and persistence on the part of the Community Committee. As well, local organizations and groups could combine their efforts more effectively, especially if they coordinate under one of the biosphere reserve functions. Interviewees concurred with focus group participants in observing that residents need to be open-minded about new ideas, even if they have already taken steps to improve their land management practices. However, as one participant cautioned, "one needs to bear in mind how much 'improvement' can be sustained without degradation" (R.1) to the environment and social fabric of the region.

4.4 Comparing biosphere reserve regions: apples and oranges?

Many times during my fieldwork I came across perplexed faces when I mentioned that I was studying the Clayoquot Sound and Redberry Lake biosphere reserves. People would ask me, "but isn't that like comparing apples and oranges?" Despite demographic, social, cultural, economic, and environmental differences, the assessments revealed that the two regions have a lot in common, as shown in Table 19. These are key elements of community capacity that may be used as assessment criteria, as they were found in two very different regions. Given that these biosphere reserves are so dissimilar, what are their abilities to assume the same designation?

Both biosphere reserves have many commonalities in terms of contributors to

²¹ This observation was informed by my attendance at the June 2003 CBRA meeting as well as articles in the CBRA Newsletters where, respectively, these issues were and continue to be raised more broadly.

Table 19: Shared elements of community capacity between biosphere reserves

Worksheet category	Emergent themes from focus group worksheets common to both biosphere reserves
Community capacity	Potential Time*
De/Mobilizers	Community pride/appreciation Commitment* Mis/understanding the biosphere reserve concept and its relevance* “Thinking outside the box”/challenging mindsets, perceptions Recognition of room for improvement coupled with willingness to improve Leadership* Community voice, control*
Ecological capital	Environmental assets Drawbacks/threats/what needs improvement Environmental values Environmentally sound practices* Perception of environment
Economic/built capital	Economy: Resource-based economies* Employment opportunities Economic diversity Economic viability/sustainability* Physical Infrastructure for a variety of purposes and needs* Housing concerns* Monetary Resources Financial resources* Fundraising
Human capital	Population and demographics Decreasing population* Attract people/youth to area* Education: Education level of individuals Education and promotion biosphere reserve and related concepts Skills, experiences, talents of people in the area Types of professionals in the area* Educators* Characteristics/qualities of individuals: Willingness* Health issues related to stress from economic uncertainty Attitudes Values/beliefs
Social capital	Togetherness and cooperation* Volunteerism and engagement* Communication* Gatherings/events Youth activities

*Indicates themes shared between biosphere reserves that have a different meaning/emphasis depending on local context.

their community capacity (Table 19). Both biosphere reserves' residents cited strong leadership as a key strength of their community capacity. Volunteerism is high, but it seems that the same people end up doing everything, leading to volunteer burnout. Participants see the potential in their community, as reflected by the phrase used by youth in both biosphere reserves, "We can do anything if we put our minds to it." Other key strengths include a diversity of ecology and people, a demonstrated willingness to improve/change by some, strong community spirit, and dedication and commitment to community in terms of both people and place.

Despite divergent local contexts, both biosphere reserves are facing similar challenges, with the main ones being difficulties in getting buy-in and involvement from all groups in the communities that is blocked by a general lack of knowledge of and/or interest in the biosphere reserve. Both biosphere reserves cited divisiveness between groups as a main capacity hindrance. In Clayoquot Sound, divisions are openly acknowledged when people talk of themselves metaphorically as wearing 'hats' that imply their value system and beliefs ("in this meeting I am wearing my Ucluelet hat"). (Recall that, generally speaking, people on the West Coast of Vancouver Island identify themselves as well as of belonging to one of three groups: the greens (environmentalists), browns (industrialists; pro-resource use), and First Nations.)

In Redberry Lake, although the population is mostly of European-descent, people identify strong divisions along ethnic boundaries; Ukrainians are seen as very distinct from the Polish, who are distinguished from the Belgian-French, and so on. To overcome such differences and to encourage more cooperation between groups, participants across biosphere reserves urged for more partnerships to be established, more forums to meet and discuss ideas, and more communication between parties. Also, unlike in Clayoquot Sound, First Nations do not play a role in decision-making processes or in the daily lives of residents in the Redberry Lake region. Strong efforts by residents of the region are needed to connect with the First Nations who have cultural ties to the land within the biosphere reserve boundary.

Other problems that regions share are those facing rural Canadian resource-based communities, such as economic restructuring and the loss and limited range of social services. Their common problems in fulfilling the biosphere reserve functions seem to

TABLE 20: Shared themes with biosphere reserve-dependent emphasis/meaning

Clayoquot Sound	Redberry Lake
<p><u>Community capacity</u></p> <ul style="list-style-type: none"> ▪ Time to heal, to build trust, for anger and frustrations dissipate, for people to be willing to work together <p><u>De/Mobilizers</u></p> <ul style="list-style-type: none"> ▪ Relevance of biosphere reserve designation to people’s lives ▪ Motivated people ▪ Community control over industry, political process ▪ Commitment to the region/community <p><u>Ecological capital</u></p> <ul style="list-style-type: none"> ▪ Sustainable resource-based industry, conservation, preservation, monitoring, and developing alternate energy sources <p><u>Economic/built capital</u></p> <ul style="list-style-type: none"> ▪ Resource-based economies: forestry, tourism, aquaculture, and fishing ▪ Economic sustainability ▪ Physical infrastructure for recreation, education, tourism, and discussions ▪ Housing: need affordable housing and available land for new housing ▪ Financial resources: rising cost of living ▪ Businesses and services: includes urgent need for sewage in Tofino as well as for alternate energy sources, recycling, and academic facilities <p><u>Human capital</u></p> <ul style="list-style-type: none"> ▪ Out-migration due to lack of employment and increased cost of living driven by a high-end/resort tourist economy ▪ Want to attract people/youth to area for an infusion of new ideas and attitudes without old baggage ▪ Willingness to work together, trust, make decisions, and change <p><u>Social capital</u></p> <ul style="list-style-type: none"> ▪ Volunteerism and engagement ▪ Cooperation/coordination between communities, groups ▪ Communication between interest-based groups/’camps’, and between communities 	<p><u>Community capacity</u></p> <ul style="list-style-type: none"> ▪ Time to understand biosphere reserve goals <p><u>De/Mobilizers</u></p> <ul style="list-style-type: none"> ▪ Mis/understanding of biosphere reserve concept and relevance to people’s lives. ▪ Leadership ▪ Community voice in decision making ▪ Commitment to people of the community and community mindedness <p><u>Ecological capital</u></p> <ul style="list-style-type: none"> ▪ Environmentally sound practices <p><u>Economic/built capital</u></p> <ul style="list-style-type: none"> ▪ One primary resource-based economy: agriculture ▪ Economic viability ▪ Physical infrastructure for social gatherings, education, and tourism ▪ Housing: need to renovate abandoned buildings new housing if population increases ▪ Financial resources: rising cost of farming <p><u>Human capital</u></p> <ul style="list-style-type: none"> ▪ Decreasing population due to lack of employment opportunities and lack of a resident doctor/consistent medical attention ▪ Want to attract people/youth to inject new energy, volunteers, ideas, and financial investment into the area ▪ Willingness to help, share, give, contribute, participate, and learn <p><u>Social capital</u></p> <ul style="list-style-type: none"> ▪ Volunteerism ▪ Togetherness/cooperation by all. ▪ Communication between local organizations, groups

apply to all Canadian biosphere reserves, as confirmed by a recent article in the CBRA newsletter (Ethridge 2004). Since biosphere reserves are not recognized legislatively, people have difficulties grasping what a biosphere reserve is or could be.

Table 20 highlights common themes that emerged in the focus groups but that take on different meanings, dependent on local context. For example, both regions want to attract new people, but for different reasons, with Clayoquot Sound participants eager to see an infusion of new ideas and different perspectives, while Redberry Lake participants placed more emphasis on gaining volunteer hands and people to help keep their communities alive. Another example is of a concern for housing, where availability and affordability are the key issues in British Columbia, while maintaining abandoned buildings is a concern in Redberry Lake.

Table 21 identifies the regionally-specific themes that emerged from the focus groups. Differences may be attributed to what draws people to each region to live, with the ecology of Clayoquot Sound inspiring people to conduct research, join/form societies with environmental or community interests, retire, spend summers, and work seasonally. Social networks of family and friends, and the small town lifestyle draw people to the Redberry Lake region. As well, people can buy land and business space relatively cheaply, and residents say it is easy to 'fit in' if one is willing to get involved in the area and volunteer their time.

One difference between the two biosphere reserves was the reason for the resistance observed in some people who were against wanting to learn about the biosphere reserve or about the research I was doing. In Clayoquot Sound, the resistance seemed to stem from fatigue; repeatedly I heard the phrase, "we are researched to death." People there have been and continue to be inundated with researchers, processes, and new faces as tourism and academic interest in the area grows. In Redberry Lake, the lack of interest in the biosphere reserve seemed to stem from misconceptions and misunderstandings of its purpose and functioning. When promoting the public focus group, I found that the 'rumor mill on coffee row' was a powerful force of resistance. If the biosphere reserve was mentioned, people would immediately brush it off with uninformed remarks such as "oh, that thing, it's just a waste of taxpayer's money" or "someone is making money off of that" (Fieldnotes, June 2003). So, while

Table 21: Region-specific emergent themes

Clayoquot Sound	Redberry Lake
<p><u>Community capacity</u></p> <ul style="list-style-type: none"> ▪ Intercommunity inequities ▪ Past experiences ▪ Time to build trust and let anger dissipate <p><u>De/Mobilizers</u></p> <ul style="list-style-type: none"> ▪ Common focus, vision ▪ Process/research burnout ▪ Engagement in ecological and social issues with attention from international media, organizations, various levels of government <p><u>Ecological capital</u></p> <ul style="list-style-type: none"> ▪ Environmental assets as motivation for tourism and migration to area <p><u>Economic/built capital</u></p> <ul style="list-style-type: none"> ▪ Change of economic base ▪ Consequences of tourism and population growth <p><u>Human capital</u></p> <ul style="list-style-type: none"> ▪ Close proximity of First Nations ▪ Involved, engaged, interested individuals <p><u>Social capital</u></p> <ul style="list-style-type: none"> ▪ Networking ▪ Decision-making, governance ▪ Trust ▪ Recreational activities ▪ Arts community ▪ NGOs and partnerships 	<p><u>De/Mobilizers</u></p> <ul style="list-style-type: none"> ▪ Desire to raise family in community/thinking of future generations ▪ If people are “onside”/interested with regard to the biosphere reserve <p><u>Human capital</u></p> <ul style="list-style-type: none"> ▪ Live-in doctor ▪ Principal of Hafford Central School <p><u>Social capital</u></p> <ul style="list-style-type: none"> ▪ Family ▪ Culture ▪ Hafford Central School ▪ Extracurricular activities

there are people in both biosphere reserves who are not aware of or misunderstand a biosphere reserve’s purpose, function, and potential, I suggest that any overt resistance to learning about it stems from different reasons.

Another difference emerged from the focus group worksheet data. The PRNP was excluded for all but one worksheet in Clayoquot Sound²²; Redberry Lake has a

²² During the 2003 Clayoquot Science Symposium, the absence of the PRNP was explained to me by a Parks Canada employee as reflecting longstanding divisions between federal agencies and the local communities of the Clayoquot Sound region (Fieldnotes, November 23, 2003).

Regional Park with much lower levels of financial and logistical support, yet focus group participants mentioned it as a resource for their biosphere reserve in Saskatchewan. This is an indication of differences between biosphere reserve regions in terms of the linking social capital referred to in section 2.3.1.

A striking difference between biosphere reserve regions, from field observations, was the involvement of First Nations in the conversations about and management of the Clayoquot Sound biosphere reserve as opposed to the complete lack of participation of First Nations in the activities of the Redberry Lake biosphere reserve. This difference may be largely attributed to residency and proximity to the biosphere reserve. Whereas different First Nations live and work within the Clayoquot Sound biosphere reserve

region, the people of the Lucky Man First Nation do not reside on their Treaty land within the Redberry Lake biosphere reserve. Socio-political differences between the provinces of British Columbia and Saskatchewan may also contribute to an expectation of First Nations participation in decision making processes in the former province, and lack of integration of First Nations with non-First Nations in the latter.

Drawing from all the data collected, Figures 9 and 10 illustrate how one could generally characterize each biosphere region, with Clayoquot Sound marked by political, motivated people committed to the *place*, the *region*, where Redberry Lake has strong family and small town values, demonstrating a commitment to *people*—especially their families and neighbours.

The two biosphere reserves are very different, but they are also quite similar in many ways. Both have experienced difficulties that are part of being relatively recent entities, regardless of funding or any other inequities. The biosphere reserve management in both regions have experienced problems in assuming their designation, including trying to effectively communicate to the public about who they are as an organization and what they are trying to do. As some people in Clayoquot Sound explained, the biosphere reserve is still “taking baby steps” (CS10b). This is also the case in Redberry Lake; when the two biosphere reserve managements have had the opportunity to meet (at annual CBRA meetings, for example), they find that they have a lot of common experiences in their attempts to implement the functions that accompany a designation.

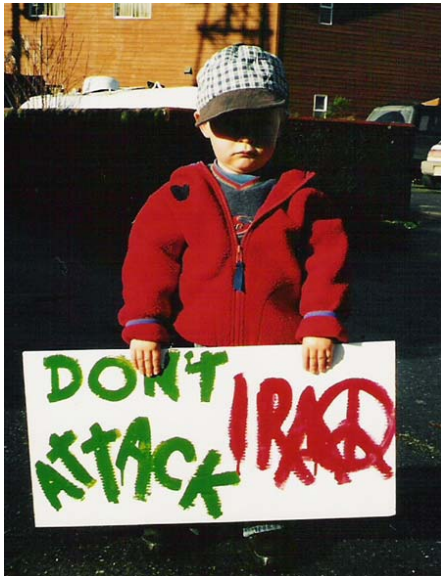


Figure 9 (left): A toddler from Tofino demonstrating the political nature of Clayoquot Sound (February, 2004)

Figure 10 (right): 'Lake Day,' marking the end of the school year at Redberry Lake (June, 2004)

When the results of this research were presented in Redberry Lake²³, people were pleased and seemed somewhat relieved to find out that they were not so different from even the biosphere reserve that they perceived as having all the resources they wish they had—they realized that their struggles did not only pertain to them. This commonality was recognized in the CBT focus group, where an interest in learning from other biosphere reserves through a group or workshop to discuss and assess community capacity was expressed:

Keith: I really think you should do a joint thing. I think it would create some interesting discussion between . . . one of the things we don't have very much . . . is to have the opportunity to dialogue with other biosphere reserves, you know. Talk with other Boards, bounce issues off them with regards to, are they facing similar kinds of things that we are?

Bob: Well, we know they are, I mean all of them are rural communities in transition, so whether it's the . . . small farms or . . . [indecipherable] . . . of similarities. It's rural Canada in crisis really.

(CBT focus group, February 14, 2003)

²³ The public meeting was held in Hafford, and hosted by the Community Committee on April 1, 2004.

CBRA holds a philosophy that biosphere reserves should take advantage of the network that the designation makes available to them so that they can learn from one another and share concerns (CBRA 2004). One way CBRA promotes this philosophy is to ask biosphere reserves to take turns hosting their annual meetings. Although this provides an opportunity to meet and discuss issues, perhaps a moderated, focused discussion with an activity similar to the worksheet self-assessments used in this research might help generate constructive ideas on how to face similar issues during CBRA meetings, as suggested by Keith. However, the application of the methods employed in this research should be considered carefully for their effectiveness, as discussed in the next chapter.

CHAPTER 5: COMPARING METHODS

5.1 Introduction

This chapter discusses the assessment of community capacity in two ways. First, I present several means of calculating the socioeconomic well-being of the two biosphere reserve regions using quantitative data from the 2001 Census. The data show that the study sites have similar levels of SES, as measured by a socioeconomic scale. Second, I compare these quantitative data with the focus group self-assessment ratings, previously given in section 4.2. The focus group quantitative data reveal that people's perceptions of their community capacity are also quite similar across biosphere reserves despite large differences ecologically, economically, socially, and politically. I then compare the various methods of assessment employed in the research and highlight their relative strengths and weaknesses. I conclude with a brief discussion of the relative contributions of the two assessment approaches—community capacity and socioeconomic well-being—to an understanding of community capacity.

5.2 Socioeconomic well-being: quantitative data

A quantitative measure of SES, or well-being, was calculated for each biosphere reserve region based upon two assumptions. First, it was assumed that SES increases with an increase of five variables: education levels, employment, housing tenure (or ownership), population growth, and income. Second, well-being decreases as poverty rises. I considered income as positively proportional to well-being, contrary to the work of Wilkes (2002) who considered income as negatively affecting well-being, for reasons still unclear to me. This choice is supported by contemporary research on income as a variable of quality of life and well-being, as mentioned in section 3.5. (For reference, Appendices C i-iv offer two calculations of SES: one that regards income as a negative force (refer to columns 'Continuous SES A and SES A'), and the other with income as a

positive influence on well-being (Continuous SES B and SES B)). The resultant values are quite close, if not the same, with no difference between the Continuous SES average scores for the biosphere reserve regions or for the active communities (considered on their own), with one exception—in Appendix C ii, the average Clayoquot Sound region shows a difference of 0.16 between the Continuous A and B SES scores.

The six SES variables were converted first to standardized scores (S), given in Appendix B, which were then standardized against the census subdivisions within each biosphere reserve region (where the Clayoquot Sound communities were compared with one other, and the Redberry Lake communities were considered with respect to each other) to yield Z values, given in Tables 22 and 23. The Z values were then employed in the socioeconomic score formula given in section 3.5 to yield new socioeconomic X scores for each variable, also provided in Tables 22 and 23.²⁴

When summed, the X values for each census subdivision produced a measure of SES, or well-being, on a continuous scale, which was then converted to two different seven-point scores obtained by comparing census subdivisions to the one with the highest continuous SES—Tofino in Clayoquot Sound and RM Great Bend in Redberry Lake. Table 24 summarizes the data that is discussed and compared with the community capacity ratings in the following section. The regional SES seven-point score considers each biosphere reserve unto itself, so that Clayoquot Sound census subdivisions are all compared to Tofino, and Redberry Lake census subdivisions are compared to RM Great Bend No. 405. The comparative SES seven-point score considers the census subdivisions from both biosphere reserves together with all the census subdivisions stacked up against Tofino, which had the highest continuous SES score out of all thirteen census subdivisions of the two biosphere reserve regions.

If we only consider Appendices C iii and iv, rejecting the incomplete data set of four First Nations Reserves, then one can either measure the SES that compares all thirteen census subdivisions associated with both biosphere reserves, with six in Clayoquot Sound and seven in Redberry Lake, or one can standardize the

²⁴ Note that the average and standard deviation values for all six variables are quite close, if not identical (after rounding). This means that the variables of each biosphere reserve are similar in level when considered in a regional context. As well, the data show that the variables are close for both regions, indicating that both biosphere reserves have similar levels of SES.

socioeconomic S scores against, only, the census subdivisions within one of the two biosphere reserves. The first conversion of the continuous SES score to a seven-point SES score in Appendix C, labeled ‘comparing both BRs’ considers all census subdivisions from both biosphere reserves together; these data are also presented in the third column in Table 24. The second conversion considers the biosphere reserve regions separately, and is labeled ‘individual BRs’ in Appendix C; the same data are given in the ‘regional seven-point SES score’ column in Table 24.

It is the comparative SES score, I argue, that is most useful for this study, for two reasons. First, this research is concerned with how the two biosphere reserve regions, Clayoquot Sound and Redberry Lake, compare with each other, given that they are different in many ways but attempting to assume the functions of the same designation. Second, the SES value is to be compared to the community capacity ratings offered by focus group participants, who were aware of the comparative nature of this research when assessing their own capacity. It is thus probable that participants rated their biosphere reserve region based on a conscious or sub-conscious comparison to the resources and capabilities they perceived the other biosphere reserve possessed.

Besides the possibility of measuring SES in a regional and comparative sense, I found that there are several other ways of calculating the SES score depending on the set of census subdivisions taken into account. First, I distinguished between using data from all identified census subdivisions for each region from those with the most data available. Income and poverty statistics were not available for four out of the five First Nation Reserve census subdivisions in the Clayoquot Sound region: Ittatsoo 1, Opitsat 1, Esowista 3, and Refuge Cove 6; hence, Marktosis 15 was the only Reserve accounted for in the final SES scores presented in this chapter. Four tables comparing different ways of calculating the SES, or well-being, of the two biosphere reserve regions are found in Appendices C i – iv, with Appendices C i and ii pertaining to Clayoquot Sound, and Appendices iii and iv presenting data for Redberry Lake. Appendices C i and iii provide the well-being score of the biospheres, with data from all census subdivisions, including the four First Nations Reserves with missing data, whereas Appendices C ii

Table 22: CLAYOQUOT SOUND: STANDARDIZED VALUES AND SOCIOECONOMIC SCORES												
Census sub division	<i>Poverty Z value^f</i>	Poverty Score (X) ^g	<i>Education Z value</i>	Education Score (X)	<i>Employment Z value</i>	Employment Score (X)	<i>Housing Tenure Z value</i>	Housing Tenure Score (X)	<i>Population Growth Z value</i>	Population Growth Score (X)	<i>Income Z value</i>	Income Score (X)
Port Alberni	<i>0.16</i>	8.00	<i>-0.40</i>	6.68	<i>-0.97</i>	4.29	<i>0.03</i>	8.44	<i>-0.32</i>	7.02	<i>0.54</i>	9.47
Ucluelet	<i>-0.55</i>	9.48	<i>-0.09</i>	7.95	<i>0.11</i>	8.78	<i>-0.12</i>	7.85	<i>-0.34</i>	6.90	<i>0.50</i>	9.37
Tofino	<i>-0.19</i>	8.73	<i>1.35</i>	13.97	<i>1.19</i>	13.28	<i>-0.56</i>	5.99	<i>1.37</i>	14.05	<i>0.73</i>	9.86
A-C B ^a	<i>-0.34</i>	9.04	<i>-1.35</i>	2.69	<i>0.75</i>	11.48	<i>1.59</i>	14.94	<i>-0.11</i>	7.86	<i>-0.29</i>	7.73
A-C A ^b	<i>-0.97</i>	10.35	<i>0.97</i>	12.38	<i>0.32</i>	9.68	<i>-1.17</i>	3.45	<i>-1.46</i>	2.24	<i>0.42</i>	9.22
Marktosis	<i>1.89</i>	4.39	<i>-0.48</i>	6.33	<i>-1.40</i>	2.49	<i>0.93</i>	12.20	<i>0.86</i>	11.93	<i>-1.91</i>	4.35
AVG: Region^c	<i>0.00</i>	8.33	<i>0.00</i>	8.33	<i>0.00</i>	8.33	<i>0.11</i>	8.81	<i>0.00</i>	8.33	<i>0.00</i>	8.33
S. Dev. ^d	1.00	2.08	1.00	4.17	1.00	4.17	1.00	4.17	1.00	4.17	1.00	2.08
AVG: Active (relative)^e	<i>-0.37</i>	9.11	<i>0.63</i>	10.96	<i>0.65</i>	11.03	<i>-0.34</i>	6.92	<i>0.51</i>	10.48	<i>0.62</i>	9.62
S. Dev. ^d	<i>0.25</i>	0.53	<i>1.02</i>	4.26	<i>0.76</i>	3.18	<i>0.32</i>	1.32	<i>1.21</i>	5.06	<i>0.17</i>	0.34

Notes pertaining to Table 22:

^a Alberni-Clayoquot B Regional District Electoral Area

^b Alberni-Clayoquot C Regional District Electoral Area

^c Averaged values of all census subdivisions associated with each biosphere reserve region. Values in Clayoquot Sound were averaged across six census subdivisions and values in Redberry Lake were averaged across seven.

^d Standard deviation

^e Average of the values for the ‘active’ communities of each biosphere reserve: Tofino and Ucluelet in the Clayoquot Sound biosphere reserve region, and Hafford and RM Redberry No. 435 in Redberry Lake biosphere reserve region. These values were considered in relation to the other census subdivisions in the biosphere reserve region in question. For example, the Poverty Z values for Ucluelet and Tofino respectively are -0.55 and -0.19, which were standardized against all six census subdivisions of the region. These two values were then averaged to yield the average between Tofino and Ucluelet, -0.37, which is the average considered in the regional context.

^f Variable-specific socioeconomic scores S (Appendix B) were standardized against census subdivisions of one of two biosphere reserve regions to yield standardized Z values for each variable.

^g Standardized Z values for each variable were converted to a socioeconomic score X by a socioeconomic scale (see section 3.5).

Table 23: REDBERRY LAKE: STANDARDIZED VALUES AND SOCIOECONOMIC SCORES												
Census sub division	<i>Poverty Z value^f</i>	Poverty Score (X) ^g	<i>Education Z value</i>	Education Score (X)	<i>Employment Z value</i>	Employ. Score (X)	<i>Housing Tenure Z value</i>	Housing Tenure Score (X)	<i>Population Growth Z value</i>	Population Growth Score (X)	<i>Income Z value</i>	Income Score (X)
Great Bend	-0.45	9.28	1.36	13.99	0.68	11.15	0.22	9.25	0.53	10.54	1.06	10.54
Borden	-0.94	10.30	-0.03	8.20	-1.60	1.65	-1.66	1.44	1.43	14.31	-1.39	5.44
Redberry	1.83	4.53	0.23	9.28	0.15	8.96	0.49	10.36	0.80	11.65	-0.02	8.29
Hafford	0.03	8.27	-1.73	1.13	-1.25	3.11	-0.54	6.06	0.08	8.69	0.59	9.56
Douglas	-0.29	8.93	0.41	10.03	0.68	11.15	1.12	13.01	-0.76	5.17	0.69	9.78
Speers	-0.94	10.30	-0.79	5.02	0.68	11.15	1.12	13.01	-1.41	2.45	-1.39	5.44
Meeting Lake	0.77	6.73	0.56	10.68	0.68	11.15	-0.42	6.58	-0.67	5.54	0.45	9.26
AVG: Region^a	0.00	8.33	0.00	8.33	0.00	8.33	0.05	8.53	0.00	8.33	0.00	8.33
S. Dev. ^b	1.00	2.08	1.00	4.17	1.00	4.17	1.00	4.17	1.00	4.17	1.00	2.08
AVG: Active (relative)^c	0.93	6.40	-0.75	5.20	-0.55	6.04	-0.03	8.21	0.44	10.17	0.29	8.93
S. Dev. ^b	1.27	2.64	1.38	5.77	0.99	4.14	0.73	3.04	0.50	2.10	0.43	0.90

Notes pertaining to Table 23:

^a Averaged values of all census subdivisions associated with each biosphere reserve region. Values in Clayoquot Sound were averaged across six census subdivisions and values in Redberry Lake were averaged across seven.

^b Standard deviation

^c Average of the values for the ‘active’ communities of each biosphere reserve: Tofino and Ucluelet in the Clayoquot Sound biosphere reserve region, and Hafford and RM Redberry No. 435 in Redberry Lake biosphere reserve region. These values were considered in relation to the other census subdivisions in the biosphere reserve region in question. For example, the Poverty Z values for the RM Redberry and Hafford respectively are 1.83 and 0.03, which were standardized against all seven census subdivisions of the region. These two values were then averaged to yield the average between the RM Redberry and Hafford, 0.93, which is the average considered in the regional context.

^f Variable-specific socioeconomic scores S (Appendix B) were standardized against census subdivisions of one of two biosphere reserve regions to yield standardized Z values for each variable.

^g Standardized Z values for each variable were converted to a socioeconomic score X by a socioeconomic scale (see section 3.5).

Table 24: Summary of SES Scores

CLAYOQUOT SOUND Census subdivision (csd)	Continuous SES Score = sum of variable scores	Regional seven- point SES Score (using only CS values)	Comparative seven- point SES Score (using CS and RL values with Tofino as the highest SE level csd)
Port Alberni (C)	43.89	4.66 ^a	4.66
Ucluelet (DM)	50.34	5.35	5.35
Tofino (DM)	65.88	7.00	7.00
Alberni-Clayoquot B (RDA)	53.74	5.71	5.71
Alberni-Clayoquot A (RDA)	47.32	5.03	5.03
Marktosis 15 (R)	41.70	4.43	4.43
AVG: CS Region	50.48	5.36	5.36
Standard deviation	8.70	0.92	0.92
AVG: Tofino and Ucluelet (relative)	58.11	6.17	6.17
Standard deviation	10.99	1.17	1.17

REDBERRY LAKE Census subdivision (csd)	Continuous SES Score = sum of variable scores	Regional seven- point SES Score (using only RL values)	Comparative seven- point SES Score (using CS and RL values with Tofino as the highest SE level csd)
Great Bend No. 405 (RM)	64.76	7.00 ^b	6.88 ^b
Borden (VL)	41.34	4.47	4.39
Redberry No. 435 (RM)	53.08	5.74	5.64
Hafford (T)	36.82	3.98	3.91
Douglas No. 436 (RM)	58.07	6.28	6.17
Speers (VL)	47.37	5.12	5.03
Meeting Lake No. 466 (RM)	49.93	5.40	5.31
AVG: RL Region	50.20	5.43	5.33
Standard deviation	9.56	1.03	1.02
AVG: Hafford and RM No. 435 (relative)	44.95	4.86^c	4.78
Standard deviation	11.50	1.24	1.22

^a Sample calculation: $(43.89 \div 65.88) \times 7 = 4.66$. Note that for all census subdivisions in Clayoquot Sound, the regional SES score is the same as the comparative score because the census subdivision with the highest continuous SES for both calculations is Tofino, with a continuous score of 65.88.

^b In the Redberry Lake region, RM Great Bend No. 405 has the highest continuous SES score and is therefore given top score on the seven-point scale so that all other census subdivisions in Redberry Lake may be compared to it for a regional SES assessment. Its regional score was calculated as follows: $(64.76 \div 64.76) \times 7 = 7$. The comparative score was calculated using Tofino's continuous SES score as the reference point as such: $(64.76 \div 65.88) \times 7 = 6.88$.

^c Here, the regional SES scores of active communities Hafford and RM Redberry No. 435 were averaged as follows: $5.74 + 3.98 \div 2 = 4.86$. The same process applies to generating the comparative SES score for the active communities.

and iv present the continuous SES and resultant seven-point SES scores that exclude the four Reserves from calculations. Comparing the tables, one can see that the differences between results of Appendices C i and iii versus ii and iv are minute. For example, there is a differential of 0.22 between the two SES B columns that compare both biosphere reserves for the Clayoquot Sound region, given in Appendices i and ii. Examining the same values for Redberry Lake, the difference is merely 0.10.

The second way of calculating SES based on choosing a set of census subdivisions is also shown in Appendix C and in Table 24, where only the active communities of Tofino and Ucluelet in Clayoquot Sound and Hafford and the RM Redberry No. 435 in Redberry Lake were given focus. The active communities exhibit the greatest participation in and influence on biosphere reserve activities (recall section 3.5 and Table 6). Table 24 provides the regional and comparative SES scores for the active communities. The active communities were considered relative to the census subdivisions in their respective biosphere reserve regions for the continuous SES and regional seven-point SES calculations, and then judged against all thirteen census subdivisions for the comparative seven-point SES score.

A third calculation of the SES score considered the active communities on their own, so that no other census subdivision was taken into account in calculating the component S, standardized Z, and socioeconomic X scores for each of the six SES variables. Appendix D gives the Z and X scores for the active communities independent of their neighbouring census subdivisions, while Table 25 presents their continuous, regional, and comparative SES scores. When only Tofino, Ucluelet, the RM of Redberry No. 435, and Hafford are compared, the RM of Redberry was found to have the highest continuous SES score, unlike in Table 24, where all census subdivisions were compared to Tofino for the comparative SES score. This replacement of the highest SES community when considering the active communities, as opposed to the biosphere region, is due to the regional effect that the other nine census subdivisions have on the relative SES of the active communities, as well as the high housing tenure score garnered by the RM of Redberry that outweighs Tofino's housing score.

If the housing tenure variable is excluded from calculations of SES, the patterns remain the same as in Table 24, with the Clayoquot Sound region and its active

Table 25: Active community SES scores

CLAYOQUOT SOUND			
Active community census subdivision	Continuous SES Score = sum of component scores	Regional seven-point SES Score (including only CS values)	Comparative seven-point SES Score (including both CS and RL values)^a
Ucluelet (DM)	43.98	5.52	5.21
Tofino (DM)	55.76	7.00	6.61
AVERAGE	49.87	6.26	5.91
REDBERRY LAKE			
No. 435 (RM)	59.04	7.00	7.00
Hafford (T)	41.36	4.90	4.90
AVERAGE	50.20	5.95	5.95

^a The active communities were compared against the RM of Redberry No. 435 because it had the highest continuous SES score of all active communities.

communities exhibiting higher average SES scores than the Redberry Lake region and its active communities (Appendix E(i)). Tofino now edges out the RM of Redberry as the census subdivision with the highest continuous SES score (Appendix E(ii)); this change leads to a switch in the patterns apparent in Table 25. Referring to Appendix E(ii), the active communities have the same average continuous SES score of 41.67. Hafford has higher continuous, regional, and comparative SES scores than Ucluelet, and the comparative SES scores for both biosphere reserves are identical—5.77.

These patterns reveal that the housing tenure variable makes a notable difference to the SES scores of Hafford and Ucluelet, with Ucluelet benefiting from its inclusion. As well, factoring housing into the calculations of SES enabled Redberry Lake’s active communities to enjoy a slightly higher comparative SES score than those in Clayoquot Sound (Table 25), indicating that Redberry Lake had a slightly higher level of SES, or well-being, based on the 2001 Census. However, this small gap closes when housing is excluded, with the two biosphere reserves having equal levels of SES (Appendix E(ii)).

5.3 Comparison of well-being and community capacity ratings

Table 26 presents the SES scores from the previous section, 5.2, alongside the rating assessments from section 4.2. The first column gives the comparative SES scores

that account for all thirteen census subdivisions. The second column provides the comparative scores for the active communities. The first and third rows place the active communities in a regional context, with the SES scores calculated in relation to all thirteen census subdivisions of the biosphere reserve regions, as previously given in Table 24. The second and fourth rows in Table 26 highlight the scores from the last column of Table 25 that consider the four active communities independently.

From Table 26, several observations are brought to light. First, the SES scores for both biosphere reserve regions are higher than the rating assessments of community capacity. Second, both the SES scores and community capacity ratings for Clayoquot Sound are slightly higher than those for Redberry Lake, with the largest difference seen in the active community comparative SES scores of 1.39 (6.17 – 4.78). Third, when comparing the active communities as independent from other census subdivisions (refer to the second and fourth rows), the Redberry Lake active communities narrowly beat out those of Clayoquot Sound in terms of SES. Fourth, it is interesting to note that both adults and youth in each biosphere reserve region perceived themselves as having the same level of community capacity, with those in Clayoquot Sound all giving a conservative average rating of medium high (5.0) while all groups in Redberry Lake

Table 26: Simplified table comparing SES with community capacity on a seven-point score

	SOCIOECONOMIC SCALE		COMMUNITY CAPACITY		
Data source	Statistics Canada: Census 2001		Focus Groups (average assessment)		
	Region	Active	All	Adults	Youth
CLAYOQUOT SOUND	5.36	6.17	5.0	5.0	5.0
Tofino and Ucluelet (active)		5.91 ^a			
REDBERRY LAKE	5.33	4.78	4.5	4.5	4.5
Hafford and RM of Redberry No. 435 (active)		5.95 ^a			

^a These SES scores were calculated by only accounting for the four active communities relative to one another, as shown in Table 25.

assigned, on average, a rating between medium and medium high (4.5). Fifth, the relatively minor difference between these averaged ratings reveals that respondents in both study sites had almost identical numerical perceptions of their biosphere reserve regions. Sixth, the SES scores exhibit a higher level of precision than the average community capacity ratings.

A relative comparison of SES scores and community capacity ratings is possible²⁵ when the SES scores in Table 26 are rounded using the same method to round the community capacity average ratings. It appears that SES, as an indicator of community capacity, overrates capacity. The regional SES scores for both Clayoquot Sound and Redberry Lake recalculated to 5.5, with community capacity having a slightly lower ratings of 5.0 and 4.5 for the respective biosphere reserves. This reinforces the finding that the SES of both biosphere reserves is very similar²⁶. As well, with standard deviations between 1.02 and 1.24 from Table 24, it seems that the SES scores were not sensitive to the nuances that locals are aware of, as indicated by a wider spread of ratings given in Table 7.

The comparative SES scores for the active communities, however, are 6.0 and 5.0 for Clayoquot Sound and Redberry Lake, respectively, revealing a difference between the combined well-being of Tofino and Ucluelet as opposed to that of Hafford and the RM of Redberry. This result indicates that a comparative assessment of the active communities, as opposed to the region's census subdivisions, may more accurately reflect the relative community capacities of the biosphere reserve regions when compared with the self-assessment ratings, where participants in Clayoquot Sound perceived their community capacity to be slightly higher.

Originally, I intended to undertake a statistical analysis between the SES scores and community capacity ratings to follow the path led by Doak and Kusel (1996) who found that SES and community capacity were positively correlated with one another based on the Pearson correlation coefficient statistical test. However, their study involved a large sample of participants who conducted self-assessments of community

²⁵ Recall section 4.2 for a description of the conservative averaging technique that took a cautious approach to treating the ordinal ratings data as qualified interval data.

²⁶ As shown in Table 26, the SES scores for both biosphere reserve regions are not exactly the same. This difference is revealed due to the higher precision of the SES score before rounding.

capacity, and who were selected from all counties that Census data were drawn from for a SES assessment. The focus group participants in this study, on the other hand, were not statistically representative of the census subdivisions used for calculating the SES score. Consequently, the only possible comparisons that can be made between the SES scores and average community capacity ratings are for Tofino and Ucluelet. Even then, however, the relationship between SES and capacity would require significant qualifications, as the data only allow for a relative comparison.

Consequently, I found the SES scores were not useful for a comparative analysis with the community capacity ratings; I cannot substantively determine the correlation between SES and community capacity, because I did not hold a focus group in each census subdivision, with strict controls on the demographic distribution and number of participants. Therefore, at the scale of this study, I can neither support nor reject the research hypothesis that SES is positively, but weakly correlated to community capacity.

A positive—yet weak—relationship between SES and community capacity is implied by theory (Kusel 1996; Nadeau *et al.* 1999) and preliminarily established empirically (Doak and Kusel 1996). Figure 11 illustrates the co-dependent relationship of SES as proportional to community capacity, and vice versa, which is implied by the data in Table 26. Although this research could not generate the statistical data to support the nature of this relationship (to answer questions such as, how much does the state of well-being affect community capacity?), what can be theoretically asserted is that SES refers to the state of resources as determined by statistics, which relates to how people perceive themselves and their abilities. Alternatively, community capacity speaks to the abilities of people to use those resources as determined by community experts, the residents. Both are mutually reinforcing but do not refer to or assess the same variables,

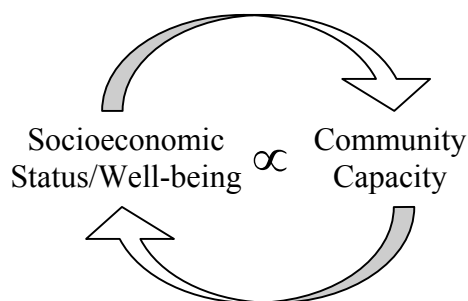


Figure 11: The relationship between SES and community capacity

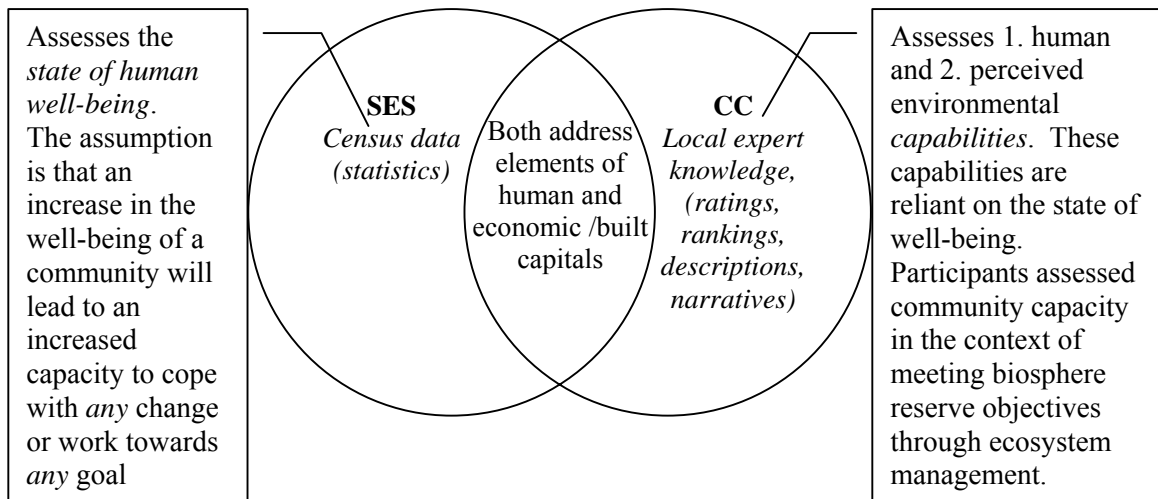


Figure 12: The overlapping relationship of SES and community capacity
Includes a summary of conceptual similarities and differences of assessment

with SES exclusively accounting for aspects of human and economic/built capital resources and deterrents, as illustrated in Figure 12.

SES scores provide a relatively quick and inexpensive means of assessing a region through the strict employment of quantitative data, allowing for statistically-sound comparisons across communities. Community capacity assessments, on the other hand, require resources to spend time with residents to develop relationships, hear their stories, pay attention to their perceptions, and filter through historical accounts. These assessments value local knowledge as a primary source of data and do not attempt to reach a statistical sample of viewpoints. As such, these assessments are not statistically comparable across communities, although relative comparisons may be made. I suggest that, although SES may be an indicator of community capacity, an assessment of SES is incomplete in identifying locally-specific, but important, nuances that either enhance or denigrate a community's collective ability to work towards goals and effect change. Community capacity assessments attempt to fill these gaps, providing rich, in-depth data that hone in on complexities that influence a community's interactions and abilities.

5.4 Comparing methods

Whereas the previous section briefly compared SES and community capacity empirically and conceptually, this section focuses on comparing the various methods

used to assess community capacity, in addition to comparing the community capacity assessment with that of SES. Here, a brief discussion is given of insights that were gleaned from interview narratives and through community immersion before turning to an examination of the effectiveness of the focus group taped conversations and worksheets in producing information relevant to an assessment of community capacity. Next, the effectiveness of the SES score in enhancing understandings of the well-being of the study sites is considered before concluding.

Throughout this study, multiple methods have been found to reinforce one another, shedding light on the implications of assessing the community capacity of biosphere reserve regions. Figure 13 illustrates the potential connections, A to F, that can be made among data collected from different methods. These connections are not fully analysed here, although an example of each link may be found in the thesis. For example, link E was briefly addressed in section 4.3.1, in that ratings and rankings were found to support one another, and link F was the focus of section 5.3.

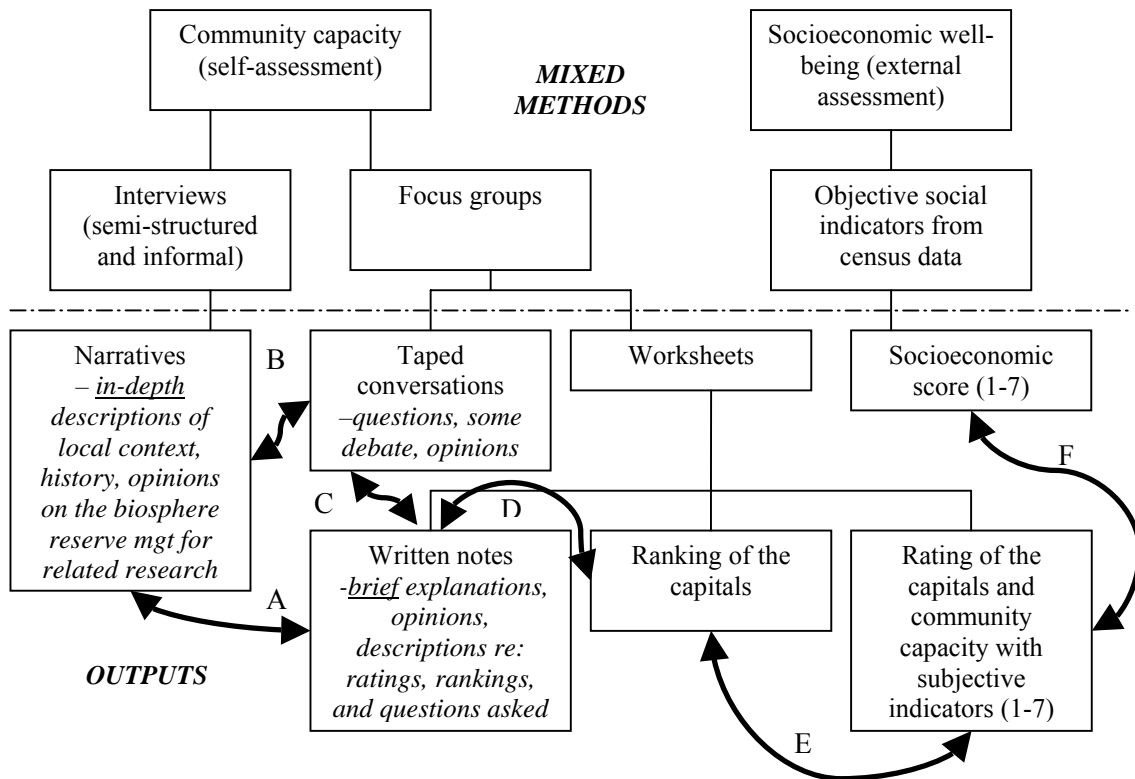


Figure 13: Connections between data outputs from the community capacity and SES assessment methods

5.4.1 Interviews and community immersion

Although not directly discussed in this thesis, the semi-structured and informal interviews with key informants and local residents I conducted as a research assistant for a related project²⁷ augmented this study in several important ways. First, they facilitated entry into the communities, allowing me to be introduced to a variety of community leaders and those actively involved in the region that I may not have had the reason to meet with otherwise. Second, they offered different perspectives concerning the strengths and weaknesses of their communities, critical historical moments that have shaped the social dynamics of their area, history of the biosphere reserve designation, and, finally, past and current biosphere reserve activities. These accounts helped me to facilitate focus groups discussions, allowing me to understand, and sometimes anticipate, topics of concern brought up in the sessions. Third, the interviews produced more detailed accounts that helped with interpreting meanings behind written worksheet descriptions in the analysis. This was especially useful when only one word was written (e.g., “aesthetics” (R.3), “Treaty” (C.3)) by those who were both focus group participants and interviewees. Without the interviews, the implications of these words would have remained unknown.

Fourth, the interviews exposed more elements influencing community capacity than were revealed in the focus groups. For instance, ‘time’ emerged in focus groups in both biosphere reserves as an important factor for understanding the biosphere reserve concept. This was also raised in Clayoquot Sound as a factor needed for people to heal from old wounds and move past entrenched grudges. But it was an interviewee from Hafford who pointed out that a continual lack of time, despite advances in technology designed to make daily lives easier, greatly hinders people’s ability to engage in community activities outside of work and other established commitments (RL.13). Thus, ‘time availability’ seems crucial for increasing community capacity to allow people to participate in biosphere reserve activities and work towards fulfilling its functions; however, this was not mentioned by the focus group participants, and is thus not included as an influential factor of community capacity.

²⁷ This thesis was couched within the research of my supervisor, Dr. Maureen Reed. Her project concerned uneven environmental management in the two biosphere reserves.

Finally, conducting interviews in the study sites required community immersion that also led to a collection of useful fieldnotes gained from participant observation and lived experience. The insights gained from this community immersion were crucial to understanding local contexts and uncovering people's true feelings about the biosphere reserve and its associated topics of inquiry (i.e., sustainability) outside of interviews and focus groups. For example, according to one Hafford resident, "talking about the environment is like talking about religion—you just don't do it" (RL8b); this pervasive cultural attitude was previously hidden to me, but once revealed, helped to explain general reactions I noticed when talking about the biosphere reserve.

Community immersion also enhanced my understanding of the study sites, an example of this being a conversation that I witnessed at one evening gathering in Ucluelet after my final focus group in the region. The conversation concerned the Clayoquot Sound biosphere reserve, and topics ranged from the origins of the designation to the use of my focus groups; the following paragraphs highlight some of the insights gained from this conversation (Fieldnotes, February 14, 2003).

First how the general public perceived the biosphere reserve was discussed, suggesting that the designation was a big disappointment for those who did not fully understand its purpose and functions. According to the discussants, people such as First Nations tended to view the biosphere reserve as yet another layer of bureaucracy, while others interpreted it as a saviour of sustainability for the region and await evidence of this. The conversation then turned to the benefits of the biosphere reserve as the only organization in the area with such a large amount of funding that is also able to provide an important space for volunteers to congregate. The \$12 million Trust was viewed as a large benefit to keep the biosphere reserve alive, with the condition that the CBT Board remains able to hold on to a vision "even when times are tough" and an Executive Director cannot be afforded. The "brilliance" of having a Trust, according to one Ucluelet resident, is that it will ensure the longevity of the biosphere reserve, as past experiences in the area have proven that the termination of funding cycles can put an end to organizations, such as the case with the Long Beach Model Forest. However, it was also observed that the Trust created false expectations when stakeholders first

gathered to discuss how to use the money, offering wish lists that were/could not be met. This caused further disenchantment with the biosphere reserve for some.

Past experiences of the Clayoquot Sound Biosphere Project seem to parallel those of the CBT, one of the founding members of the Biosphere Project reflected. For one, the Project members found it difficult to assume the dual purpose of conducting research and fundraising; when funding was received, problems arose because of internal conflicts. To overcome these problems, s/he proposed that the biosphere reserve²⁸ needs not one Executive Director but two—a Program Director and a Fundraiser. As well, Canadian biosphere reserves need an elected official to raise public awareness, fundraise, and raise interest in the regions to attract projects that fit the biosphere reserve mandates. One person commented that the biosphere reserve does not need someone with the relatively generous salary that the Executive Director receives, but others qualified this remark, noting that the salary is needed in the early years of the designation and that perhaps, after some time, the salary, and even the Executive Director, may not be required to ensure the biosphere reserve's success. Finally, the CBT was perceived as having great potential for acting as an 'umbrella' to bring together different groups (Fieldnotes, February 14, 2003). Without having been immersed in the communities of the Clayoquot Sound biosphere reserve region, I would never have understood the complexity of issues surrounding the biosphere reserve designation and functioning. I found that more in-depth insights emerged from the interviews and community immersion than were provided in the focus group sessions alone.

5.4.2 Focus groups

For this community-based research—*for* and *with* community members as opposed to *about* the communities—it was essential to get 'buy-in' from the public, not only for my study, but also for the image and reputation of both fledgling and generally misunderstood biosphere reserves. Even though the focus group data may not be as statistically strong as they might have been had I sought a random sampling of people from all census subdivisions, encouraging community involvement and being flexible

²⁸ Recall that this does not necessarily mean the CBT.

enough to adapt to local context was more important for making the research useful, and hopefully meaningful, to biosphere reserve management and other residents.

The focus groups were not only an opportunity for locals to reflect on their own communities in terms of strengths and weaknesses, but community capacity to engage in biosphere reserve activities was also *built* in the process of assessment. Human capital was applied in the self-assessment, and possibly increased, as some people gained an understanding of what a biosphere reserve is/not, while those who were familiar with the biosphere reserve concept had a chance to reflect on its meanings and possibilities. Social capital was mobilized and built in focus groups where lively discussion around issues broke out. It was also mobilized in the Redberry Lake public session when people worked together on the puzzle activity. Importantly, the focus groups contributed to renewing discussion about the biosphere reserve within the communities, evidenced before and after public focus groups sessions, as noted previously in Table 5 (personal observation).

The worksheets used for assessment in the focus groups provided the opportunity for participants to rate and rank the capital resources of their biosphere reserve region to respectively appraise their relative state and importance. These exercises were significant as a focus for establishing perceptions before considering the reasons behind the numerical and ordered e/valuations. The worksheets also generated short phrases, and point form notes reflecting perceptions of the key factors that contribute to, hinder, or could be improved in each capital and capacity. Topics were given different emphasis, depending on the biosphere reserve region. In Clayoquot Sound, respondents highlighted their changing economies, social fractures from political processes and value-based tensions, concerns associated with a growing high-end tourism industry, multiple levels of social diversity, and the benefits of living in close proximity with First Nations. On the other hand, Redberry Lake participants focused on the positive aspects of living in/by a small town, their diversity of European-descent populations, and the pressures placed on their primary economy, the agricultural sector. These emphases demonstrate one use of community capacity assessments—to ascertain the foremost community benefits and concerns that weigh on people’s minds, providing an indication of what is important to them at a given time and what they see as pressing issues in need

of reconciliation. Such appraisals go beyond basic ‘needs assessments’ by asking people to: consider the state of their resources in terms of community strengths; offer ways to address shortcomings; and, identify priorities and values when ranking their capital resources in order of importance for the goal at hand.

The taped conversations were useful for capturing debate on a topic, such as differing perceptions of what ‘sustainable development’ means to different people, as was discussed in the Tofino public focus group. They also uncovered misunderstandings and perceptions about the biosphere reserve; for example, one person commented that the biosphere reserve seemed like an academic exercise, benefiting only the highly educated within and from without the region (Fieldnotes, Ucluelet focus group, February 13, 2004). Some exchanges, such as in the Redberry Lake public focus group, demonstrated existing or newly formed social capital, with the latter referring to conversations between people who normally would not talk at length with one another. The extent of these observations varied according to the focus group. Discussion was most engaged in Clayoquot Sound, pointing to an existing capacity to participate actively in processes to evaluate their communities to work towards the betterment of their region.

Referring to Tables 27 and 28, focus group data collection was problematic, as only partial data were gathered. I had hoped that all, or almost all, of the worksheets would be handed in, with at least the ratings and demographic information filled out; however, my expectations proved to be too high. First, not all focus group attendees handed in a worksheet, with an average of 71% and 92% return rate in Clayoquot Sound and Redberry Lake, respectively. Those who filled out the worksheet did not necessarily complete all of the sections, with rankings fully completed by those who started them, but with ratings left incomplete, as indicated by the minimum number of people who completed a rating in the ‘low’ column, accompanied by the maximum number of people who completed a rating in the ‘high’ column. The mode refers to the most frequent number/percentage of people who completed the ratings.

Overall, the people of Redberry Lake had a higher completion rate than those in Clayoquot Sound, due to the greater participation of youth from Hafford Central School, who, like their Ucluelet Secondary School counterparts, had a perfect completion rate.

Youth from both biosphere reserves treated the worksheet as an assignment, despite the absence of teachers during the session, most likely due to the classroom setting (Fieldnotes, January 6, 2003; May 12 2003).

In contrast, rating and ranking completion rates by adults were lower in Redberry Lake than in Clayoquot Sound. Worksheet incompleteness may reflect an uneasiness and unfamiliarity of the concepts and terms referred to in the focus groups session, such as ‘biosphere reserves,’ ‘ecosystem management,’ ‘conservation,’ ‘sustainable development,’ ‘community capacity,’ the ‘capitals’ . . . and even ‘geography.’ The amount of shared knowledge of concepts required to participate necessitated that the focus groups include an educational component to facilitate discussion (refer to Table 5); however, the brief explanations given did not always bridge misunderstandings, hindering the effectiveness of the focus group. As a Redberry Lake public focus

Table 27: Worksheet completion: Clayoquot Sound

	Clayoquot Sound biosphere reserve region								
	Adults			Youth			ALL		
	Low	High	Mode	Low	High	Mode	Low	High	Mode
# worksheets received	14			8			22		
# total participants	23			8			31		
% participants who handed in a worksheet	60.9%			100.0%			71.0%		
# completed ratings	12	14	14	7	8	7	19	22	21
% completed ratings out of worksheets received	85.7%	100.0%	100.0%	87.5%	100.0%	87.5%	86.4%	100.0%	95.5%
% completed ratings out of total participants	52.2%	60.9%	60.9%	87.5%	100.0%	87.5%	61.3%	71.0%	67.7%
# completed rankings	10			6			16		
% completed rankings out of worksheets received	71.4%			75.0%			72.7%		
% completed rankings out of total participants	43.5%			75.0%			51.6%		

Table 28: Worksheet completion: Redberry Lake

	Redberry Lake biosphere reserve region								
	Adults			Youth			ALL		
	Low	High	Mode	Low	High	Mode	Low	High	Mode
# worksheets received	28			33			61		
# total participants	33			33			66		
% participants who handed in a worksheet	84.8%			100.0%			92.4%		
# completed ratings	22	25	23	33	33	33	45	58	56
% completed ratings out of worksheets received	78.6%	89.3%	82.1%	100.0%	100.0%	100.0%	73.8%	95.1%	91.8%
% completed ratings out of total participants	66.7%	75.8%	69.7%	100.0%	100.0%	100.0%	68.2%	87.9%	84.8%
# completed rankings	17			33			50		
% completed rankings out of worksheets received	60.7%			100.0%			82.0%		
% completed rankings out of total participants	51.5%			100.0%			75.8%		

group participant wrote, the session needed “more layman’s explanation of things” (RL.2) while someone else commented, “This form is much too difficult for uneducated people to understand. My guess is that the majority of the people here couldn’t understand it” (RL.16).

Further compounding the confusion, the concept of community capacity is quite broad and all-encompassing; reminiscent of ‘quality of life,’ it perhaps attempts to cover too much ground. Yet, as the concept does try to reflect reality to better understand how rural communities can face change, it is necessarily highly complicated, complex, dynamic, uncertain, and ‘messy.’ A lower return rate and worksheet incompleteness, referring to, respectively, the lack of handing in and filling out the worksheets, among adults in Clayoquot Sound may have, in part, reflected a general feeling of being ‘processed out’ or ‘researched to death.’ Furthermore, the worksheet itself may have been a deterrent in that that some may have found it too long, confusing, or repetitive.

Although the application of the focus group method varied to accommodate local contexts as mentioned in section 3.3.2.2, the community capacity assessment ratings, rankings and descriptive data are justifiably comparable between biosphere reserve regions for two main reasons. First, research rigour was adhered to when conducting the assessments. The key elements of the focus group were consistent across groups, as previously demonstrated in Table 5. For example, the format of the focus groups remained consistent, always beginning with a fifteen minute presentation to frame the assessment in the biosphere reserve and ecosystem management contexts. As well, the core of the worksheet remained the same as to its explanation of community capacity and the capitals, the boxes for assessment, and the ranking question (Appendix A).

Second, the quality and quantity of information garnered from the assessments were more important than the quantity of worksheets gathered, given in Figure 7 and Tables 27 and 28. An approximate²⁹ frequency count is given in Table 29, which presents the top ten codes, or themes, that emerged from the worksheets, with a count of the number of times those themes are mentioned in the worksheets. These themes may be considered critical to the community capacity of the biosphere reserve regions as they were the ones mentioned most often. Examining these data reveals that twenty-two codes arose from both the Clayoquot Sound and Redberry Lake self-assessments across all participant groups, with 134 data segments associated with those codes in the former biosphere reserve, and 139 identified in the latter. Thus, although Redberry Lake had three times the number of completed worksheets, its participants thus demonstrating a greater willingness to be involved in research, participants in both biosphere reserves contributed approximately the same quantity of information. The variation in responses, in and of itself, suggests a differential capacity between regions to engage in biosphere reserve activities and fulfill the three UNESCO functions, with Clayoquot Sound exhibiting a greater capacity, at the individual level, to engage in process, reflect upon the strengths and weaknesses of the region, and debate issues.

²⁹ The frequency count is approximate because, in a few cases, a respondent would have elaborated on the same point in detail, so I had to make the choice of either coding each individual point or the data segment. For example, in describing the state of ecological capital, a respondent might have written, “mountains, ocean, beaches, islands,” all environmental assets. Instead of counting this phrase as four coded segments, I counted them as one, because the string of words is a data segment written by one participant that pertains to one code/theme.

Table 29: Top-ten mentioned themes in the focus group written assessments of community capacity

Bolded themes are common to both biosphere reserves

Rank	CLAYOQUOT SOUND: 22 codes, 134 data segments	Count	REDBERRY LAKE: 22 codes, 139 data segments	Count
1	Business and services (including sewage, transportation routes)	24	Education and promotion of biosphere reserve, issues of sustainability	27
2	Environmentally sound practices	21	Togetherness and cooperation by all	21
3	Environmental assets Cooperation/coordination	15	Environmentally sound practices	16
4	Employment opportunities	14	Attitudes	15
5	Consequences of tourism and population growth Skills, experiences and talents of residents Engagement and volunteerism	13	Businesses and services Skills, experiences and talents of residents Social gatherings and community events	14
6	Infrastructure for recreation and social gatherings Decision-making and governance	12	Volunteerism Communication between groups	12
7	Forums for discussion Limited financial resources for living costs Education level of residents	11	Employment opportunities Economic viability Decreasing population Willingness of individuals (to share, help, give)	10
8	Commitment to area/community Threats to the environment Housing concerns Values/beliefs	9	Community pride/appreciation Infrastructure for social gatherings Limited financial resources Attract new people/youth to area	9
9	Perception of environment Education and promotion of issues of sustainability and biosphere reserve Non-governmental organisations and partnerships	8	Drawbacks of and threats to the environment	8
10	Community pride/appreciation Economic viability/sustainability	7	Lot of potential capacity Education level of individuals Extracurricular activities Culture	7

Participation and worksheet completion rates, as given in Tables 27 and 28, indicate a level of willingness to engage in biosphere related activities that contribute to community capacity. A strong willingness to participate in the research was evident in Redberry Lake, with almost three times the number of participants of Clayoquot Sound, despite possessing roughly half the population. However, judging from the percentage of worksheets completed out of those received (Tables 27 and 28) and the amount of information garnered (Table 29), the people that *did* participate in Clayoquot Sound were the well-informed, motivated, and interested—the participatory public that I originally sought. Some participants were so committed to meaningfully contributing to the research that they asked, without prompting, to hand in their worksheets after the focus group session to have more time to provide more detailed answers (five people in Tofino and three in Ucluelet chose to do this). The fact that participants in Clayoquot Sound had higher levels of formal education than those in Redberry Lake likely contributed to differences between regions in terms of the breadth and depth of written responses and the completeness of worksheets received. The depth of the responses from Clayoquot Sound participants also demonstrated a great capacity to engage in biosphere reserve related activities.

The difference in participation between biosphere reserve regions may also be due to the fragmentation and high diversity of communities in Clayoquot Sound, which stands in stark contrast to the more homogenous and non-fragmented communities of Redberry Lake. In fragmented communities, such as in the Clayoquot Sound region, people may have been compelled to participate only if they felt it was important to make their position heard. The focus groups for this research were open to everyone but not viewed as influencing process or decision making, thus my focus groups were not populated by “the usual suspects.”³⁰

Overall, I found the CBT group the most proactive in discussing how the community capacity framework and assessment tool could be used to their benefit. The focus group was most effective for this group as, at the time, the CBT members were in

³⁰ “The usual suspects” was a phrase used by the first CBT Executive Director, to describe the people who attend public meetings, or the biosphere reserve visioning processes he held to gather public input into the direction of the CBT, with the sole purpose of having their views heard, as opposed to listening and participating.

the midst of preparing for their annual general meeting, which necessitated a reflection on past achievements, future directions, and projects to implement. As well, the group contained a high level of human capital, with high levels of education and experience in responding to international attention. Also, I found the worksheet exercise worked well in more formal settings, as with biosphere reserve management and youth in the public school setting, but not so well in the more informal public meetings where the ‘assignment’ was not received as favourably.

The analysis of focus group worksheet descriptions was somewhat subjective, despite my efforts to incorporate a first-level coding system in the worksheets by dividing up the assessment into capitals. I found that I had to reinterpret data when a community aspect was misplaced in an inappropriate capital (e.g., ‘trees’ under ‘economic/built’ capital). However, I was cautious when moving data segments to different capital categories for analysis, because the original placement could have been deliberate and thus reveal a meaning I may not have been able to recognize immediately. I always asked myself the question, “why is this piece of information under this capital?” Sometimes the placement would expose the overlapping nature and interconnectedness of the capitals, such as the theme of ‘trust,’ which could be viewed as a relational trait belonging to social capital or as an individual disposition for the human capital category. If a data segment did not quite fit the criteria of referring to the state of a capital but instead illuminated an aspect that motivated people, I would code it as a mobilizer.

Another problem encountered in analysis was that I was unable to account for the two people—one from the Tofino public focus group and the other from the Redberry Lake Community Committee—who believed that the capitals could not be ranked, but instead saw them as equal partners in building capacity. The former participant wrote, “[the capitals] are all interdependent. All are necessary in equal terms for achieving these objectives” (R.5). This holistic perspective is an important one, but the design of the worksheet was not flexible enough to accommodate it. One person reluctantly ranked the capitals beginning with ecological followed by human, social, and economic/built, with the following explanation of her ranking:

Simply because I value ecological capital as extremely important. Economic capital is important, but things can be done with very little economic capital. I'd actually prefer not to assign any ranking to them, assigning equal importance to them. Of course, though, there would be no BR without ecological capital, so I suppose it does belong in the first rank" (U.1).

This quote demonstrates the thought process involved in making the decision, of how to rank the capitals, highlighting the challenge associated with the ranking exercise, to uncover what people value most and least.

When asked perception-based, as opposed to behaviour-based questions, people tend to pay careful attention to portraying an image of themselves and their community. This self-positioning leads to the question of whether the focus group data were meaningful, as a large discrepancy may exist between people's perceptions given in the self-assessments and their actual behaviour. For example, one participant who worked in the forestry industry ranked his capitals as follows: human, social, ecological, economic/built. However, the explanation given below this ranking was that "People live on the earth by maintaining a sustainable economy" (C3), implying a more prominent role for economic/built capital than was indicated by the ranking. This difference may indicate the tension between what that person knew to be a socially acceptable answer given the focus group dynamics and the beliefs that guide her/his actions.

Along the same vein, interviewees in Clayoquot Sound gave the impression, on the surface at least, that people from different 'camps,' who wore different metaphorical 'hats,' were basically people wanting the same end result regarding conserving resources for the future and helping the community to thrive. The differences seemed to rest with the divergent ideas of how to achieve those goals. Generally speaking, I found that people had common interests and concerns, such as how to keep the youth in the region and create a sustainable economy. However, could it just have been that people had adopted a common language and espoused the 'accepted' politically-correct paradigm, creating the illusion of meeting on common ground, or do people really have common ideas and just not realize how much they ideologically share with one another?

Such issues surrounding qualitative data suggest that the quality of perception-based results gathered through qualitative methods may be better judged by naturalistic

terms such as credibility, transferability, dependability, and confirmability, as asserted by Lincoln and Guba (1985, cited in Hoepfl 1997), rather than by the conventional terms of internal and external validity, reliability, and objectivity. To a large extent, the analysis of focus group worksheet data was an “interpretation of the interpretation of others” (Smith and Heshusius 1986: 9), a defining characteristic of naturalistic inquiry that assumes the existence of multiple realities (Hoepfl 1997).

The qualitative and quantitative self-assessment of community capacity that draw on subjective indicators/ratings, written and verbal narratives, and rankings are situated in a constructivist epistemology, wherein reality is viewed as socially constructed and thus best assessed by the society that constructs it (Bryman 2001). This approach asserts that community members hold the most reliable and credible knowledge; therefore, data collected within a community is valued over non-local knowledge traditionally elevated to ‘expert’ status. The qualitative data gathered in this research, through the focus group descriptions and rankings, as well as the interviews for related work, enhanced understandings of community capacity in the biosphere reserve regions through rich explanations of the strengths and weaknesses of the area and biosphere reserve designation. Values and meanings behind the quantitative ratings data were uncovered and took local context and nuances into account. As such, the results of the self-assessments more accurately portray specific influences on community capacity, especially those internally-driven, than non-local perspectives.

To conclude, the community capacity assessments conducted in focus groups sessions provided a time-specific snapshot of what was most important to people, either in terms of community strengths or areas in need of improvement. The data generated were both quantitative (ratings) and qualitative (rankings, verbal and written descriptions). The worksheets captured people’s perceptions of the state, importance, and potential of their capital resources through rating and ranking exercises. People also supplied brief phrases to describe their capitals, which ranged from being vague to detailed in nature. Additionally, people engaged in discussions that exposed and challenged divergent viewpoints concerning local issues, brought uncertainties about the designation to light, and highlighted people’s hopes for the future of the biosphere reserve. The sessions were also opportunities for critical reflection, a key dimension of

capacity building as identified by Goodman *et al.* (1998). If conducted over time at regular intervals, the assessments can be used to monitor trends both of community capacity and attitudes toward the biosphere reserve management and activities. Furthermore, they may be useful in gauging public opinion and ascertaining future directions for biosphere reserve and community activities.

5.4.3 Socioeconomic scale

Census Canada statistical data were employed in the purely quantitative assessment of socioeconomic well-being, or SES. This quantitative approach to community assessment stems from a positivist epistemology, which asserts that reality can be meaningfully quantified. Well-being may be interpreted as an indication of potential communal abilities in a region, or community capacity. Although the SES scores produced by employing the socioeconomic scale could not be analyzed statistically to firmly establish their relationship with ratings of community capacity, the quantitative results conclusively illustrated that Clayoquot Sound and Redberry Lake are relatively similar when all six variables of well-being were considered, despite geographical, political, social, cultural, and economic differences. This statistical similarity served an important public perception purpose when the results were presented at an open meeting in Hafford (April 1, 2004); people saw that, when evaluated by the same variables, they had as much well-being in their communities as Clayoquot Sound. This realization may have helped to boost morale to forward biosphere reserve objectives in the face of population and economic decline.

The census subdivisions selected were important because the S scores were standardized against a data set; therefore, the results of SES differed depending on the data set used. As well, the SES for a given biosphere reserve region was calculated in two ways, with the first that considered a region on its own (regional SES), and the second that compared a region to the second study site (comparative SES). Unfortunately, most of the First Nations census subdivisions in Clayoquot Sound could not be included in the assessment because data for two variable S scores—income and poverty—were unavailable; therefore, the results are not fully reflective of the SES of the biosphere reserve regions.

I found that community immersion was crucial to fully understand which census subdivisions were appropriate to include in the calculations of SES, as census subdivision delineations did not coincide with biosphere reserve boundaries. Even if they did correspond, the comparison would have been inappropriate, as a biosphere reserve's management and its activities draw resources and human effort from outside of its official boundaries (e.g., Ucluelet is one of the active communities in Clayoquot Sound, yet it is located outside of the biosphere reserve's outer boundary). Without an intimate understanding of the region and its social dynamics, I would have known neither which census subdivisions to include for assessment nor to distinguish between the active communities and the region.

The socioeconomic scale was employed here to gauge the level of well-being of two biosphere reserve regions as an indication of their community capacities. However, the premise of the SES assessment does not account for the actual effects of the variables assumed to increase well-being. Naqvi (2004) noted that well-being assessments are fundamentally flawed in that there may be thresholds to each socioeconomic variable that determine whether the variable is enhancing or restrictive. For example, population growth is given to increase well-being; however, at a certain point, population pressures would decrease well-being, as people compete for space, employment, and other resources with greater intensity.

In sum, the computation of the SES for each biosphere reserve region was more complex than anticipated. Complications arose for two main reasons. First, the standardization of data leads to differing calculations of SES depending on the census subdivisions accounted for. Second, the variables that contribute to and detract from SES may be contested. To determine a statistical relationship between SES and community capacity, unfeasible here, equivalent population sets (e.g., census subdivisions) for both SES and community capacity assessments must be used. Nevertheless, the SES assessment on its own may serve a useful educational and

motivational function in raising awareness of a region's relative standing in 'objective'³¹ terms, as was noted in this section and 4.4³².

Although the SES scores were ultimately statistically incomparable to the numerical community capacity assessments, a relative comparison was possible. The quantitative approach to determine SES values knowledge collected externally from the community, and is contrary to the qualitative approach taken to determine community capacity. The two approaches, discussed in section 2.4, complemented one another in this study in that their associated methods were sensitive to different community aspects and ways of viewing the biosphere reserve regions, thus generating diverse insights and information types. Socioeconomic patterns between census subdivisions and biosphere reserve regions were revealed by the quantitative assessment of SES. In contrast, the community capacity assessments uncovered locally-relevant, time-specific, and in-depth meanings. The assessments delved into the intricacies of the social dynamics that influence communal efforts, as well as the state, importance, and potential of community resources. These self-assessments were also capable of being placed within the specific context of working towards fulfilling biosphere reserve functions through ecosystem management, unlike the SES assessment that may be generically applied to approximate well-being.

5.5 The necessity of 'adaptive methodologies'

Community-based research is predicated on efforts to make the research more meaningful, interesting, and useful to residents. However, its practical applications are challenging, as a balance must be struck between academic requirements and community needs and desires. The goals, expectations, values, cultures, and assumptions of academia differ from those of rural communities. The challenges associated with meeting community needs and helping, not hindering, biosphere reserve efforts resulted in adapting the focus group method of assessing community capacity in this study. In Redberry Lake, for instance, the perception of success hinged on the

³¹ Statistics are considered objective indicators. Recall the discussion of the distinction between objective and subjective indicators in section 2.4.2, bearing in mind that all indicators may be considered subjective.

³² Section 4.4 mentioned the surprised reaction of Redberry Lake residents to the results of this study when it was revealed that their overall level of well-being was close to that of the Clayoquot Sound region.

number of people who attended the public focus group; aiming for only 8-12 participants did not resonate well with residents in terms of how meaningful the results would be. I also wanted to be inclusive, especially because there was a strong need for more education concerning the biosphere reserve concept. If there had been indication that my research process was exclusionary, the biosphere reserve management would have faced even greater opposition to and distrust of their efforts than they already experience.

Not only was this study inclusive in terms of inviting the interested populace to participate, but it also drew upon multiple forms of evidence to be inclusive in valuing multiple methods. Interviews were effective for uncovering in-depth insights through narratives. Conducted with local sensitivities in mind, the focus groups generated brief written phrases and oral dialogue that were variable in detail but reflected the participants' perceptions, values and beliefs. The socioeconomic scale employed statistical data that were comparable across regions and proved to enhance local confidence in the people of Redberry Lake. These three methodologies reinforced both theoretical and practical findings, necessary in community-based research to meet both academic and community expectations and substantively contribute to both realms.

The experiences described in this chapter, and in section 3.3.2, highlight the necessity of what Reed and Peters (2004) have termed 'adaptive methodologies,' where methods are necessarily flexible to fit local contexts and community desires. This is especially important when placing social assessments within the context of attempts to practice ecosystem management, as in the case of biosphere reserves, with the assumption that uncertainty is part of the process of achieving goals. Flexibility in applying methods is paramount if research is to be truly community-based—*for* communities, not just *about* them.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary of findings

This research stemmed from a need to articulate both what community capacity is and how it should be assessed. As such, the central findings of this thesis are both conceptual and methodological. First, community capacity must be conceptualized before it can be operationalized. A developing concept, community capacity has been defined as the mobilization of resources for a collective outcome that, in turn, builds or hinders further capacity to forward goals. As this research was exploratory, a grounded theory approach was taken so that modifications to the community capacity framework could be made based on the data collected. The next section presents the resultant re-conceptualization of community capacity, consisting of the following elements: capital stocks/resources; mobilizers that activate these resources; a collective outcome; variations associated with scale; and, time as a cyclical factor. This thesis has further contributed to theoretical understandings of community capacity by identifying specific mobilizer categories that drive community activity in the rural context. The concept may be operationalized to aid community-based ecosystem management through a qualitative self-assessment that is accompanied by a subjective quantitative appraisal; both hinge on identifying and evaluating capital resources.

Second, the research advocates for a mixed-methods approach to assessing community capacity. Quantitative assessments of SES may be compared to the quantitative and qualitative self-assessments of community capacity, to better understand the relative contributions of each approach to an understanding of the communal ability to work towards a goal. SES may be considered an indicator of community capacity, in that it provides a limited understanding of the state of aspects of human and economic/built capital, as opposed to addressing all facets of a community that include ecological and social capitals. Conversely, qualitative self-assessments of community capacity reveal not only locally-significant features that contribute to and

hinder communal efforts, but also rich meanings as to the influential social dynamics of a community. While an assessment of SES is useful for identifying patterns and revealing the relative status of one region to another on the basis of six socioeconomic variables, the evaluation is limited in that it indicates neither how nor why resources are used, nor for what purpose. For instance, the SES measures showed that levels of well-being are similar between biosphere reserve regions, yet the two regions have experienced differences in attempting to adopt their common designation. Thus, the qualitative community capacity assessments were required to shed light on the divergences between regions.

It was found that the socioeconomic scale, when applied on its own, was insufficient in assessing a community's ability to work toward common goals—sustainability and biosphere reserve functioning, in the case of the two study sites. The SES scores were found to be useful for relative comparisons to community capacity assessments that were, albeit, limited to interpretation, rather than statistical correlation. The quantitative measures were found to be insensitive to some key elements of community capacity, such as Redberry Lake's ability to pull together and Clayoquot Sound's ability to engage and reflect on issues. Quantitative measures, though, are beneficial because they can be employed in a short period of time as fieldwork is not required, and the results of a SES assessment may be presented to the communities as a point of departure for discussion on what the data implies, and what the data overlooks.

SES was found to be an indicator of community capacity, attesting to the predictive goals of a positivist standpoint, but its quantitative assessment was limited to highlighting relative patterns. To contrast, and in keeping with the constructivist perspective, the qualitative assessments provided explanations and details of the elements and nuances of community capacity. Thus, community capacity assessments that use multiple methods provide a more complete understanding of the key resources that are available and needed, as perceived by community members, than assessments that rely solely on quantitative measures. Crucially, qualitative assessments can reveal what resources are ultimately *utilized* in a community and what motivates people to use those resources for communal benefit.

The guiding hypothesis, stating that SES and community capacity are weakly, but positively correlated, could not be statistically tested because an insufficient amount of focus group data was gathered. To have been able to test the hypothesis, focus group participants would have had to have corresponded with each census subdivision used in for the application of the socioeconomic score. Such data collection was not possible due to community needs and desires, as well as time and resource constraints.

6.2 Re-conceptualizing community capacity: theoretical contributions

This exploratory research has contributed to theoretical understandings of community capacity in resource-based communities by confirming empirical findings (Table 30) while adding insights. The four studies that were selected for the analysis provided in Table 30 were chosen because of their focus on rural places and advancing the concept of community capacity.

After the fieldwork experience, my original conceptual framework of community capacity, given in section 2.3.2, was refined to reflect revelations from the focus groups, insights gained from interviews conducted for Dr. Reed's related research, and theoretical contributions from concurrent research by Dr. Bill Reimer, the principle investigator of the New Rural Economy Project, which is now in its second phase (<http://nre.concordia.ca/nre2.htm>). The modified framework is illustrated in Figure 14, providing a comprehensive framework that may prove useful to policy makers in biosphere reserves as a tool for discussion, a means of organizing community-relevant information, and a platform upon which to assess their communities.

Following Figure 14, I define community capacity as the mobilization of capital resources by 'mobilizers,' or motivating factors that spur people to activate the capitals for communal, as opposed to individual, benefit. The capitals are utilized for a specified outcome through the four types of social relations (associative, communal, bureaucratic, and market) that are identified by Reimer (2002), symbolized in the diagram as four relational spheres. I posit that different social relations are dominant in each biosphere reserve, with Clayoquot Sound displaying strong associative relations, and Redberry Lake exhibiting strong communal relations. Both types of relations relate to different

Table 30: Concurrence of findings with selected empirical studies

Previous research on community capacity	Key dimensions of community capacity and its assessment	Concurred with this study
FEMAT (1993b)	Processes and structures Physical/financial capital and human capital Civic responsiveness = how residents and groups devote energy to community issues. Includes desire for collective good, relationships, institutional infrastructure, and finally, strong, inclusive, connected leadership <i>Assessment includes rating community capacity on a seven-point scale</i> <i>One result: development of community typology based on linking capacity with consequences</i>	✓ ✓ ✓ ✓
Doak and Kusel (1996)	Consists of physical, human and social capital Increases with: Commitment Sense of place Community history Sustaining volunteer efforts Retiree knowledge, experience and willingness to help Decreases with: Increasing populations of commuters Aging population Youth out-migration Divergent values of different generations Neglecting needs of youth in bedroom communities Reluctance of retirees to change Reluctance of retirees to financially support ‘family services’ (i.e., schools) Inability to work cooperatively Internal strife Isolation of a community Exclusiveness of a community <i>Assessment includes rating community capacity on a seven-point scale</i> <i>Emphasis on ‘capabilities and functionings’</i>	✓ ✓ ✓ ✓ ✓* ✓* ✓ ✓ ✓ ✓ ✓* ✓* ✓* ✓ ✓ ✓ ✓ ✓ ✓ ✓
Goodman et al. (1998)	Citizen participation Leadership Skills Resources (access, social capital, communication) Social and interorganisational networks Sense of community Understanding of community history Community power Community values Critical reflection Is a potential state Has linkages across dimensions <i>Assessments should emphasize assets</i>	✓ ✓* ✓* ✓ ✓* ✓* ✓* ✓* ✓* ✓ ✓ ✓ ✓ ✓ ✓
Nadeau (2002)	Comprised of physical/financial, social, human, and environmental capital <i>Requires an historical perspective</i> <i>Document presence and state of element</i>	✓ ✓ ✓

Notes: The asterisk (*) indicates that the element in question may be confirmed by this study, but that the emphasis of that characteristic or population differs. *Italicized phrases pertain to methodology.*

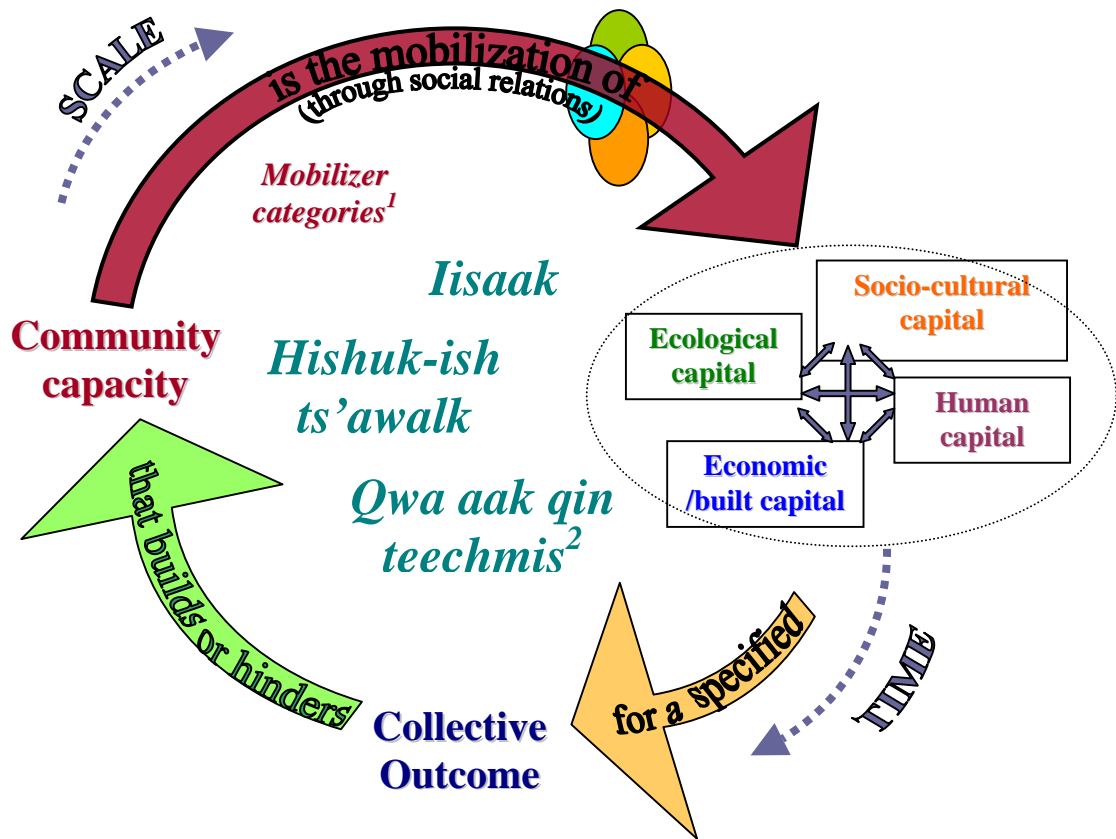


Figure 14: Modified conceptual framework of community capacity

¹Mobilizer categories: the existence of and changes to capital; individual traits; community consciousness; and, commitment.

²Teachings of the Nuuchahnulth First Nation: *Iisaak* (Respect); *Hishuk ish ts'awalk* (Everything is One); and, *Qwa aak qin teechemis* (Life in the Balance).

aspects of social capital. Social capital is now referred to as 'socio-cultural capital' to highlight the importance and intertwined nature of cultural capital and social capital, as emphasized in the focus groups and interviews.

This model is both temporal and spatial. Any community capacity generated at one point in time may either build and/or hinder aspects of subsequent incarnations of community capacity, with changes occurring on a daily basis. Capacity built at one scale may either build or hinder capacity at a different scale; for example, community capacity is high at the organizational level in Clayoquot Sound, but this strong ability to mobilize resources at this smaller, organizational scale has resulted in the hampering of capacity at the larger, municipal and regional scales.

The modified framework has also been adapted to reflect the teachings of the Nuu-chah-nulth people, the original inhabitants of the Clayoquot Sound Biosphere Reserve region, upon the suggestion of an Ahousaht First Nations interviewee, who noticed that the original framework of community capacity for this study embodied three Nuu-chah-nulth principles (CS3). This insight was greatly appreciated, and the modified framework displays the principles as permeating all facets of the continuing cycle of community capacity. The first is *Hishuk-ish ts'awalk*, or 'Everything is One,' which considers people, cultures, economies, and environments as interwoven, with the ability to impact one another; this philosophy parallels the interconnections of the capital resources, as suggested in the community capacity literature. The second is *lisaak*, meaning 'Respect' for all living beings, a necessary factor for building and maintaining community capacity. The third, reflective of the ultimate biosphere reserve goal of achieving sustainability through a balance of humans and their environments, is *Qwa aak qin teechmis*, or 'Life in the Balance.' These guiding philosophies have permeated the processes, documents, and management in the Clayoquot Sound region, but I believe that they complement and enhance understandings of community capacity in all contexts, and especially with respect to communities working towards the goals of sustainability within an ecosystem management framework.

Feedback loops exist between community capacity (a starting point, process, and outcome) and the biosphere reserve designation (an outcome and a starting point) in terms of its associated international status and expectations for communities to 'live up to.' The importance of the existence of, and changes to, capital resources also reflects the dual nature of community capacity as both a process and an outcome. For instance, it has been clear that the environment continues to be a great motivator for action in Clayoquot Sound, especially when changes or disturbances to the area's ecological capital are evident. The existence of wildlife inhabiting the Redberry Lake, particularly the bird populations, has led local people to create conservation measures and projects to address environmental concerns, such as the Redberry Pelican Project. The establishment of the Trust fund in Clayoquot Sound, in- or out-migration of human capital, and the presence of formal and informal social networks that facilitate action

through communication are other examples of how capital resources provide the incentive and/or capabilities for community capacity to be utilized.

Table 31 lists the dimensions of community capacity from the literature (refer to

Table 31: De/Mobilizers identified from the literature and in this study

<p>Dimensions of community capacity from the literature, considered de/mobilizers here:</p> <ul style="list-style-type: none"> ▪ Civic responsiveness ▪ Community values ▪ Divergent values of different generations ▪ Reluctance of retirees to change ▪ Sense of place ▪ Sense of community ▪ Understanding of community history ▪ Community power ▪ Neglecting needs of youth ▪ Citizen participation ▪ Commitment 	<p>De/Mobilizer categories:</p> <ul style="list-style-type: none"> } Individual traits } Community consciousness } Commitment
<p>Mobilizers identified in this study:</p> <ul style="list-style-type: none"> ▪ People ‘onside’ with/interested in the biosphere reserve ▪ ‘Thinking outside the box’ ▪ A recognition of the room for improvement coupled with a willingness to improve ▪ Leadership ▪ Thinking of future generations ▪ Engagement, motivation ▪ Community pride and appreciation ▪ Critical reflection through willing participation in research and/or processes ▪ Community control/attention from government, outside organisations, media ▪ Common vision ▪ Understanding of biosphere reserve concept and how it is relevant to one’s life ▪ Commitment to the region and/or people in the community 	<p>De/Mobilizer categories:</p> <ul style="list-style-type: none"> } Individual traits } Community consciousness } Commitment

Table 30) that do not easily fit into the capital resource categories, along with the mobilizers that emerged from the focus group assessments and field observations (recall Tables 19, 20, and 21). The listed dimensions from the literature speak to what motivates people to act, and were thus classified as mobilizers in the original community capacity framework (recall section 2.3.2). I argue that the mobilizers listed in Table 31³³ are important factors for building and using the potential of a community's capacity. The mobilizers may be grouped into the following three categories³⁴:

- individual traits;
- community consciousness; and,
- commitment.

The first category refers to individual traits that motivate others and encourage the use of resources for fulfilling biosphere reserve functions. These traits include the consideration of future generations, challenging mindsets, 'thinking outside the box,' engagement, leadership, interest in improving the collective good and working towards biosphere reserve goals, and willingness to work for community betterment. Second, community consciousness involves the ability to reflect upon and learn from past experiences, efforts to develop a collective vision, and awareness, both of one's resources and a biosphere reserve's purpose and functions. Finally, the third category refers to people's commitment to their community in terms of place and people.

To conclude, this research has contributed to established theory on community capacity by identifying a) mobilizers as the key driving components of capacity; and, b) specific mobilizing forces pertinent to biosphere reserve communities, grouped into three categories. This study suggests that all four capital resources may be evident in capacity building in both their static and process form; previous work only explicitly identified social capital as being part of the process of generating capacity. As well, this research identified the mobilizers and key elements of each capital resource that emerged as important contributors or hindrances to capacity in biosphere reserves.

³³ Please note that only the positive incarnation of each de/mobilizer is listed, therefore the table refers to 'mobilizers' as opposed to 'de/mobilizers.'

³⁴ Thank you to focus group participant C.2 for the suggestion to classify the mobilizers.

6.3 Methodological contributions

The methods of this study unveiled partial understandings when considered in isolation, highlighting the need for multiple methods to be drawn upon in studies of community capacity. Each approach to assessing a community's ability—community capacity and socioeconomic well-being—contributes insights that differ in breadth, depth, and emphasis toward a comprehensive understanding of the factors that enhance and constrain the collective ability to achieve shared goals. Linkages among the data that were gathered through various methods were identified, revealing similarities and differences in the type and substance of information that the methods exposed. Both the results of the assessments and the research process brought differing facets of community capacity to light. For one, it was found that conducting interviews and self-assessments, through focus groups, effectively identified key elements that constrained and hindered community capacity in the biosphere reserve regions. Community immersion was crucial for a more full appreciation of the social dynamics and intricacies of the regions. This ethnographic approach to research also enabled information to be gathered through the qualitative methods of interviews and focus groups, and appropriate Census subdivision boundaries for the quantitative SES assessment to be discerned.

Conducting research that is both community-based and academically sound is challenging, particularly as each places its own demands on the research purpose, researcher-participant relationship, methodological application, data collected, and analysis. While research purely for the advancement of knowledge and theory is beneficial, I believe that social science research should be accountable to the public, and be especially useful to the people it affects. Recently, I was inspired by the work of Nadine Crookes (Crookes 2003), the First Nations Program Manager for the PRNP Reserve. Her research on her Nuu-chah-nulth culture is responsive both to the pressing issues of the First Nations on the West Coast and to the need for greater understandings to be bridged amongst communities in the Clayoquot Sound region, particularly concerning the intertwined nature of culture and resource management. Her work illustrates how community-based research can be relevant to different groups of people and organizations at various scales, a goal I attempted to achieve with this research.

Key to building a community's capacity is to recognize and fortify a community's strengths. Assessment methods may facilitate such capacity building if methods are adaptive and inclusive to reflect local contexts, and pay heed to local interests. As Reed and Peters (2004) suggest, "research practices can and should be designed to embrace the uncertainty and partiality of knowledge creation as well as the dynamism of the research process by methods that are adaptive and resilient" (page unknown). Assessment tools need to be designed to illuminate community strengths, not only for policymakers, but also for residents; the interactive puzzle activity that was developed for this study is one example of such a tool. The puzzle proved effective in reframing this project to increase its meaningfulness for residents. The activity was also useful in facilitating the process of critical reflection required for self-assessments of community capacity.

In sum, two methodological approaches of assessing communities proved complementary in that their associated methods were sensitive to different sets of data distinguished by the type, breadth, and depth of information. A mixed methods approach that balances community and academic needs is the most effective for community capacity assessments.

6.4 The 'three-year switch'

From field observations, and upon reflecting on the data gathered, I propose that the biosphere reserve regions experienced a 'three-year switch,' where one was more successful than the other in terms of functioning as a biosphere reserve, until their positions were reversed in the third post-designation year.

In the first two years of their designations, Clayoquot Sound and Redberry Lake experienced different successes and challenges, in part due to differential local contexts concerning leadership, management strategies, and funding. Redberry Lake achieved successes with limited resources. Residents contributed to *A Community's Plan for Sustainability*, which has been held up as a model for all Canadian biosphere reserves. The Community Committee built relationships with academic institutions and individual researchers, brought in speakers to share information aimed to help the community with topics such as holistic management, and assisted with local and international student

internship projects. Their early successes may be attributed to the region's strong community spirit, high levels of cohesion, great ability to come together, and enthusiastic willingness to participate in research and biosphere reserve activities, out of both educational and personal interest. In short, strong social capital and a willingness to listen/be educated propelled the Redberry Lake biosphere reserve region forward in the first two years of designation in terms of meeting biosphere reserve goals.

Meanwhile, Clayoquot Sound broke some ground but, overall, struggled with its recent designation. Under its original leadership, the CBT copyrighted its name, held visioning sessions in various communities, produced informational articles about the biosphere reserve concept for the local paper on the West Coast (the *Westerly News*), and sought advice from an Advisory Committee, which was comprised of local residents. The CBT was then successful in hiring its second Executive Director in 2002, involving a consultation process with local interest groups and residents. After the change in leadership, the biosphere reserve experienced a greater acceptance by local residents by assuming a 'reaching out to the community' approach, while not being perceived as aligning themselves with a type of interest group.

Dissention within the community, fueled by recent memories and experiences of the 1993 logging conflict, led to conflicts pertaining to the biosphere reserve's vision and direction, and the use of the \$12 million Trust fund. Participation in CBT exercises was viewed as being motivated by self-interest, where people attended biosphere reserve visioning meetings with the purpose of making themselves heard, as opposed to listening and learning. A general distrust of the biosphere reserve designation further hampered efforts to successfully apply the principles of the designation, with misunderstandings of the concept compounded by the close resemblance to the name of the National Park of the region—the Pacific Rim National Park *Reserve* (my emphasis). Propaganda was also circulated, falsely warning about the controlling intentions of the United Nations that would manifest itself in an invasion of helicopters.

These community struggles were exacerbated at the organizational level, as the CBT experienced internal conflicts among members, which partly led to the resignation of its first Executive Director. The problems that were faced have been partly attributed to the approval of the Trust fund *before* the designation was granted, which prompted

stakeholders to join the CBT Board out of monetary interests (Fieldnotes, February 14, 2003). As a consequence, the CBT Board initially represented community factions, instead of those committed to the biosphere reserve concept, and willing to give their time and efforts for bettering the region (Fieldnotes, February 14, 2003). Subsequent changes to the CBT Board membership have attempted to address this problem. Another hindering factor was the 2001 market crash, which reduced the Trust fund, invested in stocks, to less than \$12 million dollars. Since the CBT had agreed to only spend the interest of the Trust fund, their financial hands were effectively tied by the loss of any interest the Trust fund had gained, impeding the facilitation and implementation of projects that would have operationalized the biosphere reserve concept.

However, the third year, 2003, saw a shift in the activities and momentum of the biosphere reserves, with Clayoquot Sound finally able to move forward as the benefits of the Trust began to be realized. A turning point in public perception and acceptance of the biosphere reserve occurred in the summer of 2003, when the CBT put out a call for community projects and was able to fund five, with a grant of \$10,000 each. June 2004 saw the third call for community proposals. These tangible benefits, combined with a policy of inclusion, created a broader acceptance of the biosphere reserve concept because of its relevance to community desires and goals.

Clayoquot Sound is now working toward realizing biosphere reserve functions because of the strong leadership of the CBT's second Executive Director, whose expertise is recognized by a generous salary. As well, the Trust has been able to support community efforts, by financing and creating projects and educational initiatives. Examples include the development of biosphere reserve interpretive tours at the Rainforest Interpretive Centre (RIC) in Tofino, and scholarships for youth still in school, which included the First Nations that were not officially supporting the biosphere reserve at the time (CS30). These initiatives have sparked interest in, and understanding of, the potential utility of biosphere reserves. In addition, a healing process to address long-held animosities began at the CBT level through several strategic policies. These include establishing a consensus decision making process, asking members to metaphorically leave their 'hats' at the door, and requiring people to 'park' extraneous,

potentially controversial issues to help people stick to the concerns at hand and not engage in arguments (CS30).

In the meantime, Redberry Lake is struggling with very limited financial resources to hire full-time staff, initiate and fund projects, and promote the biosphere reserve through educational activities like those that Clayoquot Sound has been able to support, such as the annual Clayoquot Sound Science Symposium and the continual updating of the CBT website. As a consequence, Redberry Lake is faced with possible stagnation (RL8a) and an inconsistent implementation of their Community Plan for Sustainability. The Community Committee is limited by a lack of funding, coupled with volunteer-burn out, the lack of a full-time employee, and a waning/lack of community support and interest in a biosphere reserve that is perceived to have not produced any tangible benefits to bettering local lives. They are, however, working with what they have, and are channeling their efforts toward several projects, one of which is to convert the Pelican Project Interpretive Centre by Redberry Lake into a Research and Education Centre, which will serve as the hub of biosphere reserve activity. Their part-time Coordinator continues to actively seek funding for this and other projects, with the main concern of the Community Committee being to acquire core funding.

Further, Reed (2004) uncovered the challenges some NGOs, such as the regional chapters of Nature Conservancy of Canada (NCC) and Ducks Unlimited Canada (DUC), have had in working in the Redberry Lake region. The NGOs described the biosphere reserve Committee as “‘unstructured’ and focused solely on obtaining operating funds, rather than finding ways to work together” (Reed 2004: 25). A mutual distrust has developed between some NGOs and the Community Committee, which, along with other factors, such as the predominance of private property regimes and lack of government oversight, has created the context for privately-driven environmental management practices, established largely in the absence of public debate (Reed 2004). This is contrary to the experience in Clayoquot Sound, where environmental management across industries in the region is closely monitored by NGOs and governments, at all scales from local to international, and is continually held accountable to the public.

Social cohesion—“the ‘glue’ that holds a community together” (Hancock *et al.* 1999: 12), or the “knitted warmth” (Buckler 1952, cited in Dayton-Johnson 2003) of a close group of people—emerged as an important theme of ‘togetherness’ in Redberry Lake. Reimer and Wilkinson (2003) define social cohesion as “the extent to which people respond collectively to achieve their valued outcomes and to deal with the economic, social, political, or environmental stresses (positive or negative) that affect them” (7). This definition fits well with the concept of community capacity, implying that cohesion is both a precondition to, and an outcome of, capacity building.

‘Perceived community cohesion’ refers to how close individuals feel to a group of people, which is relevant in the context of this research in that the community capacity self-assessments captured perceptions. Lev-Wiesel (2003) proposes that this type of cohesion consists of five elements: “a sense of belonging, social ties, solidarity, perceived social support, and rootedness” (335). Judging by the focus group data, the people of Redberry Lake are highly cohesive at both the group and community levels, despite divisiveness between ethnic and social groups. Given their high ratings and rankings of social capital, youth in both biosphere reserves had higher levels of social cohesion than adults. Drawing from the focus group data, Redberry Lake’s social cohesion is demonstrated and strengthened by such factors as small town values, a small population, a strong cultural heritage, religious bonds, continual willingness to volunteer, and a perpetual ability to hold a range of community events. Shared values among residents of Redberry Lake were evidenced in the almost identical order in which both adults and youth ranked the capitals. This community-level social cohesion that is associated with communal social relations, has, I suggest, been a major contributor to Redberry Lake’s community capacity to assume the responsibilities of the biosphere reserve designation.

Reimer and Wilkinson (2003) argue that there are types of social cohesion that correspond with the previously mentioned types of social relations. The qualitative data suggest that Clayoquot Sound has a lesser amount and a different type of social cohesion than Redberry Lake, one that is based on shared interests, goals, achievements, and values at the group/organizational level, related to associative social relations. Reimer and Wilkinson’s (2003) observation that, “A small group may be cohesive, but its very

cohesion can reflect fragmentation at a higher level of aggregation” (8) explains Betty’s observation that there exists a shared sense of purpose and values at the group/organizational level, but a lack of cohesiveness when the scale of inquiry broadens to the region (recall section 4.3.2.1).

Social cohesion promotes communication between people, as well as trust, caring, reciprocity, bonds, and mutual responsibility. I consider these factors as facilitating ecosystem management, in that they assist long-term relationship-building and respectful working conditions. The characteristics of ecosystem management, as defined by Cortner and Moote (1999)—collective decision-making, developing adaptable institutions, ensuring goals are socially constructed, and facilitating decision-making based on holistic science decision-making—require social cohesion at various scales for the creation and maintenance of community capacity. However, although social cohesion may be important for community capacity, it is evident that it is not the sole factor in ensuring the success of a biosphere reserve, as demonstrated by the decline in Redberry Lake’s activity and lack of local and political support.

From these observations, I argue that, while economic capital does not ensure a community’s success in working toward a common goal, it does play a key role in activating the other capitals beyond a time frame where social capital can be the primary driver for activity. This is based on the fact that Clayoquot Sound is now able to increase its profile and activity because of its \$12 million Trust fund, money that was originally a hindrance to the community’s ability to move forward due to internal politics and external pressures, while Redberry Lake’s activity peaked within the first three years, with its initial momentum driven by the community’s strong ability to work together, but then waning due to lack of financial and political support, as well as volunteer burnout. Thus, financial capital is crucial for building and maintaining capacity inherent in the community, over time, to fulfill biosphere reserve functions.

6.5 Policy and applied recommendations

Suggestions specific to the study sites are briefly mentioned before providing recommendations relevant to all Canadian biosphere reserves. First, the following recommendation has been brought up on the West Coast before (CS2), but deserves a

mention here. There has been so much research done in the Clayoquot Sound region that it might be worth compiling all of the assessments pertaining to values, behaviours, and perceptions to synthesize past efforts that have focused on what people think and why. Perhaps a closer examination of this research, in relation to historical events and environmental management practices, might be useful for conflict resolution as a means for healing by helping people to realize what they have in common. Turning to Redberry Lake, the Community Committee needs to strongly encourage more community-driven projects and not just those of researchers. Tangible projects and successes need to be highlighted so that people can rally around them and take pride in their area's achievements.

The challenges associated with a general lack of recognition and understanding of the biosphere reserve concept, faced by the study sites, are common to all Canadian biosphere reserves. Communities lack the regulatory responsibility and authority to institute and enforce biosphere reserve mandates at the local level. Biosphere reserve management and other residents may or may not be professionally-trained or educated about the issues of sustainability and models of ecosystem management. This unevenness of expertise across biosphere reserves is problematic in terms of how a region's resources are managed, and whether or not the expectations associated with the biosphere reserve status can be met.

To be successful in fulfilling their three functions, biosphere reserves need government recognition and support at all levels and, most importantly, steady, core financial support to propel their activities. Clayoquot Sound is unique in possessing funding and has consequently been able to forward biosphere reserve goals. The Canadian Biosphere Reserve Association addresses these challenges by helping sites "mobilize government agencies, industries, businesses and individuals needed to support economic and environmental well-being" (CBRA 2004: 1). It also supports community initiatives, encourages collaboration and information exchange through a regular newsletter and website, and coordinates national projects, such as the production of cooperation plans, which have been offered as a model to the UNESCO MAB Programme (Birtch 2004). Perhaps an additional project for CBRA could be to spearhead a campaign, asking researchers who have benefited from assistance by

biosphere reserve management to lend support to lobbying efforts to obtain core funding for all biosphere reserves in Canada.

Biosphere reserves should take advantage of research done on and in the area, and include time in administrative meetings to at least disseminate and briefly discuss completed research in the area, as researchers submit their findings, to increase awareness of research done and consider any recommendations. At the very least, research that is and has been done in the area should be reviewed while, at best, recommendations should be acted upon and findings incorporated into decision-making.

The ideal strategy for meeting biosphere reserve functions is to increase overall community capacity. The biosphere reserves can do this by focusing on key elements of capacity presented in this thesis and final framework, such as education, creating safe and open spaces, and conducting/facilitating regular community assessments through established partnerships. Connections may be made between what focus groups participants mentioned as areas in need of improvement, which may be addressed by what were mentioned as contributors to their capital resources. Such associations may help to determine the possibilities of how to draw on a biosphere reserve region's strengths, in order to address needs while building capacity.

The following recommendations are especially relevant to biosphere reserves that are either in the early stages of their designation or in need of increasing their public profile. I found that self-assessments of community capacity in biosphere reserves using the focus group method were most effective when they are:

- conducted with people knowledgeable about their community and the topic(s) at hand;
- done at times when the community/community-based organizations are undergoing a period of self-reflection;
- scheduled in tandem with a social event or a meeting, with a focus on public outreach and education, as well as the provision of food/refreshments as an incentive to attend and mood-setter;

- tailored to the community by consulting with community leaders (such as biosphere reserve management, local government, and non-governmental organizations);
- presented as meaningful to the daily lives of people; and,
- inclusive in their sampling procedures, but also realistic about how comfortable certain people might feel around each other, since making people comfortable enough to share their experiences and opinions without fear of retribution is key to generating meaningful discussion.

This study demonstrated that focus groups for conducting self-assessments of community capacity can be highly effective in creating a forum for discussion centred on the biosphere reserve concept, as well as in helping people recognize the connections between their abilities and biosphere reserve functions. Adding an activity, such as the ‘Build your own biosphere reserve’ puzzle, proved to increase the effectiveness of the assessment process for residents. To augment the focus group findings, conducting interviews are useful for exploring the results in detail. If modified for the local context and employed over time, the methods described in this thesis can be decision-making tools at a community’s disposal to monitor social change, attitudes, and perceptions toward a given topic. However, these assessments are only effective if they are linked and integrated into decision-making processes.

6.6 Limitations, and implications for future research

There were delimitations and limitations to this research. The delimitations were meeting community and academic timeframes and needs, which imposed constraints on financial resources, time, and human resources available for fieldwork. As well, my identity and positioning as a young, female, visible minority student/researcher, who developed relationships with residents in the study areas, could have affected my results in ways in which I am both aware, and probably also unaware. Some examples illustrate this point. What people chose to share with me, the focus group moderator and community observer, partially depended on how much they were comfortable with, and trusted, me. Perhaps people restrained themselves from being completely honest to

spare my feelings or because of my friendships with people in the area. Also, as discussed in section 3.3.2, I was not exposed to all viewpoints that might have shed light on the research question. That I was studying biosphere reserves (and thus associated with biosphere reserves by the public) might have led those disillusioned with researchers, or unhappy with/having no interest in the biosphere reserve designation, to self-select themselves out of the research process. I adopted a reflexive approach, which involved continually reflecting upon my values, strategies, and beliefs in a conscious effort to present myself and the study in appropriate and socio-culturally meaningful ways. However, even with these attempts, I was still unable to hold a focus group with First Nations youth, as I had hoped. My belief that community-based research should be useful to those being researched led me to search for findings that would provide positive feedback to them, and made me mindful of how I presented my results and portrayed the study sites. These are just some examples of issues of “the role of the researcher in the research encounter and the nature of power relations” (England 1994: 74) that I experienced during the research process.

The main limitation pertains to the uncertainty that the self-assessments of community capacity are, in fact, reflective of ‘true’ capacity, which remains unknown, as the theory on community capacity is still developing. There is no certain correlation between behaviour and perceptions given in self-assessments. The qualitative self-assessments were purposely left open-ended so that participants could define community capacity for themselves by identifying specific elements of capacity within a skeletal conceptual framework. As such, the community capacity assessments do not yield a positivist ‘true’ capacity assessment, where elements of capacity can be defined in terms of the existence and quality of a resource, based on criteria with an assumption of an ideal state. Nonetheless, ascertaining perceptions is a valuable exercise, because how people perceive a problem predicates how they will deal with the problem; thus, actions are, to some extent, based on perceptions.

There are many directions in which future research could go, due to the partly exploratory nature of current research on community capacity. Studies are needed to firmly establish theory on the intricacies of community capacity, as well as its implications for assessment in different contexts and for different community outcomes.

Connections between community capacity and social cohesion might prove useful to explore, as social cohesion emerged as an important theme in this research.

Additionally, specific attention needs to be paid to the linkages between methods to ascertain the overlapping and divergent facets of community capacity, as revealed by different means of data collection.

Further, explorations of gendered differences of how people view and mobilize resources would contribute to theoretical understandings of gendered perceptions and capacities. Practically, an analysis of whether different methods elicit levels of gendered participation level would help researchers/community groups come to terms with the most appropriate methods to use when conducting community assessments.

As well, it would be useful to compare the responses of interviewees who also participated in focus groups, to examine any similarities and differences. This would open the door for addressing many questions. Acknowledging that people position themselves, one could ask, what do differences in responses imply about the social dynamics in the community? Can we infer that certain methods produce certain types of positioning by research participants? Do the social dynamics displayed in the focus groups and interviews reflect how people act in public on a regular basis? One can speculate that the way people represent themselves in a focus group may be more honest and representative of their actions because a focus group is a context where people may be checked by their peers. The contrary argument to this is that power dynamics play a strong role in allowing the privileged to speak unchallenged, where people may be less likely to speak openly in front of those they view as an authority. Given that this study found that adopting a mixed methods approach revealed different types of insight, such research would help determine what mix of methods would be most effective in a given situation.

In this thesis, I advanced the conceptualization of community capacity and shared my experience in applying both quantitative and qualitative methods in community-based research. It was found that the data produced through qualitative methods provides rich data on which to base an understanding of the influencing factors on the community capacity of biosphere reserves, despite methodological issues. Furthermore, positive outcomes from the results and the research process can be

achieved if the research is truly community-based, by respecting and caring about community needs and interests as was affirmed by a First Nations key informant from Clayoquot Sound:

...in the many years that I have been working for non-profits and the government I have been exposed to more master's students than I care to remember. Often, I find myself disillusioned with the seemingly academic inability to truly "listen", and attempt to "comprehend" and analyze within the context of the information that has been shared. You have demonstrated to me that participating in a master's thesis can be meaningful, valuable and inspirational – in essence, you have given me a replenished hope in academia and for that I THANK YOU!

(Email correspondence, January 21, 2004, CS20)

Research methodologies need to be adaptive, malleable enough to be responsive to community needs and desires, meet standards of academic credibility, and allow critical reflexivity (see England 1994) to inform the research process. Assessing community capacity through the application of multiple methods, with an emphasis on qualitative approaches, can meet research needs while also creating positive social change for the people of study. A theoretical understanding of community capacity, one that accounts for capital resources, mobilizing forces, historical and local contexts, and subsequent outcomes, can provide a solid foundation upon which to base these assessments.

REFERENCES

- Ack, B.L., Daly, C., Everett, Y., Mendoza, J., Mitsos, M., and R. Ochs. 2001. The Practice of Stewardship: Caring for and Healing Ecosystems and Communities. In *Understanding Community-Based Forest Ecosystem Management Part I*. G.J. Gray and M.J. Enzer (eds.). *Journal of Sustainable Forestry*, 12 (3/4).
- Ameyaw, S. 2000. Downloaded 2003. *Presenting a contingency model for CED decision making: selecting CED capacity assessment methods*. Burnaby, BC: Simon Fraser University Community Economic Development Centre.
- Auty, R.M. 1995. *Patterns of Development: Resources, Policy and Economic Growth*. London, UK and New York, NY: Edward Arnold.
- Beckley, T.M., Nadeau, S., Wall, E., and D. Martz. 2002. *Multiple capacities, multiple outcomes: delving deeper into the meaning of community capacity*. Draft paper, presented at the annual meeting of the Rural Sociological Society.
- Beckley, T. M. and T.M. Burkosky. 1999. *Social indicator approaches to assessing and monitoring forest community sustainability*. Canadian Forest Service Northern Forestry Centre Information Report, NOR-X-360.
- Beckley, T.M. and E.C. Murray. 1997. *Sustainability for whom? Social indicators for forest-dependent communities in Canada*. Edmonton, AB: Sustainable Forest Management Network Centre of Excellence. Research proposal.
- Bengston, D.N., Xu, G., and D.P. Fan. 2001. Attitudes toward ecosystem management in the United States, 1992-1998. *Society and Natural Resources*, 14(6): 471-487.
- Berkes, F., Folke, C., and M. Gadgil. 1994. Traditional ecological knowledge, biodiversity, resilience, and sustainability. In *Biodiversity Conservation*, C. Perrings, G. Mäler, C. Folke, C.S. Hollings, and B.O. Janson (eds), 269-287. Dordrecht, The Netherlands: Kluwer Academic Publications.
- Birtch, J. 2004. CBRA Annual Meeting – 2003. *Biosphere Reserves in Canada* Newsletter No. 16, January. Canadian Biosphere Reserves Association (CBRA).
- Bliss, J.C., Walkingstick, T.L., and C. Bailey. 1998. Development or dependency? Sustaining Alabama's forest communities. *Journal of Forestry*, 98(3): 24-30.
- Bookwalter, J.T. and D. Dalenberg. 2004. Subjective wellbeing and household factors in South Africa. *Social Indicators Research*, 65(3): 333-353.
- Bryman, A. 2001. *Social research methods*. New York: Oxford University Press.
- Buckler, E., 1952. *The Mountain and the Valley*. Toronto, ON: McLelland and Stewart.

- Burch, R.D. 1994. Municipal reporting on sustainable development: a status review. *National Round Table on the Environment and the Economy*, Ottawa, ON, Working Paper 24.
- Burt, R.S. 1998. The gender of social capital. *Rationality and Society*, 10(1): 5-46.
- CBRA. [Canadian Biosphere Reserves Association.] Downloaded 2004. *About CBRA*. [Online. <http://www.biosphere-canada.ca/about.htm>.]
- _____. Downloaded 2003. *Canadian Biosphere Reserves Association home page*. [Online: <http://www.biosphere-canada.ca/home.asp>.]
- CBT. [Clayoquot Biosphere Trust.] 2000. *Zonation map of the Clayoquot Sound Biosphere Reserve*. [Home page: <http://clayoquotbiosphere.org/>.]
- Chaskin, R.J. 2001. Building community capacity: A definitional framework and case studies from a comprehensive community initiative. *Urban Affairs Review*, 36(3): 291-323.
- Claridge, C. 1998. Rural women: decision making and leadership within environmental and landcare groups. *Rural Society*, 8(3): 183-196.
- Collados, C. and T.P. Duane. 1999. Natural capital-quality of life: a model for evaluating the sustainability of alternative regional development paths. *Ecological Economics*, 30: 441-460.
- Common, M. 1995. *Sustainability and Policy: Limits to Economics*. Cambridge: Cambridge University Press.
- Copus, A.K. and J.R. Crabtree. 1996. Indicators of socio-economic sustainability: An application to remote rural Scotland. *Journal of Rural Studies*, 12(1): 41-54.
- Côté, S. 2001. The Contribution of Human and Social Capital. *Isuma, Canadian Journal of Policy Research*, 2(1). The English translation can be found at http://www.isuma.net/v02n01/cote/cote_e.shtml.
- Cortner, H.J. and M.A. Moote. 1999. *The Politics of Ecosystem Management*. Washington, D.C.: Island Press.
- Crabbe, P., Lagarec, D., and D. Winslow. 1995. *Developing indicators of forest community sustainability in relation to forestry*. Research proposal. Sustainable Forest Management Network Centre of Excellence, Edmonton, AB.
- Crabbe, P. 1996. Indicators of forest community sustainability. In *Sustainable forestry partnerships: forging a network of excellence*. Conference summaries. Sustainable Forest Management Network Centre of Excellence, Edmonton, AB.

- CRB. [Central Region Board.] Downloaded 2004. *What are Interim Measures Agreements?* [Online: <http://www.island.net/~crb/interim%20agreement.htm>.]
- Crookes, N. 2003. *First Nations Perspectives on Coastal Planning*. Clayoquot Science Symposium: Citizen Science and Community Health, November 25-28. Clayoquot Alliance for Research, Education and Training, Tofino, BC.
- Crowe, G. and G. Allan. 1994. *Community Life: An Introduction to Local Social Relations*. New York, NY: Harvester Wheatsheaf.
- Danter, K.J., Griest, D.L, Mullins, G.W., and E. Norland. 2000. Organizational change as a component of ecosystem management. *Society and Natural Resources*, 13: 537-547.
- Dayton-Johnson, J. 2003. Knitted warmth: the simple analytics of social cohesion. *Journal of Socio-Economics*, 32: 623-645.
- Deutch, L., Folke, C., and K. Skånberg. 2000. *The critical natural capital of ecosystem performance as insurance for well-being. Working Paper II, Final Paper*. In the context of a CRITINC project funded by DGXII, 'Making Sustainability Operational: Critical Natural Capital and the Implications of a Strong Sustainability Criterion (CRITINC). For EU Environment and Climate RTD Programme – Theme 4: Human Dimensions of Environmental Change.
- Diener, E., Suh, E.M., and Lucas, R.E., and H.L. Smith. 1999. Subjective wellbeing: three decades of progress. *Psychology Bulletin*, 125(2): 276-302.
- Doak, S. and Kusel, J. 1996. Well-being in forest-dependent communities, Part II: A social assessment focus. *Sierra Nevada Ecosystem Project: Final report to Congress, vol. II, Assessments and scientific basis for management options*. Davis, CA: University of California, Centers for Water and Wildland Resources.
- Drielsma, J. H. 1984. *The Influence of Forest-based Industries on Rural Communities*. PhD dissertation. Yale University, School of Environmental Studies and Natural Resources.
- Ecocanada. Downloaded 2001. *Redberry Lake Biosphere Reserve*. [Online: <http://www.ecocanada.ca/redberry/biosphere/RLBR.htm>.]
- Ender-Wada, J., Blahna, D., Krannich, R., and M. Brunson. 1998. A framework for understanding social science contributions to ecosystem management. *Ecological Applications*, 8: 891-904.
- England, K. 1994. Getting Personal: Reflexivity, Positionality and Feminist Research. *The Professional Geographer*, 46(1): 80-89. (Reprinted in 1997, *Reading Human Geography: The Poetics and Politics of Inquiry*, T. Barnes and D. Gregory (eds.), 69-79. London, New York, Sydney and Auckland: Edward Arnold).

- Environment Canada. 2001. The making of the Clayoquot Sound Biosphere Reserve. Downloaded May 2004. News Release – Archive. [Online: http://www.ec.gc.ca/press/000505-3_b_e.htm.]
- Etheridge, P. 2004. Bay of Fundy, New Brunswick – Progress Report. *Biosphere Reserves in Canada Newsletter*. No. 16, January 2004. Canadian Biosphere Reserves Association (CBRA).
- Falk, I. and S. Kilpatrick. 2000. What is social capital? A study of interaction in a rural community. *Sociologia Ruralis*, 40(1): 87-110.
- FEMAT. [Forest Ecosystem Management Assessment Team.] 1993a. *Forest ecosystem management: an ecological, economic, and social assessment*. Washington, DC: Government Printing Office.
- _____. 1993b. What We Learned About Rural Communities. *Northwest Forest Plan Documents*. Forest Ecosystem Management: An Ecological, Economic, and Social Assessment. Chapter VII of the *Report of the Forest Ecosystem Management Assessment Team*. Downloaded 2004. [Online: http://pnwin.nbio.gov/nwfp/FEMAT/Chapter_7/7-5.htm#d1.]
- Flora, J.L. 1998. Social capital and communities of place. *Rural Sociology*, 63(4): 481-506.
- Flora, C.B. 1999. Sustainability of human communities in prairie grasslands. *Great Plains Research*, 9: 397-419.
- _____, Flora, J.L., Spears, J., Swanson, L., Weinberg, M., and M. Lapping. 1992. *Rural Communities: Legacy and Change*. Boulder, CO: Westview Press.
- Force, J.E. and G.E. Machlis. 1997. The human ecosystem part II: social indicators in ecosystem management. *Society and Natural Resources*, 10: 369-382.
- Freemuth, J. 1996. The emergence of ecosystem management: reinterpreting the gospel? *Society and Natural Resources*, 9: 411-417.
- Gill, I. Downloaded 2004. A Strategy for Clayoquot Sound. Promotional piece on *Seeing the Ocean Through the Trees: A Conservation-based Development Strategy for Clayoquot Sound*, available from Ecotrust Canada. Site hosted by British Columbia Environmental Network. [Online: <http://www.bcen.bc.ca/bcerart/Vol8/astateg.htm>.]
- Glaeser, E.L. 2001. The formation of social capital. *Isuma*, Spring: 34-40.
- Goodman, R.M., Speers, M.A., McLeroy, K., Fawcett, S., Kegler, M., Parker, E., Smith, S.R., Sterling, T.D., and N. Wallerstein. 1998. Identifying and defining the dimensions of community capacity to provide a basis for measurement. *Health Education & Behavior*, 25(3): 258-278.

- Gottret, M.V. and D. White. 2001. Assessing the impact of integrated natural resource management: challenges and experiences. *Conservation Ecology*, 5(2): 17. [Online: <http://www.consecol.org/vol5/iss2/art17>.]
- Grumbine, R.E. 1994. What is ecosystem management? *Conservation Biology*, 8: 27-39.
- Haegle, C. 2001. *Directory of non-profit organisations in the Clayoquot Sound UNESCO Biosphere Reserve Region Community*. Tofino, BC: Clayoquot Biosphere Trust.
- Hall, C. M. 1999. Rethinking collaboration and partnership: a public policy perspective. *Journal of Sustainable Tourism*, 7(3/4): 274-289.
- Hamel, J. 2001. The focus group method and contemporary French sociology. *Journal of Sociology*, 37(4): 341-353.
- Hancock, T., Labonte, R., and R. Edwards. 1999. *Indicators that Count! Measuring Population Health at the Community Level*. Unpublished final draft, June 2, 1999, received personally from R. Labonté. To be published by Centre for Health Promotion, University of Toronto, and ParticipACTION.
- Harris, C.C., McLaughlin, W.J., and G. Brown. 1998. Rural communities in the Interior Columbia Basin: How resilient are they? *Journal of Forestry*, 96(3): 11-15.
- Helliwell, J.F. 2003. How's life? Combining individual and national variables to explain subjective well-being. *Economic Modeling*, 20(2): 331-360.
- _____. 2001. Social capital, the economy and well-being. In *The Review of Economic Performance and Social Progress Institute for Research on Public Policy and Centre for the Study of Living Standards, Volume 1*. K. Banting, A. Sharpe, and T. St.-Hilaire (eds.). Centre for the Study of Living Standards and the Institute for Research on Public Policy. Montreal, QC and Ottawa, ON: McGill-Queen's University Press. [Online: <http://www.csls.ca/repsp/repsp1.asp>.]
- Hempel, L.C. 1999. Conceptual and Analytical Challenges in Building Sustainable Communities. In *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*, D.A. Mazmanian and M.K. Kraft (eds.), 43-74. Cambridge, MA: The MIT Press.
- Henderson, H. 1994. Paths to sustainable development: the role of social indicators. *Futures*, 26(2): 125-137.
- Hoepfl, M. 1997. Choosing Qualitative Research: A Primer for Technology Education Researchers. *Journal of Technology Education*, 9(1), 2-39. [Online: <http://scholar.lib.vt.edu/ejournals/JTE/v9n1/hoepfl.html>.]

- Holbrook, B. and P. Jackson. 1996. Shopping around: focus group research in North London. *Area*, 28(2): 136-142.
- Hsieh, C.M. 2004. Income and financial satisfaction among older adults in the United States: advantages and disadvantages to linking income and wellbeing. *Social Indicators Research*, 66(3): 249-266.
- Humphrey, C.R. 1990. Timber-dependent communities. In *American Rural Communities*, A.E. Lullof and L.E. Swanson (eds.), 34-61. Boulder, CO: Westview Press.
- IBA Canada. [Important Bird Areas of Canada.] 2003. *IBA Site Summary: Redberry Lake*. [Online: <http://www.bsc-eoc.org/iba/site.cfm?siteID=SK005&lang=en>.]
- Imperial, M. 1999. Institutional analysis and ecosystem-based management: the institutional analysis and development framework. *Environmental Management*, 24(4): 449-465.
- Jackson, S.F., Cleverly, S., Poland, B., Burman, D., Edwards, R., and A. Robertson. 2003. Working with Toronto neighbourhoods toward developing indicators of community capacity. *Health Promotion International*, 18(4): 339-350.
- Johnson, T.G and J.I. Stallman. 1994. Human capital investment in resource dominated economies. *Society and Natural Resources*, 7: 221-233.
- Kay, J. and E. Schneider. 1994. Embracing complexity: The challenge of the ecosystem approach. *Alternatives*, 20: 32-39.
- Kingsmill, P. 2001. *15 Years: 15 years towards sustainable development at The Redberry Lake Biosphere Reserve 1988-2002*. Hafford, SK: Unpublished.
- Kitchin, R. and N.J. Tate. 2000. Analyzing and interpreting qualitative data. In *Conducting Research into Human Geography: Theory, Methodology and Practice*, R. Kitchin and N.J. Tate (eds.), 229-256. Harlow, England: Prentice Hall.
- Kritzinger, A. 2000. Teenage girls on South African farms: perceptions and experiences of farm life and future expectations. 30 July-5 August, Brazil, Paper presented at the Xth World Congress of Rural Sociology.
- Krueger, R.A. and M.A. Casey. 2000. *Focus Groups: A practical guide for applied research, 3rd edition*. Thousand Oaks, CA, London, UK, New Delhi, India: Sage Publications, Inc.
- Kruger, L.E. and M.A. Shannon. 2000. Getting to know ourselves and our places through participation in civic social assessment. *Society and Natural Resources*, 13: 461-478.

- Kunstler, J.H. 1996. *Home from Nowhere: Remaking Our Everyday World for the Twenty-First Century*. New York: Simon and Schuster.
- Kusel, J. 1996. Well-being in forest-dependent communities. Part I: A new approach. *Sierra Nevada ecosystem project: final report to Congress. Vol. II, Assessments and scientific basis for management options*, 361-373. Davis, CA: Centre of Water and Wildland Resources, University of California.
- Kusel, J. 2001. Assessing well-being in forest dependent communities. In *Understanding Community-Based Forest Ecosystem Management*, G.J. Gray, M.J. Enzer, and J. Kusel (eds.), 359-382. New York, London and Oxford: The Haworth Press.
- Lev-Wiesel, R. 2003. Indicators constituting the construct of 'perceived community cohesion.' *Community Development Journal*, 38(4): 332-343.
- Lincoln, Y.S. and E.G. Guba. 1985. *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
- Lochner, K., Kawachi, I. and B.P. Kennedy. 1999. Social capital: a guide to its measurement. *Health & Place*, 5: 259-270.
- Machlis, G.E., Force, J.E., and R.G. Balice. 1990. Timber, minerals, and social change: An exploratory test of two resource dependent communities. *Rural Sociology*, 55(3): 441-424.
- Marchak, P. 1990. Forest industry towns in British Columbia. In *Community and Forestry: Continuities in the Sociology of Natural Resources*, R.G. Lee, D.R. Field, and W.R. Burch Jr. (eds.), 95-106. Boulder CO: Westview Press.
- Maxim, P.S., White, J.P., and P.C. Whitehead. 2001. *Toward an index of community capacity: predicting community potential for successful program transfer*. Discussion Paper No. 01-3. First Nations Social Cohesion Project. London, ON: Population Studies Centre, University of Western Ontario. [Online: <http://www.ssc.uwo.ca/sociology/popstudies/dp/dp01-2.pdf>.]
- Mazmanian, D.A. and M.K. Kraft. 1999. The Three Epoch of the Environmental Movement. In *Toward Sustainable Communities: Transition and Transformations in Environmental Policy*, D.A. Mazmanian, and M.K. Kraft (eds.), 3-42. Cambridge, MA: The MIT Press.
- McDonough, W. 1992. *The Hannover Principles: Designing for Sustainability. A Report to the City of Hannover, Germany (a guide for international design competitions for EXPO 2000)*. Hannover, Germany.
- McKnight, J. 1995. *The Careless Society: Community and its Counterfeits*. New York, NY: Basic Books.

- Mitchell, B. 1997. *Resource and Environmental Management*. Harlow: Addison Wesley Longman Ltd.
- _____. 2002. *Resource and Environmental Management*. Harlow: Prentice Hall.
- Mohan, G. and K. Stokke. 2000. Participatory development and empowerment: the dangers of localism. *Third World Quarterly*, 21(2): 247-268.
- MSRM. [Ministry of Sustainable Resource Management.] Site updated 1996. 10 Key Points on the Clayoquot Sound Land Use Decision. Province of British Columbia, Resources Management Division. [Online: <http://srmwww.gov.bc.ca/rmd/specialprojects/clayoquot/10-point.htm>.]
- Myers, D.G. and E. Diener. 1995. Who is happy? *Psychological Science*, 6(1): 10-19.
- Nadeau, S., Schindler, B., and C. Kakoyannis. 1999. Forest communities: new frameworks for assessing sustainability. *Forestry Chronicle*, 75(5): 747-754.
- Nadeau, S. 2002. *Characterization of community capacity in a forest-dependent community: the case of the Haut-St.-Maurice*. Ph.D. dissertation. Corvallis, OR: Oregon State University.
- Naqvi, K. 2004. *Options for Evaluating and Teaching Ecosystem and Human Well-Being: The Wellbeing Index*. Paper presented at Canadian Association of Geographers (CAG) Annual Meeting. Moncton, New Brunswick, 26-30 May 2004.
- Olson, L.M., Lara, M., and M.P. Frintner. 2004. Measuring health status and quality of life for US children: relationship to race, ethnicity, and income status. *Ambulatory Pediatrics*, 4(4): 337-386. Supplementary issue, S, July to September 2004.
- Olsson, P. and Folke, C. 2001. Local ecological knowledge and institutional dynamics for ecosystem management: a study of Lake Racken watershed, Sweden. *Ecosystems*, 4: 85-104.
- Parkins, J. 1999. Enhancing social indicators research in a forest-dependent community. *The Forestry Chronicle*, 75(5): 771-780.
- _____, Stedman, R.C., and T.M. Beckley. 2003. Forest sector dependence and community well-being: a structural equation model for New Brunswick and British Columbia. *Rural Sociology*, 68(4): 554-572.
- _____, Stedman, R.C., and J. Varghese. 2001a. Moving towards local-level indicators of sustainability in forest-based communities: a mixed-method approach. *Social Indicators Research*, Author's Proof: 1-23.

- _____. Varghese, J., and R. Stedman. 2001b. *Locally defined indicators of community sustainability in the Prince Albert Model Forest*. Information Report NOR-X-379. Canadian Forest Service, Northern Forestry Centre.
- Pennington, M. and Y. Rydin. 2000. Public participation and local environmental planning: the collective action problem and the potential of social capital. *Local Environment*, 5(2): 153-169.
- Pini, B. 2002. Focus groups, feminist research and farm women: opportunities for empowerment in rural social research. *Journal of Rural Studies*, 18: 339-355.
- Platt, R.H., Rowntree, R.A., and P. Muick, (eds.) 1996. *The Ecological City: Preserving and Restoring Urban Biodiversity*. Amherst: University of Massachusetts Press.
- Power, T.M. 1996. *Lost landscapes and failed economies: the search for a value of a place*. Washington, DC: Island Press.
- Putnam, R. 2001. Social capital: measurement and consequences. *Isuma*: 41-51.
- Quigley, T.M., Haynes, R.W., and R.T.T.E. Graham. 1996. *Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin and Portions of the Klamath and Great Basins. General technical report. PNW-GTR-382*. Portland, OR: USDA Forest Service, Pacific Northwest Research Station.
- Raedeke, A.H., Rikoon, J.S., and C. Nilon. 2001. Ecosystem management and landowner concern about regulations: a case study in the Missouri Ozarks. *Society and Natural Resources*, 14: 741-759.
- Reed, M.G. 2004. Submitted. Environmental management and social equity: A Canadian comparative political ecology. *Human Organization*.
- _____. 1995. Cooperative Management of Environmental Resources: A case Study from Northern Ontario, Canada. *Economic Geography*, 71(2): 132-149.
- _____. and E.V. Peters. 2004. In press. Using an ecological metaphor to build adaptive and resilient research practices. *ACME: An International E-Journal for Critical Geographers*, 31(1): pages unknown.
- Reimer, B. 2002. *Understanding Social Capital: Its Manifestations and Nature in Rural Canada*. Unpublished Report. [Online: http://nre.concordia.ca/nre_reports.htm.]
- _____. and D. Wilkinson. 2003. *Understanding Social Cohesion: its nature and manifestations in Rural Canada*. Paper presented at the Rural Sociological Society Meetings, June 13, Montréal, QC.
- Roe, E. and M. Van Eeten. 2001. Threshold-based resource management: a framework for comprehensive ecosystem management. *Environmental Management*, 27(2): 195-214.

- Roseland, M. 2002. Natural capital and social capital: Implications for sustainable development. In *Communities and Sustainable Development Across Canada*, Pierce, J. and A. Dale (eds.), 190-207. Vancouver, BC: University of British Columbia Press.
- Rudd, M.A. 2000. Live long and prosper: collective action, social capital and social vision. *Ecological Economics*, 34(234): 131-144.
- Schiller, A., Hunsaker, C.T., Kane, M.A., Wolfe, A.K., Dale, V.H., Suter, G.W., Russell, C.S., Pion, G., Jensen, M.H., and V.C. Konar. 2001. Communicating ecological indicators to decision makers and the public. *Conservation Ecology* 5(1): 19. [Online: <http://www.consecol.org/vol5/iss1/art19>.]
- Schmutz, J.K. 1999. *Community Conservation Plan for the Redberry Lake Important Bird Area*. Saskatoon, SK: Centre for Studies in Agriculture, Law and the Environment (CSALE), University of Saskatchewan.
- Schuller, T. 2001. The complementary roles of human and social capital. *Isuma*, Spring: 18-24.
- Sen, A. 1984. *Resources, values, and development*. Cambridge: Harvard University Press.
- _____. 1985a. Well-being, agency, and freedom (the Dewey lectures). *Journal of Philosophy*, 82(4): 169-221.
- _____. 1985b. *Commodities and capabilities*. Professor Dr. P. Hennipan Lectures in Economics, Vol. 7. New York, NY: North Holland.
- _____. 1987. *The standard of living*. Hawthorn, G. (ed.). Cambridge, UK: Cambridge University Press.
- _____. 1990. *Individual freedom as a social commitment*. New York Review of Books, 14 June.
- _____. 1993. Capability and well-being. In *The quality of life*, Nussbaum, M.C. and A. Sen (eds.), 30-53. Oxford, UK: Clarendon Press.
- Serageldin, I. 1995. *Sustainability and the Wealth of Nations: First Steps in an Ongoing Journey (Draft)*. Paper presented at the Third Annual World Bank Conference on Environmentally Sustainable Development. Washington, DC.
- Shannon, C.Z. and W. Weaver. 1963. *The Mathematical Theory of Communication*. Urbana, IL: University of Illinois Press.
- Sian, S. 2001. *Redberry Lake Biosphere Reserve: A Community's Plan for Sustainability*. Prepared on behalf of the Community Committee for Redberry

- Lake Biosphere Reserve, March 31, 2001, Hafford, Saskatchewan. [Online: http://www.biosphere-canada.ca/publications/reports/RLBR_SCP.pdf.]
- _____. 2000. *The Quest for Functionality in Canadian Biosphere Reserves: A Process Companion*. Master's thesis. Calgary, AB: Faculty of Environmental Design, University of Calgary.
- Slocombe, D.S. 1998. Defining goals and criteria for ecosystem-based management. *Environmental Management*, 22(4): 483-493.
- Smith, J.K., and L. Heshusius. 1986. Closing down the conversation: The end of the quantitative-qualitative debate among educational inquirers. *Educational Researcher*, 15: 4-12.
- Statistics Canada. 2001. *Community Profiles*. Census 2001. [Online search: <http://www12.statcan.ca/english/profil01/PlaceSearchForm1.cfm>.]
- Steel, B.S. and E. Weber. 2001. Ecosystem management, decentralization, and public opinion. *Global Environmental Change*, 11: 119-131.
- Stern, A. 1997. Capital theory approaches to sustainability: A critique. *Journal of Economic Issues*, March.
- Strauss, A. 1987. *Qualitative Analysis for Social Scientists*. New York, NY: Cambridge University Press.
- _____. and J.M. Corbin. 1990. *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*. Newbury Park, CA: Sage Publications.
- Tashakkori, A. and C. Teddlie. 1998. *Mixed Methodology: Combining Qualitative and Quantitative Approaches*. Applied Social Research Methods Series, Volume 46. Thousand Oaks, London, New Delhi: Sage Publications.
- Tigges, L, Browne, I. and G. Green. 1998. Social Isolation of the Urban Poor: Race, Class, and Neighborhood Effects on Social Resources. *The Sociological Quarterly*, 39: 53-77.
- Turner, K.R. 1995. Environmental economics and management. In *Environmental Science for Environmental Management*, T. O'Riorden (ed.), 30-44. Harlow: Longman Scientific and Technical.
- UNESCO. [United Nations Educational, Scientific, and Cultural Organisation.] Downloaded 2004a. Frequently asked questions on biosphere reserves: How are biosphere reserves organized? Biosphere Reserve Zonation. [Online: <http://www.unesco.org/mab/nutshell.htm>.]

- _____. Downloaded 2004b. UNESCO-MAB Biosphere Reserves Directory. Clayoquot Sound and Redberry Lake, accessed from the Canada site. [Online: <http://www2.unesco.org/mab/br/brdir/directory/contact.asp?code=CAN>]
- _____. Downloaded 2003. *The MAB Programme: People living in and caring for the biosphere*. [Online: <http://www.unesco.org/mab/slideshow.htm>.]
- UNDESA. [United Nations Department of Economic and Social Affairs.] 1992. *Earth Summit: Agenda 21*. [Online: <http://www.un.org/esa/sustdev/documents/agenda21/index.htm>.]
- Van der Ryn, S. and P. Calthorpe. 1986. *Sustainable Communities: A New Design Synthesis for Cities, Suburbs, and Towns*. San Francisco: Sierra Club Books.
- Veenstra, G. 2001. Social capital and health. *Isuma*, Spring: 72-81.
- Viederman, S. 1996. Sustainability's five capitals and three pillars. In *Building Sustainable Societies: A Blueprint for a Post-Industrial World*, D.C. Pirages, (ed.), Armonk, NY: M.E. Sharpe.
- Wall, E., Ferrazzi, G., and F. Schryer. 1998. Getting the goods on social capital. *Rural Sociology*, 63(2): 300-322.
- WCWC. [Western Canada Wilderness Committee.] 1997. Clayoquot Sound: Chronology of some key historical events. Protect Clayoquot Sound. Wilderness Committee Educational Report Vol. 16, No. 5 — Summer 1997. [Online: <http://www.wildernesscommittee.org/campaigns/rainforest/island/clayoquot/reports/1997/chronology>.]
- _____. 1993. Clayoquot Sound Threatened. Press Release. Written Mar 13, 1993 by web:wc2wild in cdp:rainfor.genera. For immediate release, March 1 1993. [Online: <http://forests.org/archive/canada/canact.htm>.]
- Weber, E.P. 2000. A new vanguard for the environment: grass-roots ecosystem management as a new environmental movement. *Society and Natural Resources*, 13: 237-259.
- Wilkes, B. 2002. *Socioeconomic scale*. Unpublished assignment to modify the socioeconomic scale used by Doak and Kusel (1996) for the Canadian context. Prepared for the Canadian Forest Service, Edmonton, AB.
- Willms, D.J. 2001. Hypotheses about community effects on social outcomes. *Isuma*, Spring: 53-62.
- Winchester, H.P.M. 2000. Qualitative research and its place in Human Geography. In *Qualitative Research Methods in Human Geography*, Hay, I (ed.). Oxford and New York: Oxford University Press.

- Woolcock, M. 2001. The place of social capital in understanding social and economic outcomes. *Isuma*, Spring: 11-16.
- Yaffe, S., Phillips, A.F., Frenz, I.C., Hardy, P.W., Maleki, S.M., and B.E. Thorpe. 1996. *Ecosystem Management in the United States: An Assessment of Current Experience*. Washington, DC: Island Press.
- Zeide, B. 1999. Conceptual issues of ecosystem management. *Journal of Sustainable Forestry*, 9(1-2): 1-20.

Thank you for participating in this study on community capacity.

I am interested in learning about the issues and resources that affect your *community's capacity* (see the definition on the back) to function as a Biosphere Reserve. I would like to hear your thoughts about the strengths and weaknesses of your community in the context of achieving and maintaining the objectives of a United Nations Educational, Scientific and Cultural Organisation (UNESCO) Biosphere Reserve. Finally, I would like to know how you feel about living in the Redberry Lake Biosphere Reserve.

The objectives of a Biosphere Reserve are to encourage and facilitate:

- **CONSERVATION,**
- **SUSTAINABLE DEVELOPMENT, and**
- **RESEARCH, EDUCATION AND TRAINING.**

Definition of community

The term 'community' is used quite frequently. There are many different types of communities, and you may associate yourself with one or several of these types (e.g. Town of Hafford, Ukrainian, Church). But for this study I will consider the Biosphere Reserve as a larger "community", recognizing that there are many places within its area that are communities unto themselves. **This study aims to determine what and how resources, from all parts of the Biosphere Reserve and beyond its boundaries, work together to meet or hinder the functions of a Biosphere Reserve.**

The decisions and actions of people have an impact on how the Biosphere Reserve functions. So I am interested in a wide variety of opinions and perspectives, and would like to know what you see as the positives and negatives of your Biosphere Reserve community.

Through this research, I am trying to understand the 'big picture'. The information you give will help me understand what resources (human, economic, environmental, social) are available in your area and how they are used. **If you are unsure of any of the concepts or questions we bring up, do not worry, we will all learn as we go.** And if you run out of space to write, please continue on the back of the paper.

So what is Community Capacity?

Community capacity can be defined as the ability of a community to adapt to circumstances of all sorts and to meet the needs of its residents. This includes the ability of a community to:

- meet local needs and expectations;
- respond to internal and external stresses;
- create and take advantage of opportunities of all kinds; and
- adapt and respond to changing conditions.

So how is your community responding to its relatively new designation of a ‘Biosphere Reserve’?

To answer this question, we can focus on different aspects of your community that are broken down into four categories; these are also termed ‘capitals’ in this study:

Four aspects or ‘capitals’ of a community:

Ecological - the natural environment; land available for development, open space, etc.

Economic/built - financial resources and the built environment (such as infrastructure and sewage systems).

Human - the skills, education, experiences, and general abilities of residents as *individuals*.

Social – how people relate to one another. Includes the collective ability and willingness of residents to work together for community goals and focuses on relationships within and outside of the community. This includes networks, norms and trust that facilitate coordination and cooperation for mutual benefit.

The information you provide here will be treated as strictly confidential and will not be shared on an individual basis.

THANK YOU SO MUCH FOR PARTICIPATING – Your perspective is important!

Sharmalene Mendis, Graduate Student, University of Saskatchewan
Office phone: (306) 966-5675; Fax: (306) 966-5680; Email: s.mendis@usask.ca

SECTION A

- The following questions are about your community. Please refer to the definitions of each capital and of community capacity to help you with your answers, and ask questions if you are unsure.

ECOLOGICAL CAPITAL

Please rate the 'ecological' capital of your community (*please only circle one number*):

1	2	3	4	5	6	7
very low	low	medium low	medium	medium high	high	very high
(neither low nor high)						

Why did you choose this number? *Give examples and refer to specific places if possible.*

What contributes to it?

What could be improved?

ECONOMIC/BUILT CAPITAL

Please rate the 'economic/built' capital of your community (*please only circle one number*):

1	2	3	4	5	6	7
very low	low	medium low	medium	medium high	high	very high
(neither low nor high)						

Why did you choose this number? *Give examples and refer to specific places if possible.*

What contributes to it?

What could be improved?

HUMAN CAPITAL

Please rate the 'human' capital of your community *(please only circle one number):*

1 2 3 4 5 6 7
very low low medium low medium medium high high very high
(neither low nor high)

Why did you choose this number? *Give examples and refer to specific places if possible.*

What contributes to it?

What could be improved?

SOCIAL CAPITAL

Please rate the 'social' capital of your community *(please only circle one number):*

1 2 3 4 5 6 7
very low low medium low medium medium high high very high
(neither low nor high)

Why did you choose this number? *Give examples and refer to specific places if possible.*

What contributes to it?

What could be improved?

DEMOGRAPHIC INFORMATION and other questions...

➤ Finally, please fill out the following questions about yourself. THIS INFORMATION WILL BE KEPT CONFIDENTIAL (IT WILL NOT BE TRACED BACK TO YOU OR SHARED WITH OTHERS ON AN INDIVIDUAL BASIS)

1. **Where do you live?** (*Example: the town, District, etc. you live in.*)
2. **How long have you lived within the Biosphere Reserve Region?**
3. **What year were you born?**
4. **Are you male/female?** MALE FEMALE
5. **Are you a visible minority?** YES NO
6. **Are you a First Nations?** YES NO
7. **What is your average annual household income (before taxes, all sources)?**
 - A. <10,000
 - B. 10,000 – 29,999
 - C. 30,000 – 49,999
 - D. 50,000 – 69,999
 - E. 70,000 - 89,999
 - F. >90,000
8. **What is the highest level of formal education you have completed?**
 - A. Elementary school
 - B. Some high school
 - C. Completed high school
 - D. Some technical and vocational training
 - E. Some community college
 - F. Completed community college
 - G. Some university
 - H. Received undergraduate degree
 - I. Received graduate degree
9. **What organisation(s)/businesses are you involved in?**
10. **Do you think it was important to designate this area as a Biosphere Reserve?**
YES NO

Why or why not?

SECTION B

Please rank the four community capitals (ecological, economic/built, human, social) from **most to least important** in terms of contributing to the community capacity to achieve the Biosphere Reserve objectives of conservation, sustainable development and research, education and training:

1. _____ 2. _____ 3. _____ 4. _____

Why did you choose this ranking?

Please rate the overall **COMMUNITY CAPACITY** of your community to advance the goals of the Biosphere Reserve? *(Please only circle one number):*

1	2	3	4	5	6	7
very low	low	medium low	medium	medium high	high	very high
(neither low nor high)						

Why did you choose this number? *Give examples and refer to specific places if possible.*

What contributes to it?

What could be improved?

Do you have any comments or suggestions on this form, the way the material was presented, the focus group session itself, the project, or anything else?

Thank you very much for your time, patience and efforts. I really appreciate your ideas!

Appendix B: Socioeconomic scores for the six variables of socioeconomic well-being

The socioeconomic scale employed by Doak and Kusel (1996) in the American context was altered to be applicable to Canadian Census data by Wilkes (2002) who undertook the task as a summer intern in for the Canadian Forest Service. What follows are the formulas that transformed the raw data from the 2001 Census into scores (S) pertaining to the six variables of the final socioeconomic scale, given in accompanying tables. The S notation has been changed for this study to clearly denote the variable score in question (e.g., S_p to indicate the poverty score instead of labeling all scores ‘S’).

S_p = Incidence of Poverty Intensity Score

$$S_p = \sum[(1*A)+(3*B)+(9*C)]$$

where:

A = % of families with income between \$20,000- 29,000;

B = % of families with income between \$10,000-19,000; and

C = % of families with income under \$10,000.

Only Census family data were used.

Census subdivision	S _p = Poverty Intensity Score
CLAYOQUOT SOUND	
Port Alberni (C)	0.92
Ucluelet (DM)	0.45
Tofino (DM)	0.68
Alberni-Clayoquot B (RDA)	0.59
Alberni-Clayoquot A (RDA)	0.17
Marktosis 15 (R)	2.07
AVG Region	0.81
Standard deviation	0.66
AVG Tofino and Ucluelet (relative)	0.56
Standard deviation	0.17
REDBERRY LAKE	
Great Bend No. 405 (RM)	0.41
Borden (VL)	0.00
Redberry No. 435 (RM)	2.34
Hafford (T)	0.83
Douglas No. 436 (RM)	0.56
Speers (VL)	0.00
Meeting Lake No. 466 (RM)	1.45
AVG Region	0.80
Standard deviation	0.85
AVG Hafford and RM No. 435 (relative)	1.59
Standard deviation	1.07

S_{ED} = Education attainment Score

$$S_{ED} = \sum[(1*A)+(2*B)+(3*C)+(4*D)+(5*E)+(6*F)+(7*G)]$$

where:

A = % of persons with education less than grade 9

B = % of persons with education between grades 9 and 13

C = % of persons who have a secondary school graduation certificate

D = % of persons without a certificate or diploma (other than University)

E = % of persons with a certificate or diploma (other than University)

F = % of persons without a degree (University)

G = % of persons with a bachelor's degree or higher

This score was intended to be calculated for individuals 15 years and older; however, all of the 2001 Census data available³⁵ only had statistics for those 20 years and older. Thus, these results are thus reflective of the education attainment levels of individuals 20 years and older.

Census subdivision	S _{ED} = Education attainment score
CLAYOQUOT SOUND	
Port Alberni (C)	3.16
Ucluelet (DM)	3.35
Tofino (DM)	4.26
Alberni-Clayoquot B (RDA)	2.55
Alberni-Clayoquot A (RDA)	4.02
Marktosis 15 (R)	3.10
AVG Region	3.41
Standard deviation	0.63
AVG Tofino and Ucluelet (relative)	3.81
Standard deviation	0.65
REDBERRY LAKE	
Great Bend No. 405 (RM)	3.66
Borden (VL)	2.89
Redberry No. 435 (RM)	3.03
Hafford (T)	1.94
Douglas No. 436 (RM)	3.13
Speers (VL)	2.46
Meeting Lake No. 466 (RM)	3.22
AVG Region	2.90
Standard deviation	0.56
AVG Hafford and RM No. 435 (relative)	2.49
Standard deviation	0.77

³⁵ Sources checked: Statistics Canada online 'Community Profiles', Beyond 20/20, and E-Stat. I also consulted with University of Saskatchewan library services and phoned Statistics Canada on two separate occasions.

S_{EM} = Employment Score

S_{EM} = % of civilians, 15 years and older, employed (100 - unemployment rate)

Census subdivision	S_{EM} = Employment Score
CLAYOQUOT SOUND	
Port Alberni (C)	85
Ucluelet (DM)	90
Tofino (DM)	95
Alberni-Clayoquot B (RDA)	93
Alberni-Clayoquot A (RDA)	91
Marktosis 15 (R)	83
AVG Region	89.50
Standard deviation	4.64
AVG Tofino and Ucluelet (relative)	92.50
Standard deviation	3.54

Census subdivision	S_{EM} = Employment Score
REDBERRY LAKE	
Great Bend No. 405 (RM)	100
Borden (VL)	87
Redberry No. 435 (RM)	97
Hafford (T)	89
Douglas No. 436 (RM)	100
Speers (VL)	100
Meeting Lake No. 466 (RM)	100
AVG Region	96.14
Standard deviation	5.70
AVG Hafford and RM No. 435 (relative)	93.00
Standard deviation	5.66

S_H = Housing Tenure Score

S_H = (Owned)/(Owned + Rented)

where:

Owned = Number of residences that are owned; and

Rented = Number of rented residences

Census subdivision	S_H = housing tenure score
CLAYOQUOT SOUND	
Port Alberni (C)	0.69
Ucluelet (DM)	0.67
Tofino (DM)	0.61
Alberni-Clayoquot B (RDA)	0.92
Alberni-Clayoquot A (RDA)	0.52
Marktosis 15 (R)	0.82
AVG Region	0.71
Standard deviation	0.15
AVG Tofino and Ucluelet (relative)	0.64
Standard deviation	0.05

Census subdivision	S_H = housing tenure score
REDBERRY LAKE	
Great Bend No. 405 (RM)	0.92
Borden (VL)	0.75
Redberry No. 435 (RM)	0.94
Hafford (T)	0.85
Douglas No. 436 (RM)	1.00
Speers (VL)	1.00
Meeting Lake No. 466 (RM)	0.86
AVG Region	0.90
Standard deviation	0.09
AVG Hafford and RM No. 435 (relative)	0.90
Standard deviation	0.07

S_{PG} = Population Growth Score

S_{PG} = % change between 1996 and 2001

This variable is provided by Statistics Canada, which represents the difference between the 1996 and 2001 population divided by the 1996 population

Census subdivision	S_{PG} = Population Growth	Census subdivision	S_{PG} = Population Growth
CLAYOQUOT SOUND		REDBERRY LAKE	
Port Alberni (C)	-5.50	Great Bend No. 405 (RM)	-2.40
Ucluelet (DM)	-6.00	Borden (VL)	3.70
Tofino (DM)	25.30	Redberry No. 435 (RM)	-0.60
Alberni-Clayoquot B (RDA)	-1.80	Hafford (T)	-5.40
Alberni-Clayoquot A (RDA)	-26.40	Douglas No. 436 (RM)	-11.10
Marktosis 15 (R)	16.00	Speers (VL)	-15.50
AVG Region	0.27	Meeting Lake No. 466 (RM)	-10.50
Standard deviation	18.23	AVG Region	-5.97
AVG Tofino and Ucluelet (relative)	9.65	Standard deviation	6.75
Standard deviation	22.13	AVG Hafford and RM No. 435 (relative)	-3.00
		Standard deviation	3.39

S_I = Incidence of Low Income Score

S_I = Median income (of all Census families)

Census subdivision	S_I = Incidence of Low Income	Census subdivision	S_I = Incidence of Low Income
CLAYOQUOT SOUND		REDBERRY LAKE	
Port Alberni (C)	48748	Great Bend No. 405 (RM)	41564
Ucluelet (DM)	48359	Borden (VL)	0
Tofino (DM)	50412	Redberry No. 435 (RM)	23229
Alberni-Clayoquot B (RDA)	41451	Hafford (T)	33566
Alberni-Clayoquot A (RDA)	47707	Douglas No. 436 (RM)	35339
Marktosis 15 (R)	27200	Speers (VL)	0
AVG Region	43979.50	Meeting Lake No. 466 (RM)	31105
Standard deviation	8776.50	AVG Region	23543.29
AVG Tofino and Ucluelet (relative)	49385.50	Standard deviation	16981.32
Standard deviation	1451.69	AVG Hafford and RM No. 435 (relative)	28397.50
		Standard deviation	7309.36

**Appendix C(i): Comparison of different calculations of the socioeconomic score:
CLAYOQUOT SOUND**

FOR ALL CENSUS SUBDIVISIONS					
csdname = Census subdivision name	<i>Continuous SES A (with income (-1))</i>	<i>Continuous SES B (without income (-1))</i>	<i>SES A out of 7 (comparing both BRs)</i>	<i>SES B out of 7 (comparing both BRs)</i>	<i>SES B out of 7 (individual BRs)</i>
Port Alberni (C)	44.83	48.77	4.98	5.08	5.08
Ucluelet (DM)	49.57	53.44	5.51	5.57	5.57
Tofino (DM)	62.98	67.22	7.00	7.00	7.00
Alberni-Clayoquot B (RDA)	52.69	55.34	5.86	5.76	5.76
Alberni-Clayoquot A (RDA)	46.24	50.00	5.14	5.21	5.21
Ittatsoo 1 (R)	46.73	42.08	5.19	4.38	4.38
Marktosis 15 (R)	49.49	49.63	5.50	5.17	5.17
Opitsat 1 (R)	45.84	41.19	5.09	4.29	4.29
Esowista 3 (R)	51.30	46.65	5.70	4.86	4.86
Refuge Cove 6 (R)	43.83	39.17	4.87	4.08	4.08
AVERAGE for Clayoquot biosphere reserve region	49.35	49.35	5.48	5.14	5.14
Standard deviation	5.58	8.19	0.62	0.85	0.85
AVERAGE for Tofino and Ucluelet (relative)	56.28	60.33	6.25	6.28	6.28
Standard deviation	9.48	9.74	1.05	1.01	1.01
Ucluelet (DM)	46.92	43.98	5.30	5.21	5.52
Tofino (DM)	52.81	55.76	5.96	6.61	7.00
AVERAGE for Tofino and Ucluelet (active)	49.87	49.87	5.63	5.91	6.26
Standard deviation	4.17	8.33	0.47	0.99	1.05

**Appendix C(ii): Comparison of different calculations of the socioeconomic score:
CLAYOQUOT SOUND**

FOR SELECTED CENSUS SUBDIVISIONS					
csdname = Census subdivision name	<i>Continuous SES A (with income *(-I))</i>	Continuous SES B (without income *(-1))	<i>SES A out of 7 (comparing BRs)</i>	SES B out of 7 (comparing both BRs)	SES B out of 7 (individual BRs)
Port Alberni (C)	41.62	43.89	4.64	4.66	4.66
Ucluelet (DM)	48.26	50.34	5.38	5.35	5.35
Tofino (DM)	62.83	65.88	7.00	7.00	7.00
Alberni-Clayoquot B (RDA)	54.94	53.74	6.12	5.71	5.71
Alberni-Clayoquot A (RDA)	45.55	47.32	5.08	5.03	5.03
Ittatsoo 1 (R)					
Marktosis 15 (R)	49.67	41.70	5.53	4.43	4.43
Opitsat 1 (R)					
Esowista 3 (R)					
Refuge Cove 6 (R)					
AVERAGE for Clayoquot biosphere reserve region	50.64	50.48	5.62	5.36	5.36
Standard deviation	7.49	8.70	0.83	0.92	0.92
AVERAGE for Tofino and Ucluelet (relative)	55.54	58.11	6.19	6.17	6.17
Standard deviation	10.30	10.99	1.15	1.17	1.17
Ucluelet (DM)	46.92	43.98	5.30	5.21	5.52
Tofino (DM)	52.81	55.76	5.96	6.61	7.00
AVERAGE for Tofino and Ucluelet (active)	49.87	49.87	5.63	5.91	6.26
Standard deviation	4.17	8.33	0.47	0.99	1.05

Appendix C(iii): Comparison of different calculations of the socioeconomic score:

REDBERRY LAKE

FOR ALL CENSUS SUBDIVISIONS					
csdname = Census subdivision name	<i>Continuous SES A (with income *(-1))</i>	Continuous SES B (without income (-1))	<i>SES A out of 7 (comparing both BRs)</i>	SES B out of 7 (comparing both BRs)	SES B out of 7 (individual BRs)
Great Bend No. 405 (RM)	60.34	64.76	6.71	6.74	7.00
Borden (VL)	47.12	41.34	5.24	4.31	4.47
Redberry No. 435 (RM)	53.16	53.08	5.91	5.53	5.74
Hafford (T)	34.36	36.82	3.82	3.83	3.98
Douglas No. 436 (RM)	55.17	58.07	6.13	6.05	6.28
Speers (VL)	53.15	47.37	5.91	4.93	5.12
Meeting Lake No. 466 (RM)	48.08	49.93	5.34	5.20	5.40
AVERAGE for Redberry Lake biosphere reserve region	50.20	50.20	5.58	5.23	5.43
Standard deviation	8.27	9.56	0.92	1.00	1.03
AVERAGE for Hafford and Redberry RM No. 435 (relative)	43.76	44.95	4.86	4.68	4.86
Standard deviation	13.29	11.50	1.48	1.20	1.24
Redberry No. 435 (RM)	61.98	59.04	7.00	7.00	7.00
Hafford (T)	38.41	41.36	4.34	4.90	4.90
AVERAGE for Hafford and Redberry RM No. 435	50.20	50.20	5.67	5.95	5.95
Standard deviation	16.67	12.50	1.88	1.48	1.48

Appendix C(iv): Comparison of different calculations of the socioeconomic score:

REDBERRY LAKE

FOR SELECTED CENSUS SUBDIVISIONS					
csdname = Census subdivision name	<i>Continuous SES A (with income *(-1))</i>	Continuous SES B (without income (-1))	<i>SES A out of 7 (comparing BRs)</i>	SES B out of 7 (comparing both BRs)	SES B out of 7 (individual BRs)
Great Bend No. 405 (RM)	60.34	64.76	6.72	6.88	7.00
Borden (VL)	47.12	41.34	5.25	4.39	4.47
Redberry No. 435 (RM)	53.16	53.08	5.92	5.64	5.74
Hafford (T)	34.36	36.82	3.83	3.91	3.98
Douglas No. 436 (RM)	55.17	58.07	6.15	6.17	6.28
Speers (VL)	53.15	47.37	5.92	5.03	5.12
Meeting Lake No. 466 (RM)	48.08	49.93	5.36	5.31	5.40
AVERAGE for Redberry Lake biosphere reserve region	50.20	50.20	5.59	5.33	5.43
Standard deviation	8.27	9.56	0.92	1.02	1.03
AVERAGE for Hafford and RM No. 435 (relative)	43.76	44.95	4.88	4.78	4.86
Standard deviation	13.29	11.50	1.48	1.22	1.24
Redberry No. 435 (RM)	61.98	59.04	7.00	7.00	7.00
Hafford (T)	38.41	41.36	4.34	4.90	4.90
AVERAGE for Hafford and RM No. 435 (active)	50.20	50.20	5.67	5.95	5.95
Standard deviation	16.67	12.50	1.88	1.48	1.48

Appendix D: Active community standardized values and component socioeconomic scores

CLAYOQUOT SOUND	STANDARDIZED VALUES AND SOCIOECONOMIC SCORES											
Active community census subdivision	<i>Poverty Z value^a</i>	Poverty Score (X) ^b	<i>Education Z value</i>	Education Score (X)	<i>Employ. Z value^c</i>	Employment Score (X)	<i>Housing Tenure Z value</i>	Housing Tenure Score (X)	<i>Population Growth Z value</i>	Population Growth Score (X)	<i>Income Z value</i>	Income Score (X)
Ucluelet (DM)	-0.71	9.81	-0.71	5.39	-0.71	5.39	0.68	11.15	-0.71	5.39	-0.71	6.86
Tofino (DM)	0.71	6.86	0.71	11.28	0.71	11.28	-0.74	5.25	0.71	11.28	0.71	9.81
AVERAGE (active)	0.00	8.33	0.00	8.33	0.00	8.33	-0.03	8.20	0.00	8.33	0.00	8.33

REDBERRY LAKE	STANDARDIZED VALUES AND SOCIOECONOMIC SCORES											
No. 435 (RM)	<i>0.71</i>	6.86	<i>0.71</i>	11.28	<i>0.71</i>	11.28	<i>0.75</i>	11.48	<i>0.71</i>	11.28	<i>-0.71</i>	6.86
Hafford (T)	<i>-0.71</i>	9.81	<i>-0.71</i>	5.39	<i>-0.71</i>	5.39	<i>-0.66</i>	5.58	<i>-0.71</i>	5.39	<i>0.71</i>	9.81
AVERAGE (active)	0.00	8.33	0.00	8.33	0.00	8.33	0.05	8.53	0.00	8.33	0.00	8.33

^a The socioeconomic component scores S for each active community census subdivision was standardized against the other census subdivision in each pair that make up the active communities for each biosphere reserve region.

^b The Z value for each component score associated with one of six variables was converted to an X score using the formula given in section 3.5.

^c Employment Z value

Appendix E(i): Summary of SES Scores without housing tenure variable

CLAYOQUOT SOUND Census subdivision	Continuous SES = sum of variable scores	Regional seven-point SES Score (using only CS values)	Comparative seven-point SES Score (using CS and RL values, with Tofino as the highest SE level csd)
Port Alberni (C)	35.45	4.14	4.14
Ucluelet (DM)	42.49	4.97	4.97
Tofino (DM)	59.89	7.00	7.00
Alberni-Clayoquot B (RDA)	38.80	4.54	4.54
Alberni-Clayoquot A (RDA)	43.87	5.13	5.13
Marktosis 15 (R)	29.50	3.45	3.45
Average: CS Region	41.67	4.87	4.87
Standard deviation	10.32	1.21	1.21
Average: Tofino and Ucluelet (relative)	51.19	5.98	5.98
Standard deviation	12.31	1.44	1.44

REDBERRY LAKE Census subdivisions	Continuous SES = sum of variable scores	Regional seven-point SES Score (using only RL values)	Comparative seven-point SES Score (using CS and RL values, with Tofino as the highest SE level csd)
Great Bend No. 405 (RM)	55.51	7.00	6.49
Borden (VL)	39.90	5.03	4.66
Redberry No. 435 (RM)	42.72	5.39	4.99
Hafford (T)	30.75	3.88	3.59
Douglas No. 436 (RM)	45.06	5.68	5.27
Speers (VL)	34.37	4.33	4.02
Meeting Lake No. 466 (RM)	43.36	5.47	5.07
Average: RL Region	41.67	5.25	4.87
Standard deviation	7.98	1.01	0.93
Average: Hafford and RM No. 435 (relative)	36.74	4.63	4.29
Standard deviation	8.46	1.07	0.99

Note: All values are necessarily lower than those in Table 24 because a variable (housing tenure) was taken out, thus reducing the continuous SES scores, which in turn directly affects the regional and comparative SES scores.

Appendix E(ii): Active community SES Scores without housing tenure variable

CLAYOQUOT SOUND			
Active community census subdivision	Continuous SES Score = sum of component scores	Regional seven-point SES Score (including only CS values)	Comparative seven-point SES Score (including both CS and RL values)^a
Ucluelet (DM)	32.83	4.55	4.55
Tofino (DM)	50.51	7.00	7.00 ^b

AVERAGE (active)	41.67	5.77	5.77
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REDBERRY LAKE			
No. 435 (RM)	47.56	7.00	6.59 ^b
Hafford (T)	35.77	5.27	4.96

AVERAGE (active)	41.67	6.13	5.77
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^aWithout the housing variable, *Tofino*, and not the RM of Redberry (No. 435) as in Table 25, has the highest SES score and is therefore assigned the top score on the seven-point scale for the rest of the census subdivisions to be compared to.

^bThe difference between Tofino's and the RM of Redberry's comparative seven-point SES scores is 0.41. This difference is close to the same two values in Table 25, which had a difference of 0.39 when the housing tenure variable was taken into account.

Note: All values are necessarily lower than those in Table 25 because a variable (housing tenure) was taken out, thus reducing the continuous SES scores, which in turn directly affects the regional and comparative SES scores.