Volunteering in Fish-Habitat Rehabilitation Projects in British Columbia

By

Matthew Justice

B.Sc. in Geography and Environmental Studies

University of Victoria, 2004

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

MASTER OF RESOURCE MANAGEMENT (PLANNING)

In the

School of Resource and Environmental Management

Report No. 435

© Matthew Justice 2007

SIMON FRASER UNIVERSITY

Summer 2007

APPROVAL

Name:	**Matthew Justice**
Degree:	**Master of Resource Management (Planning)**
Title of Project:	**Volunteering in Fish-Habitat Rehabilitation Projects in British Columbia.**

Project No.:   **435**

Examining Committee:

Chair: **Jennifer Silver**
PhD Candidate, School of Resource and Environmental Management

_____

Dr. Evelyn Pinkerton
Senior Supervisor
Associate Professor, School of Resource and Environmental Management

_____

Dr. Murray Rutherford
Supervisor
Assistant Professor, School of Resource and Environmental Management

Date Defended/Approved: _____

                                     _____

ABSTRACT

This research explores the motivations of volunteers within fish-habitat rehabilitation projects in western British Columbia. Literature on watershed partnerships, collaborative planning, co-management, volunteering, and interviews with key respondents were reviewed to formulate a series of questions about volunteer motivations. Interviews were conducted with respondents from a sample of urban and rural regions.

Research results demonstrate motivations may be influenced by a diversity of reasons, but volunteers are driven chiefly by the desire to achieve positive resource outcomes. Individual empowerment is encouraged through positive reinforcement from others and by accomplishing group goals. Furthermore, government strategies can encourage volunteers with more long term and sustainable projects and by fostering greater trust with volunteers. This study considers the interaction of factors which influence the success of projects in effectively using volunteer contributions. The findings will be useful to agencies and project coordinators in attracting and retaining suitable volunteers.

Keywords: fish-habitat; rehabilitation; restoration; stewardship; volunteering; volunteer motivations; watershed

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ACRONYMS

BC - British Columbia

CA - Community Advisor

DFO - Oceans and Fisheries Canada (Department of Fisheries and Oceans)

OHEB - Oceans, Habitat, and Enhancement Branch

SEHAB - Salmon Enhancement and Habitat Advisory Board

SEP - Salmon Enhancement Project

VC - Volunteer Coordinator

PART 1   OVERVIEW

1   INTRODUCTION

Can an economy respect a watershed without the watershed and its residents having a real status in the economy? (Freeman House. *Totem Salmon.* 1999)

British Columbia is characterized by an extensive coast, rich in a diversity of plants, animals, and geography. Extensive river networks feed into larger rivers creating a plethora of small to large watersheds which feed into the ocean. Salmon and other creatures grace the waters of the watersheds, and support many coastal communities. Unfortunately watershed health and integrity are being compromised due to human activities. Increasing pressure from population influx and development is exacerbating the process of watershed modification and degradation.

Watershed degradation and other human-induced pressures have been particularly detrimental to the survival of Pacific salmon stocks, which have declined drastically, with some having been completely extirpated (Slaney *et al.* 1996; Nehlsen *et al.* 1991; DFO 2004). Reduced salmon stocks, coupled with a myriad of other factors have dire implications for the health and the biodiversity of coastal watersheds (DFO 2004). Moreover, government ministries responsible

for managing and assisting salmon restoration at the local level are having their capacity to be effective compromised by inadequate budgets and personnel cutbacks.

To address the many of factors which are negatively impacting watersheds and fish-habitat individuals and volunteers groups across B.C. have undertaken local-level watershed rehabilitation and salmon restoration projects. Principally, these volunteer projects are designed to rehabilitate and maintain watersheds in their natural state, and second to conserve and restore dwindling salmon stocks (OHEB 2006). The projects may be initiated by governmental agencies, but generally it is the volunteers who sustain the rehabilitation activities.

Locally-based volunteers are an important element in the success of watershed rehabilitation projects. First, the volunteers are important for protecting watershed resources, as they may act as stewards for the resources contained within the watersheds. Many scholars also claim that activities designed and undertaken by the community tend to be more sustainable, self-sustaining, and effective then those initiated by an external body (Schlager and Ostrom 1993, Pinkerton 1991 and 1999). Furthermore, participation in rehabilitation projects by local volunteers can empower participants and cultivate community stewardship and community-level resource management (Leslie *et al.* 2004).

The overall goal of my research was to explore the factors that facilitate volunteering in watershed rehabilitation. I explore personal reasons for volunteer participation, and external factors which influence volunteer choices. For

instance, I explore how location and/or the volunteer's stage of life can influence participation. I also explore how engagement and a volunteer's level of decision making authority and/or involvement in watershed management and planning influences volunteer motivation. Finally, I explore what the respondents claim defines a successful and effective watershed rehabilitation project, and how successful projects influence volunteer motivations.

Such an analysis of motivational factors in environmental volunteering can serve as a template for fostering more effective and sustainable volunteer-based watershed rehabilitation in B.C. Knowing more about the relationship of volunteer motivations and community-level resource decision-making can also fill an important gap in the watershed planning and co-management literatures. Ultimately, facilitating more successful volunteer-based rehabilitation mobilizes greater resources to address watershed problems.

1.1 Objectives

Rehabilitation is an essential component in preserving the integrity of watersheds and salmon along the B.C. coast. Hence, my hope is that my research will benefit volunteers, volunteer organizations, and governments by identifying and clarifying the factors that encourage participation in the stewardship and management of local resources.

The specific objectives of my research were to determine what factors are necessary for facilitating volunteerism in community-based watershed and fish-habitat rehabilitation in B.C., through an exploration of:

1. the personal motivations of volunteers who participate in watershed

    rehabilitation activities.

2. the external factors influencing volunteer choice in participation.

3. the levels of volunteer authority and/or involvement in community-level

    decision-making regarding management and planning for watershed

    resources.

4. how respondents define success in volunteer-based rehabilitation project, and

    how success influences motivations.

1.2   Report Organization

There are 9 chapters in this report, including the introduction and three

main sections. Part one focuses on context, relevant literature, and research

methodology. In part two, I discuss research results regarding personal

motivations of volunteers, the effects of external influences on volunteer

motivations, factors in successful volunteer-based watershed rehabilitation

projects, and the authority level and role of volunteers in watershed management

decision-making processes. In the final chapter I discuss implications and

conclusions.

2   CONTEXT

2.1   British Columbia Watersheds

Watersheds

A watershed is the entire upper area of land into which rainwater drains and feeds into streams and eventually major river systems. Watersheds envelop a number of interconnected resources, including diverse geographical landscapes, and encompass numerous streams, rivers and other water bodies. They may also host a rich community of plants and wildlife and their respective habitats (Johnson *et al.* 1999; McGinnis *et al.* 1999). Specifically the rivers, streams and waterbodies within watersheds provide important fish-habitat.

The word 'watershed' is essentially a conceptualization of a diverse landscape which can incorporate complex systems of interconnected resources (McGinnis *et al.* 1999). Watersheds are also often the sites of cultural, emotional, and political conditions that influence people's interaction with the watershed (*Ibid.*). Indeed, watersheds may represent a physical reference to a range of values and beliefs, including political boundaries which are deeply rooted in the landscape (Francis 1993; McGinnis *et al.* 1999; Risser 1985).

In trying to adequately comprehend the scale and nature of the watershed, one requires both a scientific understanding as well as an appreciation for emotional attachment to the landscape (Grumbine 1994). Furthermore, the diverse, encompassing, and integrated nature of watersheds, according to

5

Williams *et al.* (1997), makes watersheds an essential unit for conducting suitable planning and protecting and managing fish and fish-habitat.

Social Challenges

Poor communication among concerned users is one of many issues compromising the sustainability of watersheds and fish populations. Community members are often not adequately educated, leading to misconceptions regarding salmon management and the need for conservation (Pike 2003). In other cases, concerned individuals may feel unable to communicate their concerns with a seemingly uncooperative government (SRWR 1996). Indeed there is a feeling within civil society that governments are incapable, or choose not to address issues of water stewardship (Litke and Day 1998; Romaine 1996). Specifically, communities may often feel disempowered after consultations with government in which their inputs result in few tangible outcomes (Pike 2003).

Watershed Protection

Numerous factors have led to mediocre watershed and salmon habitat protection over the past century. Some observers find that government land use management and planning in B.C. is outdated, ineffective, detrimental to watersheds and inadequate in protecting watershed resources (Symko 2003). Romaine (1996) argues that natural resources have been undervalued and knowledge of ecological processes has not been adequately applied in watershed management.

Weak environmental legislation and insufficient staff and monetary resources have hampered the capacity of government agency staff to protect watershed resources and have limited individuals' capacity to hold government and industry responsible for habitat and fishing violations (Boyd 2003). Furthermore, fragmentation of responsibilities among agencies means there is poor accountability and coordination in conservation efforts, nor has there been sufficient monitoring and evaluation procedures (Romaine 1996).

Stewardship

Stewardship encompasses the idea of a 'moral obligation' and 'a sense of responsible care' and accordingly transcends the legal obligation to protect a resource. Salmon-stock augmentation, monitoring, and rehabilitation are a few of the activities which are specific to watershed stewardship. Stewardship also focuses on including various participants, including individuals and community groups and/or organizations. In this report, I use stewardship in reference to community stewardship of watersheds and their resources.

2.2 Community-Based Watershed Stewardship Initiatives

Among the various watershed rehabilitation volunteer groups on the BC coast, ones most important to this research are stewardship and/or land trust type groups; enhancement/streamkeeping groups; and hatcheries/fish culture groups. There is significant diversity not only among groups, but also among the volunteers within each group. For instance, some people have traditionally been in the fishing or logging industry, while others may be in a more urban profession

such as computer software. There are also differences in the life-stage of the volunteers, which include retirees, young students, and middle-aged.

Some of the groups or initiatives may be more involved in advocacy, and/or trying to encourage more collaborative and watershed-based approaches for the management of watershed resources. The more advocacy and politically-oriented initiatives take a number of forms, such as a council or alliance, community roundtables, advocacy groups, and/or societies.

2.3 DFO-related Watershed Rehabilitation Initiatives

Government-initiated watershed rehabilitation projects are often limited by a top-down management approach, which often neglects local knowledge and undervalues the capacity of communities to steward and manage their resources (Fraser 2001; DFO 2004; DFO 2005; Baland and Platteau 1996). Moreover, government agents responsible for legislation, monitoring and enforcing infractions may face dwindling monetary and human resources.

Yet there is a proliferation of rehabilitation occurring in the Pacific Region of Canada, and the Department of Fisheries and Oceans (DFO) has been particularly active in encouraging such activities. Through a number of strategic initiatives and projects, DFO is promoting and facilitating volunteer action and stewardship for watershed rehabilitation and salmon recovery. As these government initiated projects are gaining momentum, local governments are also getting more involved and assisting the community groups in sustaining the project activities (Litke and Day 1998; Romaine 1996).The next few sections

briefly describe a few of the longer-lasting government initiatives which are playing a significant role in watershed rehabilitation in B.C.

Oceans, Habitat, and Enhancement Branch

The Oceans, Habitat, and Enhancement Branch (OHEB) of DFO is primarily responsible for matters related to protecting and rehabilitating fish habitat. OHEB practices "integrated resource management planning", and includes programs such as the Salmonid Enhancement Programs (described in more detail below), stewardship and community involvement programs, and various school programs (DFO 2006). OHEB is also responsible for the operation of a large number of facilities - fishways, hatcheries and channels - across British Columbia and the Yukon. Programs and Initiatives designed by OHEB, are intended to foster and encourage community stewardship and outreach, and encourage greater involvement of communities in watershed and salmon stewardship activities.

Salmon Habitat Enhancement Projects.

DFO-OHEB Salmon Enhancement Projects (SEPs) have led to the creation of a multitude of salmon conservation projects in communities along the British Columbia coast (SEP 2005). SEP originally began in 1977 to help preserve salmon stocks.

Some SEPs involve the restoration of critical spawning and rearing habitat in certain streams, rivers and estuaries. Activities typically include the construction of side-channels, stabilization of stream banks and water flow, and

9

the restoration of riparian vegetation. Projects often involve the bolstering of declining populations through satellite incubation of eggs and fry, in order to outplant young salmon to the streams. SEPs also try to encourage community involvement and commitment to future and sustainable salmon runs through the creation of stream inventories, mapping of habitat, monitoring and protecting habitat.

Community Advisors

Government agencies responsible for the conservation of watershed resources are recognizing that regulation and enforcement alone are inadequate for protecting fish and fish habitat. Rather a more 'proactive approach' to watershed management is being undertaken, through increasing individual involvement in stewardship of watershed resources (OHEB 2006).

DFO is trying to adopt a more integrated approach to resource planning which is more inclusive of the diversity of communities and individuals, by promoting locally-based community involvement projects. Such local projects in British Columbia and the Yukon are facilitated by a group of nineteen individuals called community advisors (CAs). CAs communicate between DFO-OHEB and the community-based rehabilitation groups, as well providing assistance and information to local volunteers.

The Salmon Enhancement and Habitat Advisory Board

The Salmon Enhancement and Habitat Advisory Board (SEHAB) was created alongside SEP, in order for provincial and federal government's to

receive volunteer and public input on implementing and facilitating SEPs (SEHAB 2005). Project representatives consist of project volunteers who review and participate in major policy discussions. The volunteers will generally have a fairly intimate and active involvement with the resources, and as such the advisory board theoretically provides an opportunity for the volunteers to influence management decisions (SEHAB 2005; DFO 2004).

Streamkeepers

In 1993 DFO helped create the Streamkeepers Program, and with funding from the Fraser River Action Plan created a Streamkeepers Handbook. The program provides training and support to volunteers on the necessary actions for rehabilitation of aquatic habitats, is intended to educate the public about valuing watershed resources, and promote greater cooperation and communication among entities and individuals involved in watershed management (PSKF 2006).

3 LITERATURE REVIEW

3.1 Introduction

The river will have engaged in its part of this artistic collaboration between people and nature, and thus actors become part of a place's own memory (Freeman House. Totem Salmon. 1999)

The following section provides background on several streams of literature that are relevant to this research. First, I focus on research related to volunteering, and specifically volunteering in rehabilitation projects. Next, I describe watershed planning and collaborative planning literature specific to watershed management. And finally I review literature related to co-management, particularly as related to watershed planning.

3.2 Volunteering

Importance of Volunteers

It has been estimated volunteers increase the labour capacity of one government employee tenfold. Conversely, it takes one government full-time employee to supervise 10 volunteers (Pinkerton, pers.comm.2007)

Volunteers are vital to the sustainable functioning of most community organizations. Aside from coordination and equipment costs, volunteers reduce project costs by providing a potentially *gratis* body of labour along with other intangible benefits (Leslie *et al.* 2004; Pinkerton 1991). Specifically, volunteers often undertake field research thereby reducing management and monitoring costs of government agencies undertaking watershed rehabilitation.

Many individual volunteers possess a wealth of unique expertise and knowledge which they may share during implementation of a project. Volunteer participation provides an opportunity for educating participants and the greater public through a diffusion of ideas among friends, family and the community (Leslie *et al.* 2004; CCP 2000). Volunteering can also help shift misconception regarding the goals of the project, and foster greater public support (Leslie *et al.* 2004). In some instances, volunteers may also be professionals in conservation related fields and can accordingly mentor and suggest career and academic avenues to other participants (*Ibid.*).

Factors Promoting Environmental Volunteering

The forces driving individual volunteerism are quite diverse, and several authors have provided a number of explanations regarding key factors which facilitate environmental volunteerism. These factors provide a general explanation for participation in environmental activities. I explore each factor below (see also Burns *et al.* 2001; Verba *et al.* 1995).

The first important factor is recruitment, or the influence of neighbours and friends on volunteers' actions and psychological engagement (Barkan 2004). Tindall (2002) argues that recruitment, relationships, and networks play a large role in the environmental movement. The volunteers may participate because of the desire to be part of a team environment. Volunteering in a team environment may motivate some volunteers because of the social interactions and dynamics that arise through participation within a group (Lerner 1993). Indeed, a volunteer may continue to participate due to the reward of social interaction (Ordubegian

1993). Social interactions also tend to facilitate enjoyment in activities, which is another strong factor in the choice of volunteers to participate ('fun and enjoyment') (*Ibid.*:147).

By coalescing as a group and having a shared purpose, there is also a perception that the group will be more likely to accomplish something meaningful (effect change). Specifically, psychological engagement - an individual's political interests and commitments - can affect his/or her trust in politics and consequently his/her desire to volunteer in some project (Barkan 2004). Essentially, the individual volunteer believes there is a good chance that his/her investment will result in a positive political outcome.

Lerner and Jackson (1993) researched motivational factors for volunteer participation and retention in watershed stewardship groups. They found a number of different reasons for volunteer participation, but mainly that volunteers want the experience of being outdoors - a nature experience. They also may feel obligated to contribute something back to nature (*Ibid.*; Ordubegian 1993). According to Barkan (2004), how an individual feels about an issue influences how much energy he or she is willing to invest in a project related to that issue, i.e. the level of issue engagement. The act of giving something back and accomplishing a specific goal or purpose in turn heightens the volunteer's motivation by bolstering his or her self-esteem (Ordubegian 1993).

Volunteers may also hope to gain some education through their participation, or conversely they may want to share their knowledge with others.

In working on a volunteer project, the participants are provided an opportunity to improve on an existing skill-set, or gain new skills altogether (*Ibid.*).

An important external motivational factor for volunteers is the resources available to a volunteer (Barkan 2004). Resources might include the amount of time a volunteer can afford to provide, or the amount of money they are willing to invest commuting to and from the project site. Available time and resources can be greatly influenced by a volunteer's stage of life. For instance, if volunteers are still in school, they are likely to be busy and distracted with study and other pursuits. Conversely, a retired individual is more likely to have more expendable time and money available for participating in volunteer activities.

The location of a volunteer's residence can also influence his/her desire to engage in volunteer rehabilitation activities. Volunteers are likely to be committed to their geographical locale, and hence take a more active interest in preserving or maintaining local resources (Ordubegian 1993).

An external agency may play a role in influencing volunteer participation. For instance, and particularly within advocacy-type groups, when volunteers feel their government is indifferent and unable to effect change, they may be more motivated to participate and remain with their stewardship group (Lerner and Jackson 1993).

3.3 Watershed Planning

Watershed planning should attempt to collaboratively integrate and balance multiple resources issues and a range of stakeholder interests, so as to

build stewardship and preserve and restore local resources in an ecological and sustainable manner (Johnson *et al.* 1999; McGinnis *et al.* 1999; Slocombe 1993). Ideally the regional focus puts stakeholders in the best position to be making management decisions for the resources in their watershed. Furthermore, watershed planning should be integrated and sustainable, as resources within a watershed are inextricably linked with each other, and the management of one resource should be linked with the management of other resources.

One significant influence on the field of watershed planning comes from a grass-roots movement called bioregionalism (McGinnis *et al.* 1999). Bioregionalism is a philosophical approach which explores the benefits of humans' attachment to place (Aberley 1993). As residents of a region are ideally attached, both emotional and spiritually, to their landscape and its defining physical boundaries, they are much more likely to steward the landscape.

3.4 Watershed-based Collaborative planning

Watershed planning is often conducted as a collaborative decision making process in which multi-stakeholder planning organizations are created to bring polarized groups together to resolve differences in a consensual manner. Collaboration and innovative processes can help resolve conflicts, encourage conservation of ecological benefits, and possibly restore some degree of control of resources to a community (Yaffee *et al.* 1996; McGinnis *et al.* 1999).

Leach *et al.* (2002: 647) describe a stakeholder partnership specifically as "multiple issues united by a common theme, addressed sequentially or

simultaneously". Watershed planning is the process in which stakeholders from governmental agencies - municipal, provincial, and federal, private interest groups or individuals, and public agencies meet periodically to discuss issues that pertain to surrounding watersheds and their encompassed resources (*Ibid.*; Leach and Pelkey 2001).

Factors Facilitating Community-based Watershed Planning

Studies of watershed-based planning processes identify several factors as important in creating a successful resource planning process. As each study frames the pertinent factors differently, I have selected only certain conditions which were most applicable to the roles of volunteers and volunteer groups in watershed planning and management. Furthermore, as there is a dearth of empirical studies on watershed planning specific to B.C., I have focused on watershed planning research implemented within the Pacific Northwest region.

Trust

> …economic actors supported each one another because they believed that they formed a community based on mutual trust (Fukiyama 1995:8)

Many researchers find that respect for diversity within the group and interpersonal trust among group members is a huge factor in enabling success of collaborative-based planning (Leach and Pelkey 2001; Cormick *et al.* 1996). Lacking trust, individuals do not work effectively together, nor communicate necessary information. To ensure the effectiveness of one-on-one communication, participants must have confidence, understanding and trust of

other stakeholders and the organization (Johnson *et al.* 2001; Smith and Gilden 2002).

Social networks

Broader social institutions can ideally create the conditions that allow people to solve collective action problems that lie beneath the surface of any joint production or collective effort. To create network conditions, organizations facilitate the linking of individual welfare with the welfare of the larger group (Singleton 1999).

Smith and Gilden (2002) note that the creation of social networks was a pertinent 'institutional asset' which facilitated the establishment of watershed councils in Oregon State. Moreover, the fostering of personal relationships among stakeholders is a key component in encouraging healthy communication (Andranovitch 1995; Pinkerton and Kepkay 2004). Coleman (1988) refers to the capacity of groups to work together towards a common goal, as 'social capital', and 'social networks' as the building of capacity and community through interaction between individuals and organizations involved in the planning process (McGinnis *et al.* 1999; Smith and Gilden 2002).

Resources

Leach, Pelkey and Sabatier's (2002) study of participatory watershed management organizations found that adequate funding was one of the most important factors promoting success in watershed partnerships. Furthermore, relevant information and capital investments are necessary for administration and

to create 'social infrastructure' for restoring, rehabilitating, and protecting

watershed services (Smith and Gilden 2002; Gamman 1994; McGinnis *et al.*

1999).

Leadership and Vision

Leadership refers to the effective organization and direction provided by

some individual(s) in the management of a watershed planning organization

(Leach and Pelkey 2001). According to Balland and Plateau (1996) effective

leaders must be competent and savvy about the logistics of a project, while also

able to build trust with the volunteers by showing that their intentions are to work

towards a perspective valuing the greater whole. On the other hand, vision is the

"future direction and activities of the watershed", i.e., a reason for participating

(Smith and Gilden 2002: 655). Pinkerton and Kepkay (2004) join leadership and

vision together, as leadership is an important element in building cooperation and

can provide the vision for planning exercises.

Commitment and Accountability

Often watershed planning processes have lacked necessary community

support, as stakeholders have been limited to consultative roles with no real

influence on the final outcome (Benthrup 2001). Successfully designed

collaborative planning processes should involve committed participants who are

accountable and able to influence decisions regarding the implementation and

monitoring of a process or project (Gamman 1994; McGinnis *et al.* 1999; Leach

and Pelkey 2001; Cormick *et al.* 1996). Furthermore, Johnson *et al.* (1999) argue

that watershed planning performs most effectively when the stakeholders actively participate in 'defining the problems, setting the priorities, selecting technologies and policies, and monitoring and evaluating impacts'. Conversely, communities need assurance that their participation in processes actually leads to helping protect and/or facilitating the creation of institutions that protect their watershed (Brady 1996; Boyd 2003).

Ensuring the legitimacy of a particular planning process further requires cooperation among participants, and an assurance that there is a commitment to consistent monitoring as time passes (Cormick *et al.* 1996; Leach and Pelkey 2001). Commitment to a project is most likely when there is monitoring of the watersheds and evaluative measures to ensure protection is manifested in a sustained and effective manner (Brady 1996; MWLAP 1996).

3.5 Co-Management

Conservation projects provide participants an opportunity to interact with an important resource and become stewards though their conservation actions (Leslie *et al.* 2004; Pinkerton 1991; Singleton 2000). The hands-on interaction with watershed resources through watershed rehabilitation projects strengthens the bond between the volunteers and the resources, fostering a greater sense of stewardship over resources (Lerner 1993; SEP 2005).

Greater community control over resources can lead groups to be more innovative, thus creating more robust planning decisions (Morgan 1986, Anderies *et al.* 2003; Singleton 1999). Moreover, community-level management has been

demonstrated to be the most likely means of fostering necessary trust, cooperation, and confidence among stakeholders (Pinkerton 1991, 1999, and 2003). Pinkerton and Weinstein (1995) show that volunteer participation and inclusion in habitat protection, stock enhancement, and stock assessment can be conceptualized as management activities in a co-management arrangement.

Senge's (1990) study on 'learning organizations' asserts that there are three conditions which enhance our capacity to generate creative solutions. The three conditions are satisfied when individuals feel that they are part of team, they feel individually valued, and finally they believe in their work. Furthermore, Bandura (1982) asserts that when participants feel a high degree of 'self-efficacy' or capacity to design how the project is instigated, they will be more energized to participate in the conservation of a resource. Indeed most volunteers may begin with little control over harvest management and enhancement design, but their participation and interaction within the rehabilitation group is likely to influence their desire and ultimate capacity to assert control over agenda setting and policy development (Pinkerton 1991; Pinkerton 2003; Singleton 1998).

4 METHODOLOGY

4.1 Research methodology

Qualitative Research

Qualitative research methods are appropriate for addressing my research questions, as they involve a systematic approach to analysing and examining a variety of social situations, and individuals in specific settings. I have attempted to use methods that can be replicated and reproduced by other researchers (Berg 2004). Furthermore to avoid misinterpreting the survey responses when I present the results of my surveys, I have tried to remain faithful to the words of the volunteers. I often asked several questions which explored different aspects of an idea, and also used external data to verify findings (Yin 2003).

Triangulation

To address some of the challenges inherent in qualitative research, researchers will generally try to use different information sources (lines of sight) to more thoroughly explore a hypothesis and to obtain a more substantive picture (*Ibid.*). Using several lines of research to corroborate and verify a finding is generally referred to as triangulation (Berg 2004). For instance, I primarily use data from surveys, but also draw upon meeting minutes and other documents to confirm conclusions from primary data.

Semi-structured Survey

I used a semi-structured survey, beginning with a structured set of interview questions, but adapting the language of the questions to suit individual perspectives (*Ibid.*). This interview process is more flexible and better appreciates the individuality of each respondent. Moreover, I realized I might not know in advance all the necessary questions to ask, and when appropriate I added new questions or deleted superfluous questions. I assumed a more open and 'conversational' manner of discourse which was intended to allow the respondents to contribute their own personal views and commentary (Yin 2003).

I sometimes provided hypothetical answers as cues in order to better communicate the meaning behind a question, and/or instigate or inspire ideas. I also used probing and prompting questions, according to my assessment of the level of a respondent's understanding of the subject.

To limit personal bias arising from poorly designed questions, I developed my questions concurrently with my supervisor, and refined the questions by undertaking pre-tests with certain key respondents. Furthermore, during the actual surveys I attempted to maintain as much impartiality as possible, so as to ensure I did not influence each respondent's responses and opinions (Symko 2000).

Focussed Interview

To acquire a significant quantity of high quality data in a relatively short time, I surveyed a specific selection of respondents. The strength of the focussed interview is that it allows one to target select individuals and explore a particular

aspect of the research (*Ibid.*). Focused interviews also tend to be more expedient because the interviews take place over a short period of time, usually about an hour (Merton, Fiske, and Kendall 1990: from Yin 2003: 90).

Grounded Theory

In cases where the research draws from several research disciplines and theoretical perspectives, grounded theory is a research mechanism which is useful for addressing the nuances of each perspective (Strauss and Glaser 1967). Grounded theory works on the assumption that theories and ideas emerge from the research itself. Research based on semi-structured interviews, includes a process of reflection and refinement that transpires iteratively throughout the survey process. As Silver (2004: 59) notes, in grounded theory, the researchers themselves are the "research tool", and consequently the very act of research requires a constant reflection on the topic of research and what other data would be useful for better understanding the topic.

Therefore, I attempted to set aside my theoretical or preconceived ideas and allow theories to emerge. For instance, when I analysed the responses to the interview questions, I formulated themes for each question that were more case specific, and not specifically based on previous theories on the topic.

4.2 Preliminary Research

Literature Search

My initial work consisted of a broad review of the literature on volunteerism, watershed rehabilitation projects, watershed management,

watershed planning, natural resource stewardship, and co-management. I focussed on key factors for achieving participation, cooperation, and motivation among volunteers. I explored what makes a successful volunteer watershed rehabilitation project.

Additionally, I reviewed survey results initiated by other organizations (e.g. the 2005 Pacific Salmon Foundation Survey Compilation of Aquatic Stewardship). I reviewed studies and reports that pertained specifically to governmental strategies and programs for salmon enhancement and watershed rehabilitation, i.e. DFO's Salmon Enhancement Projects, Streamkeeper projects, and several watershed roundtable groups.

Meetings, Conferences, and Events

To gain a better perspective on watershed rehabilitation volunteering, I attended several volunteer-related meetings. The first meeting took place in the spring of 2005 (organized by SEHAB) and was intended to be a forum for discussing with DFO the release of their new Wild Salmon Policy. The meeting introduced me to a number of key individuals directly connected with watershed rehabilitation, and issues impacting salmon and watersheds in B.C. The second meeting I attended was organized by a non-profit organization called Evergreen. At this meeting volunteer coordinators from organizations within the lower mainland of B.C. were asked for their feedback on promoting volunteering and retaining environmental volunteers in different projects. This meeting also was useful for making new contacts, and for providing data on volunteer motivations. Above all else, attending the two meetings and several other smaller less formal

ones was useful for identifying key individuals to contact for further information, and in some cases as actual survey respondents.

I attended two conferences during the research period. The first addressed restoration and stewardship of salmon and watershed resources, and the second was more generally focussed on resource management. Both conferences provided a wealth of information on issues related to collaborative watershed management and stewardship of watershed resources. Furthermore, they were important for learning more about other academic research that is presently occurring and is specifically relevant to my research.

I also participated in an event called the "Ugly Bug Ball", a volunteer appreciation gala which is organized by local DFO Community Advisors yearly to pay tribute to and to value the considerable amount of work undertaken by volunteers in the lower mainland of B.C. This event provided insight into how volunteers were viewed and rewarded by government agencies.

4.3 Pre-tests

To verify my preliminary concepts, survey questions, and appropriate interviewees, I began by contacting a few specific volunteer coordinators. I chose individuals who had extensive experience in volunteering and/or interacting with volunteers. Many of these individuals were identified on watershed rehabilitation-related websites, I met at meetings, or they were recommended to me by others. Most of my preliminary contacts included individuals from OHEB and DFO, and the Pacific Streamkeepers Foundation. Each individual was asked about: the

number of volunteers they work with; what they thought motivates volunteers to participate in watershed rehabilitation projects; and what information they thought would be useful for my research.

4.4 Interviews and Data Collection

Survey Respondents

In order to limit the scope of my research, but also ensure that I gathered high quality data, I focussed on a select group of very knowledgeable respondents in lieu of interviewing a larger pool of actual volunteers. Many of the respondents I chose to interview were not specifically volunteers, but have or had extensive experience with volunteers and working with fish and watershed resources (average 15 years). Furthermore, I would have needed to survey a substantially larger pool of volunteer respondents in order to better generalize from individual perspectives. Hence the respondents, who have consistent experience working and interacting with volunteers, are better able to provide more generalized responses of volunteer motivations.

Choosing surrogate respondents who are extensively engaged with volunteers, I reasoned, would provide a broader perspective on volunteer perspectives. Specifically, I hypothesized that extensive interactions and experience of the respondents in assisting and designing projects suited to fish-habitat rehabilitation volunteers would minimize the risk of misperception about volunteer motivations. The respondents were also required to reflect on the

perspectives of volunteers as a whole, which provided a better chance to acquire more common, but also fundamental, reasons for participation.

Additionally, the diversity of fish habitat volunteer groups and different volunteers within the groups makes it challenging to acquire a broad perspective on fish habitat volunteering were I to have interviewed volunteers. Interviewing volunteers would have provided more personalized and individual motivations for participation, but common themes would have been less apparent in the responses. Furthermore, while interviewing volunteers would likely be more beneficial in collecting individual perspectives -- for instance how geography influences motivations -- I would have needed to focus on case study volunteer groups. Hence, the respondents are in a better position to generalize for the different volunteer types and across geographical regions, and have a more over-arching perspective of rehabilitation volunteerism.

My intention was first to garner the trust of volunteer leaders and also to access a satisfactory representation of individuals characterizing a diverse representation of volunteer leaders across B.C. I interviewed two sets of respondents, Community Advisors and Volunteer Coordinators who will hereafter collectively be referred to as respondents, unless one group is specifically mentioned. Both sets of respondents are described in the next two sections.

Community Advisors

The first set of respondents includes OHEB-DFO Community Advisors (hereafter referred to as CAs). I interviewed CAs because of their level of involvement in a diversity of community-based rehabilitation projects, and their

extensive interaction with the volunteers in each project (average 17 years of experience working in this field). The CAs work in regions across B.C., which satisfied my aim of gaining a diverse geographical perspective on volunteering across B.C. Indeed the CAs in B.C. work in a range of locations, from urban to rural, which I felt was important for acquiring a significant cross-section of perspectives on rural and urban watershed rehabilitation projects.

> (dd)….So the CAs are available on behalf of DFO to that work……Jack of all, master of none…….The value of the CA role, is that while not experts in anything, they act as a conduit between the community and the department.

Of the nineteen CAs employed in regions across B.C. and the Yukon, I was able to contact fifteen. For the four I was unable to interview, one was unavailable, and I was unable to reach the other two. It is very likely that the reason I was unable to contact the two CAs is that they were too busy with activities, or they were on vacation at that point. Having a larger sample size is generally better for social science surveys, but because the responses were fairly similar among the respondents, I do not feel the overall conclusions in this report would have changed significantly had I been able to survey the missing individuals. I decided not to interview the fourth CA, as this individual is located in the Yukon, and I had chosen to focus my research specifically on B.C.

Volunteer Coordinators

In order to increase the sample size, explore individual viewpoints which are more removed from DFO influence, and viewpoints that are less removed from the volunteers themselves, I interviewed volunteer coordinator's (hereafter

referred to as VCs) from rehabilitation groups in each of the fifteen CA's geographical regions. I surmised that interviewing VCs would help me learn the perspectives that were more reflective of the actual volunteers themselves. Since the VCs were predominantly volunteers themselves (13 out of 17), the likelihood that they would reflect volunteer perspectives was high. And as the VCs combined the roles of volunteers and coordinators, I believed that many of them would have the capacity to reflect on both their own motivations and those of the other volunteers whose work they coordinated and with whom they worked closely (average 13 years of experience working in this field).

In total I was able to contact seventeen volunteer coordinators, several of whom also occupied additional roles in their volunteer organizations. In a couple of cases I had multiple VCs from one CA's region, and conversely in two cases I was unable to contact a VC from a particular CA's region, either because there was very few volunteer-based rehabilitation projects within their region, or the VCs were too busy with activities to afford time for a survey.

Primary Interviews

I conducted the interviews between January 5th and May 8th 2006. One-on-one interviews mostly by telephone predominated. Interviews lasted between thirty-five minutes and two hours and thirty-five minutes, but averaged an hour and a quarter. Each interview was digitally recorded and transcribed verbatim to a Word document shortly after the interview. The questions I used for the respondent surveys are set out in Appendix A.

Questions with Volunteers

In order to corroborate the responses from the thirty-two respondent interviews, I surveyed a segment of volunteers from different rehabilitation projects. I distributed short-form surveys during a volunteer appreciation day (the Ugly Bug Ball) in July of 2006. Each survey sheet included ten questions which were adaptations of certain questions or series of questions that I had originally used in my respondent interviews (refer to appendix B). In total eighteen volunteers completed these written surveys. I used the responses garnered from the written volunteer surveys as a means of supporting or challenging the answers provided by the respondents.

4.5 Analysis

Data Interpretation

My conclusions are drawn from the data collected during the interviews, and additional documents. The data analysis was based on the grounded theory approach described earlier. Data analysis began directly following the first interview, and was done systematically for each of the subsequent interviews.

I organized the collected data by the individual responses to specific questions from the survey, noting common reactions and/or themes. For certain yes/no questions, I began by identifying the number of people who agreed or disagreed.

During the next stage of data analysis, I identified themes in the responses to each individual question – also referred to as coding (Yin 2003). I

then refined the themes for each question by looking for examples of themes which were repeated in different questions, i.e. similar responses to different questions.

Based on my original hypotheses, I grouped together related questions into four main categories: personal volunteer motivations; external factors influencing volunteer choices; the influence of the roles and authority levels of volunteers in resource decision-making on volunteer motivations; and factors enabling successful volunteer projects. Some categories were further broken down into a series of sub-categories related to a specific question or series of questions which were posed to the respondents.

Data Organization

By the end of thirty-two interviews and the eighteen survey sheets, I had accumulated considerable material, and had identified each interview by the respondents name and the interview date ("john doe_date"). I assigned each respondent a specific letter of the alphabet and uniquely color coded each of the respondent's answers, as illustrated below:

Table 4.5.1   Respondent Coding

Respondents Name	Letter Coding and Colored Response
John Doe	a. Response…..(red-font)
Jane Doe	b. Response…..(green-font)

Next I perused the data and decided which of the questions had produced answers that seemed the most useful and applicable to my research questions,

and using the unique letter code I consolidated the responses to each of those questions into one document referred to as "analysis_date". Following that, I read over the responses to individual questions and looked for common ideas or themes reflected in the survey responses, as discussed above in the data interpretation section. I created a separate document for storing the themes, called "themes_date". Each theme was color coded and numbered so that when one looks through my analysis notes it is easier to locate which respondent expressed a particular theme, as illustrated in the table below.

Table 4.5.2   Description of Themes Associated with a Question

Example: Why do people participate in watershed rehabilitation?
1. To save the fish, so they have more to eat later (yellow-highlighted)
2. Something to do, instead of cleaning the house (purple-highlighted)
etc.

Next, I created an excel table, "statistics for thesis_date", which contains on the horizontal axis each applicable question and the theme numbers associated with each question. The vertical axis shows the unique letters representing the individual respondents. The unique letters are further broken down into two sections, differentiating between the Community Advisors – referred to with a C - and the Volunteer Coordinators – referred to with a V. Thus, when one looks at the spreadsheet table, s/he will see which respondent answered each theme. The total number of responses to each theme is listed across the bottom, as shown in the example provided as Appendix C.

I created one type of table for quantitative questions. For instance, at one point I ask the respondents to provide their estimation of the number of volunteers who reside in a rural area versus those who live in an urban setting. This table is broken down by place of residence along the horizontal axis, and the total number of responses and the proportion of the totals are given along the vertical axis.

I created a second type of table to display the questions related to the sub-categories. This table is organized based on the themes related to the question, or series of questions. Each theme is further broken down by columns, showing first the total number of responses, and then separated into the number of responses given by Volunteer Coordinators (V) and the number of responses given by Community Advisors (C). For certain questions, there is an additional row which includes the number of volunteer responses or participants (P) - based on the responses from the volunteer surveys, as exemplified in Table 4.53.

Table 4.5.3   Example "Sub-Category" Table

Responses (themes)	# of Responses		Respondents
"Question posed"			
"Themes"	Total	Total responses of the CAs	Coded letters.
		Total responses of the VCs	e.g. b, q, bb…
		Total responses of the volunteers (only applicable to certain sub-categories)	

PART 2   RESULTS

The following chapters show the responses to the questions I asked. As described in the introduction, my results are split into four chapters, focusing on four different aspects of volunteers' motivations. Additionally, as described in the methodology section, each chapter is split into separate sub-categories, each containing a brief explanation and a table outlining the themes that are related to the specific sub-category. The table is broken down into themes, and a coded list of the respondents who expressed the particular theme. Finally I provide interpretations of the themes shown in the table, and supplement the explanations with passages from the survey responses.

5   VOLUNTEERS' PERSONAL MOTIVATIONS

In my preliminary interviews with specific respondents, and in the literature on rehabilitation volunteering, I found three main factors which seemed to be the most common in regards to the personal motivations of volunteers. These are that a rehabilitation volunteer participates because of: the desire for a sense of community; the desire to effect change in a resource; and for career or networking opportunities.

Before I explored whether the respondents felt the three above mentioned factors were indeed the most relevant factors, I also wanted to ascertain what the respondents personally felt were the most relevant factors motivating rehabilitation volunteers. I could then compare whether the respondent's factors matched my chosen factors. Hence the following section first explores the personal motivations as stated by the respondents, and I then explore responses regarding the three motivational factors I originally chose.

5.1   Individual Factors Motivating Volunteers to Participate

In the next section I explore what respondents identified as the major factors that influence volunteers to participate, in order to compare the categories which they generated with the factors I had hypothesized as being the most important. Table 5.1 summarizes their responses.

Table 5.1   ***Individual Factors Motivating Volunteer to Participate***

Responses	Number of Responses			Respondents
What factors motivate volunteers to participate?				
To put something back into the environment, community	24	11	C	d, e, i, m, s, u, v, z, aa, cc, dd
		13	V	g, h, j, k, l, n, o, q, t, w, x, ee, ff
		13	P	hh, ii, jj, kk, ll, mm, nn, oo, pp, rr, tt, uu, ww
For the sense of accomplishment, and to make a difference	23	14	C	a, b, d, e, l, m, p, s, u, v, z, aa, cc, dd
		9	V	c, g, k, l, n, o, x, y, ff
		4	P	ll, pp, tt, vv
For the camaraderie among volunteers	18	8	C	e, i, m, p, u, aa, bb, cc
		10	V	c, j, o, r, t, w, x, y, ee, ff
		7	P	gg, hh, jj, mm, ss, ww, xx
To do something useful	16	7	C	b, m, u, v, aa, bb, dd
		9	V	c, f, g, h, l, o, r, ee, ff
		7	P	gg, kk, nn, pp, qq, rr, ss
To feel part of something bigger, make the world a better place	9	3	C	a, u, bb
		6	V	c,f, h, o, ee, ff
		4	P	tt, uu,, ww, xx
For the recognition	9	3	C	b, p, s
		6	V	h, n, r, x, y, ee
To work with fish – a hands-on experience	6	4	C	s, u, aa, cc
		2	V	g, x
For career and networking opportunities,	6	1	C	Bb
		5	V	j, t, x, ee, ff

The majority of the all respondents (24 out of 32) and of volunteers (13 out of 18) stated that the most substantial volunteer motivation was to put something back into the environment and/or community.

(d) I have taken, therefore I want to put back.

In a related response, twenty-three of the respondents and particularly the CAs, also stated that another strong motivation was achieving a sense of accomplishment from participating in environmentally-based activities. In the words of the respondents, sense of accomplishment was both a factor that made the act of volunteering rewarding and was a factor which promoted participation.

Often the act of volunteering for rehabilitation work includes seeing a project get completed, seeing the fish return or seeing a stream bank restored. Particularly with watershed rehabilitation and salmon restoration, it may be possible to see the results of one's labours. For instance one respondent said:

> (z) ….when they do something, and especially with the more urban groups who don't know a lot about nature, but they know they are concerned about it, conceptually, but don't know what it is all about. They may do some tasks like fixing a culvert, and at the time they are doing it, having fun, and participating, but they may be sceptical that their work is going to do any good. But then later they go to visit the site and see fish returning, they go nuts with excitement.

Not quite as frequent a response, but still high (18), was that volunteers are strongly motivated by the desire for camaraderie -- a common motivation among many volunteer groups. Camaraderie may be reflective of a desire for community, in that volunteers participate for the opportunity to work with others towards some common purpose, as demonstrated by these quotes

> (c) The social sense of it. The sense of belonging to a group, getting friends, having fun…… Especially retired people, it is pretty important to them.

> (m) It is a community oriented sort of thing, but it is also a very social oriented type of thing.

> (j) Sense of community is big too, having a sense of community it creates a sense of community. Many have originally volunteered because a neighbour is involved…..

Wanting to do something useful (16) and wanting to feel part of something bigger (9) were the next most common motivations. Furthermore, recognition, such as the recognition one gets from one's peers, received equally frequent mention (9). Recognition also refers to the desire to be acknowledged for one's

work and appreciated for accomplishments. Hence, while respondents favoured sense of accomplishment, they felt that the volunteers are almost equally motivated by the desire to be recognized for their accomplishments.

A number of respondents also felt that the experience of working with fish, working in the streams, the "hands-on" activity, was a strong motivation. Hands-on activity is sometimes referred to as "gumboot" activity and was mentioned in a number of the other responses to multiple questions. For instance, when I later asked the respondents about the opportunity to influence public decision-making and how it motivates volunteers, a number of respondents mentioned that most volunteers were more there for the hands-on experience.

The potential for furthering one's career, or making contacts was also mentioned as a strong motivation. More description of career-related volunteer motivations is provided in a later sub-section.

5.2 Volunteers' Sense of Community

The sense of community volunteers experienced while participating in the volunteer activities was a particularly important motivation. Yet different people see sense of community differently. I likened Barkan's (2004) recruitment - the influence of neighbours and friends on the engagement of a volunteer with a project - to sense of community. People volunteer because others influence their desire to participate in the activity. Alexander (1993:196) writes that people may be individually motivated and remain involved because of a "Sense of solidarity and strength derived from the many groups joining together as one, the sense of

camaraderie". Also, according to ZoAnn Morten (2005 pers. comm.) one of the main reasons for volunteering is for "Friendship….People want to become part of a community, connect with other like-minded people. New individuals want community - like a dating service". Consequently I interpreted sense of community as the capacity of a volunteer organization and its activities to create the feeling of friendship and camaraderie among the volunteers.

But what was the capacity of volunteer organizations and volunteer activities to create a sense of community? The next questions focused on whether the respondents felt there was some sense of community among the volunteer groups and/or communities in which they resided. The respondents were also provided the opportunity to expand on personal interpretations and reflections on community. Both sets of responses are provided in the table below:

Table 5.2   Sense of Community

Responses	Number of Responses			Respondents
Are the volunteers community oriented?				
Yes	31	14	C	a, b, d, e, i, m, s, u, v, z, aa, bb, cc, dd
		17	V	c, f, g, h, j, k, l, n, o, q, r, t, w, x, y, ee, ff
No	4	3	C	m, p, u
		1	V	l
What is sense of community?				
Sharing a common purpose, or interest (e.g. a common concern for the environment).	23	12	C	b, d, i, m, p, s, u, z, aa, bb, cc, dd
		11	V	f, g, h, j, k, l, n, q, t, x, y
Participating in community activities which benefit the whole community (i.e. acting for the benefit of the whole)	16	8	C	b, d, e, s, v, z, aa, dd
		8	V	c, f, g, h, j, q, r, ff
Caring about and knowing your neighbours	11	6	C	a, d, u, aa, cc, dd
		5	V	k, q, t, x, ee
A feeling of belonging to a place	11	2	C	s, aa
		9	V	g, k, o, q, r, t, w, ee, ff

Overall the majority of respondents felt there was a sense of community among the volunteers in the groups, and in the communities. Both sets of respondents answered fairly equally that a sense of community can be interpreted as the sharing of some common purpose (e.g. caring for the environment), caring about one's neighbours, and participating in activities that benefit the whole community.

> (b) it is part of the function of trying to coordinate, create training and stuff like that, so there is that sense of community for sure.

> (x) ...coming from a background of having championed something, feel connected to the place, see the plants growing that they planted.

As the CAs and VCs both reside in the areas where the activities are occurring, it is not that surprising that the numbers of CAs and VCs who responded to each question were remarkably similar. The one substantial difference was in the responses regarding belonging to a place. For this response only two CAs referred to sense of community as belonging to a place, versus nine VCs who made this mention. This large difference is likely due to the fact that the VCs may be more connected with the local community and the area as they generally participate in volunteer activities, whereas the CAs occupy more of an advisory role to the groups.

The respondents expressed that a volunteer's cultural background may strongly influence whether an individual decides to volunteer. For instance, it may matter whether they are originally from the community or have more recently moved there (e.g. a recent retiree). Barkan (2004) finds a significant influence of

cultural or religious background on volunteers' willingness to participate (see also

Dietz *et al.* 2002). Few respondents mentioned First Nations' participation in

volunteer activities, which might partly be attributed to a cultural influence. The

following response suggests that groups' self-perceptions of cultural

separateness can influence participation:

> (k) There is a larger Indo-Canadian community, and that group is separate from other communities, and there is a FN community. They are separate because their culture, their language, all play a role in defining them, their lifestyles as well.

5.3 Factors Contributing to Volunteer Motivations

I focused the next category of questions on the three factors of volunteer

motivation which I had hypothesized as being most important. I asked each

respondent to rate whether volunteers were more likely to be motivated to

participate in watershed rehabilitation projects because of: sense of community;

a desire to effect change in a resource outcome; for career and/or networking

opportunities.

The second factor involves a volunteer's desire to improve the health of a

resource - water, fish, forests, etc. I associated resource outcome with issue

engagement – the influence of individuals' feelings about an issue on the amount

of energy s/he invests in a project. I defined career-oriented motivations as the

desire to find employment or develop employment-finding networks. For

instance, in my preliminary exploratory interviews some respondents noted that

there were a number of students and younger people who were volunteering as a

way to develop skills and create contacts.

To gauge concurrence or disagreement with each motivation, I framed the above choices as statements and asked each respondent to rate each statement on a five-point Likert scale from "significantly disagreed" to "significantly agreed". To assess the degree of importance or relevance of each statement and its effect on the number of volunteers, I asked each respondent to give the proportion of volunteers who were motivated by each factor.

The results are listed in a table below. Each factor is listed along the horizontal axis, and is separated into two columns: one showing the rating that was assigned to the factor; and the second column shows the percentage of volunteers said to be motivated by the factor. Along the vertical axis, the rows show the means for the CAs, the VCs, and the totals respectively.

Table 5.3   Factors Contributing to Volunteer Motivations

	Factor A. Sense of community		Factor B. Effect change in resource conditions		Factor C. Career	
	Rating	%age	Rating	%age	Rating	%age
Mean - C	4.30	60%	4.77	73%	3.23	19%
Mean - V	4.41	74%	4.62	75%	3.53	15%
Mean - Total	4.36	68%	4.69	74%	3.39	17%

According to the respondents, the majority of the volunteers participate predominantly to effect change in a resource (74%) and overall the respondents strongly agreed with the statement (rating 4.69 out of a possible 5). There was also little difference between the responses given by the CAs, and the VCs for Factor B. That the respondents most strongly agreed with the statement that volunteers were motivated by a desire to effect change in the resources, is

similar to the responses given when I asked what the respondents felt were the strongest motivational influences on volunteers. The frequently expressed opinion was that volunteers participate because they want to put something back into the environment and accomplish something, in other words, effect change.

(p) Raison d'etre- make life for the fish better.

According to the respondents, Factor A, or volunteering for the social interactions – the sense of community - was slightly less relevant than Factor B, (68%), and the respondents generally agreed with the statement (rating 4.36). What should be noted is that the VCs felt that the volunteers were participating for both Factor A and B almost equally, 74%, and 75% respectively. On the other hand, the CAs were more strongly in favor of Factor B (73%) over Factor A. The CAs' responses are consistent with the list of volunteer motivations the respondents provided, in which the responses related to camaraderie were not mentioned as often as those related to affecting change.

The responses of the CAs and VCs were more similar for Factor C, participation for career reasons, at 19% and 15% respectively. The total mean percentage that was provided for career-motivated participation was 17%, and the respondents expressed that they were neutral: they neither agreed nor disagreed that volunteers were motivated for career opportunities (rating 3.39).

5.4 Summary

Overall the opinions given by the respondents for volunteer motivations strongly reflected the motivational factors I had originally hypothesized as most

important. First, volunteers participate in watershed rehabilitation activities because they want to be able to affect change and witness these changes. According to the respondents, volunteers want to be able to participate in activities that will be effective and accomplish something that is important on a larger scale – contribute to the environment/community. For instance, rehabilitating a stream and witnessing the return of fish the following year.

A slightly less frequent response was that volunteers participate for the camaraderie or sense of community. Coupled with a desire for camaraderie was the desire for recognition. Volunteers participate because they want to feel appreciated for their actions towards a greater good, both from others and because they have accomplished something worthwhile.

The desire to volunteer for career opportunities was not mentioned nearly as much as the other two motivations. Although listed as a motivation, career opportunities are only believed to be applicable to a select group of volunteers. Furthermore, career opportunities are likely to be a secondary reason for participating.

6 FACTORS AFFECTING VOLUNTEERS' CHOICES

A number of factors not specifically related to a volunteer's personal feelings can also strongly affect whether a volunteer chooses to participate in rehabilitation activities. For instance where a volunteer lives and the stage of life of the volunteer can both play strong roles in influencing volunteer participation. The stage of development of a group may influence how a volunteer feels about a group and therefore his/her motivations to participate. The types of activities a group chooses to engage in can also strongly influence volunteer motivation. Last, the level and types of government engagement in an area can have important implications for the level of volunteer participation and support. These external influences are explored below.

6.1 Location

Given B.C.'s diverse geography and mix of rural and urban communities, I wanted to explore whether rural versus urban place of residence influences rehabilitation volunteering. I asked how many volunteers the respondents considered to be rural, suburban, or urban. I also asked the respondents whether they felt location influences volunteer participation.

Table 6.1.1   Volunteer Residence Location

Respondent Type	Urban		Suburban (mix)		Rural	
	Mean (%)	Respondents	Mean (%)	Respondents	Mean (%)	Respondents
Respondent Responses (Community Advisors and Volunteer Coordinators)						
C	33	e, i, m, p, s, u, v, aa	23	b, p, s, u, z, cc, dd	42	a, b, d, e, i, p, s, u, v, z, bb, cc, dd
V	54	f, g, h, j, k, l, n, o, r, t, y, ff	10	f, j, x	36	c, f, g, j, k, l, n, q, r, t, w, ee, ff
Tot.	44	All	17	All	39	All

The majority of the volunteers are located in urban areas (44%), with those living in rural areas only slightly less (39%), and only 17% in suburban areas. There was some contention between the CAs who seemed to think that more of the volunteers came from the rural areas - 42% (vs. 33% urban), and the VCs who favoured the urban areas more - 54% (vs.36% rural). I decided not to include the responses of the volunteers themselves in this question, as the pool I drew from was relatively small and consisted of volunteers residing solely in the lower mainland area.

The next question and series of factors explores responses regarding people's choice of residence, and how it influences level of volunteering.

Table 6.1.2   Influence of Location of Residence on Volunteer Choice

Responses	Number of Responses		Respondents	
Does where someone chooses to live affect their motivations to volunteer?				
Yes	21	9	C	a, b, e, p, s, u, v, aa, bb
		12	V	g, h, j, n, o, q, r, t, w, x, y, ff
No	8	5	C	d, m, z, cc, dd
		3	V	f, k, ee

Overall the majority of the respondents (21 in favour, 8 against) felt that location of residence of volunteers affected participation. They stated that those living physically closer to some resource were more likely to volunteer. For instance as one respondent states:

> (s) Sometimes if people live on the creek, and see it could affect their level [of what?], they have a direct concern….. Where they live certainly does play a part, as it determines how much they are in touch with the habitat.

Proximity to a watershed was mentioned as a strong influence on volunteer participation, as it can influence how long it takes to travel to a project. Time restrictions caused by travel to and from the resource, may in turn lead volunteers to choose alternative volunteer options that are closer to their place of residence.

The proximity of a volunteer to a resource may heighten his/her sense of urgency to protect the resource, in that the closer one is to the resource, the more apparent and important resource issues may seem. Furthermore, in some cases, certain watersheds may be more deteriorated or salmon stocks lower than in other areas, thus fuelling a certain degree of urgency to protect the resources.

> (n) (The volunteers) will only react when see the bottom of the barrel. Will get very passionate about it when little remains.

> (ff) Urgency brings volunteers.

Coupled with the sense of urgency is the fact that the geographic location may also influence the number of activities available in an area. In some communities there may be a stream with a lot of damage, or a diminished salmon

population requiring restocking, whereas in another community there may be no streams, or conversely a stream with a very healthy salmon population.

> (a) If lived in the city, might volunteer for the Arts Club, but as there is a lot of hatcheries around, volunteer for those.

6.2 Stage of Life

I questioned what stages of life characterized the volunteers, as the stage of life often determines a volunteer's available resources – time, expendable funds, etc. I also explore whether certain life-stages are more prominent in volunteers than others. For instance, was a retiree more likely to volunteer than a student, and if so, how does this relate to his/her personal reasons for volunteering?

Barkan (2004) lists resources as the amount of time, money, etc. that a volunteer feels s/he is able to provide, but my preliminary research demonstrated that because of the economic diversity of the groups I interviewed and the number of volunteers within each group, resources seemed to play a smaller role than other influences. I was also reluctant to ask questions about financial status, which would have added another level of complexity to the study.

To explore the importance of the stage of life I asked respondents to provide their opinion on what the different life stages are, and how they influence the amount of time volunteers have available to participate.

Table 6.2   Influence of Stage of Life on Volunteer Choice

Responses	Number of Responses	Respondents		
Do people volunteer more frequently and for different reasons depending on their stage of life?				
Yes	27	13	C	a, b, d, e, m, s, u, v, z, aa, bb, cc, dd
		14	V	c, g, h, j, l, n, o, q, t, w, x, y, ee, ff
No	4	2	C	i, p
		2	V	k, r
What are the main volunteer stages of life?				
Retired	23	12	C	a, b, e, m, s, u, v, z, aa, bb, cc, dd
		11	V	g, h, j, l, q, r, t, w, y, ee, ff
		3	P	ii, pp, ss
Student and/or younger	22	11	C	a, b, d, e, m, s, v, z, aa, bb, dd
		11	V	g, j, l, n, o, t, w, x, y, ee, ff
		2	P	ll, qq,
Younger career, family	15	9	C	b, m, u, v, z, aa, bb, cc, dd
		6	V	c, k, q, x, ee, ff
		8	P	gg, jj, kk, rr, tt, uu, vv, ww
Later Career, middle-aged	10	4	C	d, i, u, dd
		6	V	g, h, j, o, q, x
		4	P	hh, nn, oo, xx
Does the stage of life influence the period of time spent volunteering?				
Yes	26	13	c	a, b, d, e, m, s, u, v, z, aa, bb, cc, dd
		13	v	c, g, h, j, k, l, n, o, q, t, y, ee, ff
No	5	2	c	i, p
		3	v	r, w, x

The majority of the respondents felt that stage of life does play a significant role in the level of participation. Several classes of life-stages were mentioned which I have broken down into four main classes: student and youth, younger career (possibly with family), later career (middle-aged), and retired.

The stage of life does seem to have a major influence on the length of time people will and can volunteer. The retired group was stated to be the most common and likely group to volunteer their time. It is also the retired volunteers who participate for the longest periods of time. It is likely that the retirees are the most common and stay for the longest as they may have a greater amount of

free time available for participating in volunteer activities, particularly in relation to any of the other groups. For instance one respondent noted:

> (r) For the retirees, they were too busy when they were working, but it was not that they did not want to volunteer for it before, they just now have the time for it.

The later career types were also listed as a group who volunteered for longer periods. According to some respondents, the reason for this group volunteering for longer, is that they have more time to spare given they are less likely to be looking after kids at this point in their lives, and they are less inclined to be worrying about the logistics of setting up their life and career. On the other hand, the younger career or family group is less likely to have time to volunteer, given that their focus is more likely to be on supporting themselves, getting their career started, and possibly raising a family.

> (c) A lot of people cannot volunteer when raising kids that are young. Some people do try and bring out young kids, but soon realize that kids fall in the streams, or can't hike the trail.

Answers varied considerably regarding the time available to the students and youth life stage group. Some said younger volunteers had more time, while others said the younger volunteers had less time as they were occupied with other activities. The youth were also listed as being the least likely to continue for long periods of time, although, along with the retired group, they were the most mentioned group. Statements made about younger volunteers mentioned:

> (d) More selfish when younger, less young people volunteering.

> (y)….whereas the younger people with sports and other commitments, they have busy lives. So trying to scratch in

activities. But there are some students that do participate because they see the long term goals, may want to become biologists.

There were a number of factors that came up in relation to the influence of career on volunteer participation, but the limited number of similar responses did not warrant their being listed in the table. One such theme is that areas with post-secondary institutions nearby, such as big cities, are likely to have volunteers participating for career reasons. A few respondents also noted that a community's dependence on some industry (such as forestry) may influence volunteer participation in the case of volunteers who are participating to effect change, and/or for career opportunities.

6.3 Developmental Stage of the Volunteer Group

The next question explores how the life stage of a group (maturity, group age) can influence volunteer participation.

Table 6.3   Influence of Group Age/Maturity on Volunteer Choice

Responses	Number of Responses		Respondents	
Does the developmental stage of a group affect volunteer motivation?				
Yes	25	13	C	a, b, d, i, m, s, u, v, z, aa, bb, cc, dd
		12	V	g, h, j, l, n, o, q, r, t, y, ee, ff
No	8	5	C	d, e, m, p, v
		4	V	k, w, x
How does the developmental stage of a volunteer group affect volunteer motivations?				
As group evolves, gain more confidence, maturity, and respect, more likely to effect change	16	8	C	a, i, s, u, z, aa, cc, dd
		8	V	g, o, q, t, x, y, ee, ff
It is not so dependent on development stage of group, but more the group's vision or leadership.	8	5	C	d, e, m, v, bb
		3	V	j, k, w
The groups that have been around for longer are more able to motivate and influence membership	7	3	C	s, v, z
		4	V	h, n, t, ee

The general conclusion of the majority of respondents is that, yes, the age or maturity level of the group does influence the motivations of volunteers. The

longer the group has been around, the more confidence they have as a group, and the more likely they are to be able to motivate people to participate. But, according to a number of the respondents, motivation also depended to some extent on the vision and/or leadership of the group, as shown in the following example:

> (k) It has to do with what the group has determined are its priorities. So unless the group was formed to be an advocate for something, it is their prime purpose, it is a difficult area to know what to do, not somewhere where people are empowered, so they are hesitant about stepping forward to say "this is right", they will look around and wait for someone else to do it.

6.4 Agency Influence

As half of my respondents are employees of DFO (the community advisors), and the other half are individuals who generally interact with DFO in some role (the volunteer coordinators), I used some questions to explore the role of DFO in watershed rehabilitation volunteering. Specifically, I explored DFO's role in encouraging and promoting volunteer participation in watershed rehabilitation and salmon recovery.

Table 6.4 Influence of DFO on Volunteer Choice

Responses	Number of Responses			Respondents
How successful has DFO been in constructing a supportive constituency of volunteers in habitat protection and rehabilitation?				
Very - Reasons are provided below	22	10	C	a, b, e, i, s, u, v, z, aa, dd
		12	V	c, f, g, h, j, n, o, r, t, y, ee, ff
DFO has been very supportive through the CAs and other ground staff and programs such as SEP	27	13	V	a, b, d, i, m, p, s, u, v, aa, bb, cc, dd
		14	C	f, g, h, j, l, o, q, r, t, w, x, y, ee, ff
CAs support, and provide guidance	6	4	C	p, s, v, bb
		2	V	j, ee
Not very - Reasons are provided below	19	7	C	d, m, p, u, aa, bb, cc
		12	V	c, h, j, k, l, n, o, q, w, x, y, ee

Responses	Number of Responses			Respondents
There is insufficient funding and resources for them to be effectively supportive	18	8	C	d, m, p, v, z, bb, cc, dd
		10	V	f, g, h, k, l, n, o, t, w, ff
Bureacracy has limited DFO's capacity to be supportive of volunteers	13	4	C	d, e, bb, dd
		9	V	c, h, n, o, q, r, w, y, ee
There are a number of DFO programs that support volunteers, but they tend to be sunset programs.	6	2	C	u, cc
		4	V	k, o, w, q

Both groups stated quite similarly, twenty-two in total (10 CAs, and 12 VCs), that DFO was very successful in advocating volunteering. Specifically, the CAs, other ground staff, and programs such as SEP were listed as some of the key successful examples of volunteer support. Moreover, the respondents stated that the CAs performed a particularly important role in supporting the volunteers and providing guidance.

A large proportion of the respondents (19), however, felt that the agency was not very effective. In this case, the answers between the two groups of respondents also differed more, with only seven CAs stating "not very", and only twelve VCs. They attributed the agency's ineffectiveness to the lack of sufficient funding and resources available to support and promote volunteering and the projects. But "bureaucracy", as manifested in regulations and limits on the capacity of DFO to support the volunteers, was also listed as a strong hindrance to the effectiveness of agency support. Bureaucracy and insufficient funding also limit the length of time a project can be sustained. Indeed, many projects or strategies tend to be "sunset" projects, in that they are set up to last only a certain amount of time. There were particularly negative views toward the fact that, in a sunset project, a lot of the project's time and resources are exhausted

in the project establishment and management, and little goes to the actual

implementation, let alone the later monitoring and maintenance, e.g.:

> (w)The Environmental Farm program (EFP) is another program. It is a sunset program. Great, but sunset program. They talk this word sustainability, but they don't have any sustainable programs, the EFP has just got its feet wet, and will be over in two years

> (k) …..just when things get off the ground, there was the Habitat Enhancement program, they had a great coordinator who was able to bring the FN and non-FN together to work and do some restoration work along the river, but it was only a three year program. In three years you are just starting to build trust, and no time put into actually doing stuff and then the program is pulled. …..said they were there for the long haul, gave lots of money, and even after some very direct questioning, they said "no, we are here, don't worry about it". But then after 3 years, "we are cutting your funding, we have to do all these other plans, so here is a little money, and then at the end of the 5 years, no more money." And the group was like "what is the point?"

6.5 Summary

In summary, the respondents identified location as playing a large part in

influencing volunteer motivations towards engagement. Approximately 44% of

the volunteers were listed as living in urban areas, 17% in suburban areas, and

about 38% in rural areas. The respondents also stated that where the volunteers

lived influenced the level of volunteering: the closer the volunteers were to a

resource, the more likely they were to perceive the urgency required to

rehabilitate the resource, and also the more time they had available to participate

after traveling to the site. A few respondents also indicated that generally there

were more people available to volunteer in the cities, but because there were

more urban volunteer activities organized, there was probably about the same

proportion of volunteers participating in rehabilitation in both areas, for instance:

(b) People in rural areas may be less likely to volunteer, but having said that, it is not exactly true, as there is less people there. SO percentage wise, it is probably pretty close, and in fact rural areas may have a higher amount of volunteers. Depends on what using for parameters, if took the number of volunteers and divided by number of people, would probably come out with a much smaller number then the other way around.

Also, while there was more inclination to want to effect some change in the resource where volunteers lived closer to the resource (generally the rural areas), there were also greater restrictions to volunteering in some areas, such as cost restrictions for getting to a volunteer location.

Stage of life had a significant influence on volunteer participation. Overall those individuals with the most time to spare - the retirees and individuals later in life and career - could afford to give the greatest amount of their time, whereas younger volunteers were fewer and tended to volunteer for shorter periods of time. Younger volunteers may be more focused on school, establishing their lives, and/or raising a family; hence they have significantly less time available to participate. Where the volunteers are consumed with raising families, they may also be influenced by the need to volunteer in other activities, consequently reducing their participation in environmentally related activities.

Lead agencies like DFO play a significant role in encouraging volunteer motivation. Unfortunately they are also limited in their capacity to provide support. Not surprisingly, the biggest perceived impediment to providing adequate support was marginal funding and inadequate personal and material resources. Insufficient resources seriously limit DFO ground staff in their capacity to effectively help volunteer groups. Bureaucratic limitations (regulations,

insufficient staffing, etc.), can further exacerbate issues of insufficient resources by limiting the kinds of support agencies can provide to the volunteers.

Overall the respondents felt that many of the projects and programs that agencies initiate are extremely valuable and useful. But one of the biggest issues is that the majority of the programs are sunset programs which do not have time to effectively create any substantial action before they are eliminated.

7 DECISION-MAKING ENGAGEMENT AND VOLUNTEER MOTIVATIONS

Rehabilitation outcomes are likely to be more effective when local users of a watershed participate in its planning and management (Pinkerton 1991, 2003). Hence, I dedicated a number of questions specifically to exploring the role of volunteer participation in decision-making and resource management. In formulating questions specific to participation in decision-making, I drew from both the literature on collaborative planning, and community-based management. The questions I designed address volunteer motivations in relation to volunteer engagement in decision-making. I also asked the respondents to provide examples in which volunteers were given the capacity to participate in decision-making, such as in councils or boards.

7.1 Volunteer Decision-Making Authority

I began by asking the respondents if they felt the volunteers were more likely to want to volunteer when given opportunities to influence decision-making.

Table 7.1   Volunteer Decision-Making Authority

Responses	Number of Responses		Respondents	
Are individuals more inclined to volunteer when provided capacity to influence public decision making?				
Yes	26	13	C	a, b, d, e, i, m, s, u, v, z, aa, bb, dd
		13	V	c, g, j, n, o, q, r, t, w, x, y, ee, ff
		13	P	gg, hh, kk, ll, mm, nn, oo, rr, ss, tt, vv, ww, xx
No	9	3	C	b, p, cc
		6	V	h, j, k, l, o, ee

Responses	Number of Responses			Respondents
		8	P	hh, ii, jj, mm, pp, qq, rr, uu
What level of exposure are volunteers provided to directly or indirectly influence watershed management decisions?				
Lots	7	5	C	a, b, v, z, aa
		2	V	g, x
Some	22	10	C	d, e, i, m, p, s, u, bb, cc, dd
		12	V	c, j, l, n, o, q, r, t, w, y, ee, ff
none	2	0	C	
		2	V	h, k
Related Themes				
Groups/volunteers only participate in decision making when they know their decisions will make some difference.	23	11	C	a, d, e, i, m, p, s, u, aa, bb, dd
		12	V	c, g, j, k, o, q, r, t, w, y, ee, ff
Volunteers are hands on, don't want the advocacy/lobbying	16	8	C	b, d, e, p, v, z, aa, bb
		8	V	c, h, j, l, q, r, y, ee
Depends on the individual and group motivations of the group.	15	4	C	b, d, p, s
		11	V	g, h, j, l, n, o, q, r, x, ee, ff
Can attend various decision making functions, but have little influence	15	9	C	d, e, m, p, s, z, aa, bb, dd
		6	V	c, h, n, o, t, ee
The more mature the group, the more likely they are to be politically involved	4	3	C	b, z, aa
		1	V	l

Most of the respondents (23) reported that they felt that having opportunities to participate in decision-making did encourage greater participation from the volunteers. And the volunteers were also provided some exposure or opportunities to participate in decision-making arenas where they might influence resource planning and management decisions.

In situations where opportunities do exist for participation in policy and management decisions, many of the respondents stated that participation did not necessarily imply their inputs would actually translate into some action being taken. Indeed, several of the respondents argued that volunteers who engaged in advocacy and policy or decision-making were more likely to burn out quickly.

(e) A volunteer that only goes to council meetings, and bangs on politicians doors, often does not stick around for long.

The respondents also believed that both the groups and volunteers were only likely to participate in decision-making processes when they could see something come out of it, or they were able to witness an effect from their participation. Furthermore a number of respondents also stated that while the volunteers might be provided ample opportunities to participate, in reality their participation was unlikely to actually result in any change.

A number of respondents also expressed that volunteers participating in watershed rehabilitation-type projects are more inclined to want to participate in hands-on activities. Indeed, that volunteers are more interested in the hands-on experience was an idea that arose in response to a number of questions. For instance, some of the respondents stated that the volunteers were less interested in advocacy and/or monitoring, because they wanted the hands-on experience, the opportunity to get dirty and play with fish, as the following statements attest:

> (d) Most people like to get out and do something, get out and get dirty, get out and do something. Our society is about instant gratification

> (j) they want to play with fish, or plant trees, do some beneficial and constructive for the planet, make a difference. Not interested in lobbying or politics

> (p) All volunteer groups divide themselves as either those with gumboots versus those with briefcases.

7.2 Decision-Making Opportunities

A number of opportunities exist in which volunteers can participate in decision-making processes for resource planning and management. The following table provides a summary of a few of the most commonly mentioned

organizations and a few examples of decisions in which volunteers have been

able to influence some change.

Table 7.2   Decision-making Opportunities

Responses	Number of Responses			Respondents
What are some decision-making bodies where volunteer have an opportunity to influence resource related management and planning?				
Councils/committees/advisory boards (e.g. SEHAB)	19	11	C	a, b, i, p, s, u, z, aa, bb, cc, dd
		8	V	g, j, o, r, x, y, ee, ff
		1	P	ww
Municipal/local government, or local community meetings, Contacting or being contacted by government officials.	9	4	C	a, p, v, z
		5	V	q, r, t, x, ff
		4	P	oo, qq, ss, tt
Rountables	7	6	C	a, m, s, v, cc, dd
		1	V	ee
What are some areas of decision-making in watershed management and planning where volunteers assist external agencies?				
Providing local knowledge, stock information, habitat violations, etc.	22	9	C	e, i, m, p, s, u, aa, bb, dd
		13	V	g, h, j, k, l, n, o, q, t, w, x, y, ee
Arresting development and protecting salmon and their habitat	15	8	C	a, d, e, u, v, z, aa, bb
		7	V	o, q, r, t, w, y, x, ee, ff
		8	P	hh, nn, oo, pp, rr, uu, vv, xx
Helping to shape bylaws and/or regulations	9	5	C	b, d, e, s, z
		3	V	o, r, x
		1	P	jj
Fisheries openings and closures	4	3	C	a, b, p
		1	V	q

The respondents provided a number of examples of decision-making

bodies in which volunteers could participate and potentially influence watershed

management and planning. The most common body was an advisory board or

committee (19 respondents and 5 volunteers). Municipal meetings and

roundtables garnered considerably less mention (9 and 7 responses respectively

for the respondents, while eight volunteers also mentioned municipal meetings).

But, as was stated before, a volunteer's participation in such a process may not

actually lead to any substantial impact or influence. Indeed, there were mixed

opinions regarding the effectiveness of volunteer participation in advisory boards,

as is demonstrated in the following statements:

> (c) Most of those are closed, or by invite only. That is an inside political thing, and [they] have to really be careful. They stack their tables, the government and political leadership stack the tables to favour their direction. And so they don't want controversy. Roundtables are normally stacked. The level of trust is almost zero for government.

> (q) DFO certainly will come to the group if there are fisheries management decisions for the Quadra Island and area. They rely quite extensively on their recommendations, if it is hard science-based, they will go with whatever the scientists are telling them. But if it is socially-based issues, they will correspondingly listen and take guidance that much more.

Conversely, the respondents expressed that SEHAB seemed to be the

most effective organization in which volunteers could actually effect change.

The most common decision or mechanism through which the volunteers

help agencies with decision-making was through the provision of local knowledge

(22 responses). The respondents stated that agencies do seek information and

data from the volunteers fairly regularly. Helping agencies through providing local

knowledge or data can include collecting stock information, monitoring data, or

even habitat violations. Whereas, only a couple of people mentioned that making

independent decisions and changing government policy is a major factor or

influence for what made volunteering special and why volunteers wanted to

participate (refer to chapter 5).

The respondents also felt that the volunteers participated in decision-

making exercises as a way of trying to slow down or arrest development that

could damage salmon habitat. A number of responses referred to cases in which

volunteers' participation in decision-making had led to the local government

buying a piece of land for protection, or some developer donating land and/or

agreeing to not develop certain sections.

7.3 Use of Local Knowledge

The use of local volunteer knowledge is one way in which volunteers can

assist in resource decision-making by external agencies. In the following sub-

section I explore the relevance of local-knowledge and provide a couple of

examples of some of the most common themes expressed by the respondents.

Table 7.3   Use of Volunteer's Local Knowledge

Responses	Number of Responses			Respondents
Are volunteers used for later feedback and their local knowledge?				
Yes	22	10	C	a, b, d, i, p, u, v, z, aa, dd
		12	V	g, h, j, k, l, n, q, r, w, y, ee, ff
Sometimes	7	3	C	e, s, bb
		4	V	c, o, t, x
No	2	2	C	m, cc
		0	V	
Related themes.				
DFO/Organizations, etc go to the volunteers for information, and help (e.g. Stock assessments)	27	12	C	a, b, d, i, p, s, u, v, z, aa, bb, dd
		15	V	g, h, j, k, l, n, o, q, r, t, w, x, y, ee, ff
Consulted or engaged, but have little influence on the final decision	15	9	C	d, e, m, p, s, z, aa, bb, dd
		6	V	c, h, n, o, w, ee

Overall the respondents stated that the volunteers were being asked to

provide local or auxiliary knowledge (22), and specifically DFO and other

organizations were actually going to the volunteers to acquire data and

information. On the other hand and similarly mentioned in the responses

regarding volunteer decision-making authority, there was a strong opinion that

although the volunteers were being asked for data and were being consulted, the

actual data that was being provided was not being used or having much influence on resource-based management decisions. Interestingly, the CAs, who are employed by DFO and are in the most likely position to be requesting volunteer data and feedback, were the majority in responding that volunteers had little influence on decision-making (9 CAs versus 6 VCs).

7.4 Summary

Participation in decision-making that does actually result in tangible effects can encourage greater volunteer motivation. SEHAB is one example which encourages volunteer participation, and has had a major impact on decisions related to fisheries management (e.g. the Wild Salmon Policy). Volunteers may also participate in boards, and municipal meetings and councils where they may influence planning decisions regarding the protection of habitat and the acquisition of habitat for protection. Furthermore, the volunteers may also influence management decisions, by providing local knowledge regarding the status of the local resources.

The use of local knowledge is a particularly common example of volunteers assisting government agencies. Unfortunately, it is often the case that volunteers participate in some decision-making body and offer their locally-gained knowledge, only to have it ignored. Furthermore when volunteer participation in decision-making has no influence on actual management decisions, volunteers may often feel demoralized and less inclined to participate.

Volunteer demoralization has further implications, in that it can lead to a break-down in the sense of community within the group and also discourage actual participation in the physical activities. Hence in a number of volunteer groups, the leaders of the groups or the groups themselves may make a conscious decision to avoid decision-making activities.

8 FACTORS OF SUCCESSFUL VOLUNTEER PROJECTS

Success in a volunteer project can be interpreted in number of ways. This next chapter explores what respondents identified as a successful volunteer project. I asked about the respondents' definition of success, and what they considered good examples of successful projects. I interpreted the responses as a list of "factors" which either characterize or facilitate successful volunteer projects, and I explore each of the factors in more depth within the next chapter.

8.1 Project Success

Prior to my asking the respondents about project success, my hypothesis was that success could be measured by the number of volunteers that came out for projects. However, according to the respondents this is not generally the case as can be seen from the factors listed below as alternative elements of an explanation for volunteering motivations.

Table 8.1   Factors of Successful Watershed Rehabilitation Projects

Responses	Number of Responses			Respondents
Do you get enough volunteers for the work that needs to be done in the area?				
Yes	11	2	C	b, aa
		9	V	c, f, h, j, k, l, o, q, ee
No	12	10	C	a, d, e, i, m, p, s, v, bb, dd
		2	V	g, r
What is the definition of a successful environmental volunteer project (factors of success)?				
Project success/completion - seeing salmon return (Commitment)	24	12	C	a, b, d, m, p, s, u, z, aa, bb, cc, dd
		12	V	c, f, h, j, k, l, n, q, r, x, y, ff
		2	P	ww, tt

Responses	Number of Responses			Respondents
Recognition for tasks and projects - respect from community, government (Receiving recognition)	21	10	C	e, i, p, s, u, z, aa, bb, cc, dd
		11	V	g, h, k, n, o, q, r, t, w, x, ff
		1	P	kk
High volunteer motivation, high number of volunteers (Empowerment)	18	9	C	b, d, e, s, v, z, aa, bb, dd
		9	V	g, j, l, o, q, r, t, ee, ff
		10	P	gg, hh, ii, ll, mm, nn, qq, rr, vv, ww
Education/outreach (Advocacy)	17	12	C	a, b, e, d, p, u, v, z, aa, bb, cc, dd
		5	V	g, h, n, o, w
Availability of funding (Resources)	15	8	C	d, e, i, u, v, z, cc, dd
		7	V	c, n, o, q, y, ff
Communication and collaboration among volunteers (Social networks)	12	6	C	d, v, z, aa, cc, dd
		6	V	g, k, n, w, y, ff
		3	P	ii, jj, xx
Project longevity (Accountability)	9	5	C	b, m, p, aa, bb
		4	V	c, j, q, w
		4	P	kk, ll, pp, ss
Strong leader/coordinator/ vision (Leadership)	6	2	C	a, e
		4	V	j, k, o, ff
		4	P	ll, mm, oo, uu

In this next section, I address each of the relevant factors provided in the table above, and where applicable, elaborate with additional questions and themes.

8.2 Commitment and Accountability

One of the most common responses that arose regarding what defines a successful project was the conclusion or successful implementation of a project. Both groups of respondents answered equally (12 each) that project completion was a mark of project success (refer to table 8.1). For instance, after having rehabilitated a stream, the volunteers were able to witness the return of salmon. If a project succeeds in completing the goals that the group set for themselves, this is success.

A number of respondents (9) also stated that a project's longevity, or how long a project has existed, is a mark of success (See table 8.1). The respondents reported that successful projects had more longevity in that the volunteers remained committed and accountable for their actions for a longer period of time.

> (m) When I can walk away from a project, and I will be dead and buried, and can know that it will be fine. That usually takes about 2 or 3 years. …..they will be functioning long after he is gone.

Monitoring

Monitoring is good proxy for commitment to a project, as it requires the volunteers to remain consistent in their engagement in order to ensure that a project remains sustainable and effective. A successful project does not just finish when the actual physical work is completed. Ensuring the sustainability of the project may require varying levels and frequency of monitoring, depending on the type of project. To explore the degree of monitoring that occurs for volunteer rehabilitation projects, I asked the respondents about the effectiveness of monitoring following a project's completion.

Table 8.2   Monitoring of volunteer Projects

Responses	Number of Responses	Respondents	
Is there monitoring of a project's effectiveness following the completion of a project?			
Yes	7	C	d, aa, dd
		V	h, j, x, y
Some (depends on the projects)	21	C	a, b, e, i, m, p, s, u, v, bb
		V	c, g, k, l, n, o, q, r, t, ee, ff

The respondents reported that there was some monitoring, which was somewhat effective, depending on the project. But ongoing monitoring was prohibitive as it required sustainable funding, an asset which is not generally

available to volunteer groups. Furthermore, a couple of the respondents also stated that while there might be monitoring, most volunteers do not possess the skills to undertake proper monitoring activities, or often the data are not collected in a adequately scientific way to be professionally useful. On the other hand, a number of volunteers mentioned that a lot of informal monitoring occurred, e.g. volunteers did somewhat regular stream walks. Indeed, through their work on the streams, many volunteers became possessive of a stream and consequently were continually watchful of the streams and fish populations.

8.3 Receiving Recognition

According to a number of the respondents (21), being recognized for their efforts is an essential component of achieving a successful volunteer project (See table 8.1). Receiving recognition was also mentioned in relation to what makes volunteering experiences special. Respondents saw recognition mainly as the respect that volunteers garner from the public and/or government for their activities. Thus, volunteers need to feel trusted and appreciated in order to want to remain engaged in the volunteer activities.

> (p) There are a few of the self-actualised people, the Mother Theresa-types. But the vast majority join for self-esteem. According to Maslow's theory of hierarchical needs, people join for different needs, self esteem….

8.4 Empowerment

The respondents felt that a high level of volunteer motivation was a key factor in creating a successful volunteer project (18 respondents, 10 volunteers – See table 8.1). A volunteer's self efficacy, as seen through his/her capacity to

effect change, can strongly influence participation and motivation. Indeed, when the respondents were asked to identify the most important factors motivating volunteers to participate, the factors "to accomplish something", and "doing something useful" were both favoured strongly (section 5.2, chapter 5). The volunteers need to feel they are participating in something worthwhile, and actually getting something done in order to continue to be motivated to participate in a project.

8.5 Outreach and Advocacy

Advocacy is to lobby or argue in support of some issue, and often volunteers don't really want to participate in lobbying-type activities. Whereas, providing education and outreach was also understood by the respondents as a form of advocacy, and when interpreted in this manner, advocacy was listed as a reason many volunteers chose to participate (17 responses – refer to table 8.1). Indeed, looking through the DFO Volunteer Watershed Directory, a large proportion of the volunteer groups are dedicated to education, and most groups, if not specifically dedicated to education, are involved in some aspect of education.

Table 8.5   Volunteer Social Advocacy

Responses	Number of Responses			Respondents
Have you found that volunteer groups tend to become advocates?				
Yes	21	10	C	a, b, d, e, s, u, v, aa, bb, dd
		11	V	c, f, g, j, o, q, t, w, x, ee, ff
No	14	4	C	i, m, p, cc
		10	V	c, h, k, l, n, q, r, t, y, ee

A large number of respondents (21) did express the opinion that volunteer groups become advocates. But the overall opinion of the respondents was that the volunteer groups generally avoid formal advocacy, particularly given that it is very time-consuming. Furthermore, a few respondents mentioned that advocacy could be detrimental to a group, given that it can sometimes lead to polarization within the group.

> (o) Screamy, whiny groups are less likely to be listened too as well, versus those that try and work with senior agencies. And it has a lot to do with one individual in the group. There is chance that one person that can poison the group, but they usually end up leaving, or are gently made to feel less welcome

On the other hand the respondents mentioned that advocacy occurred in other more informal forms. For instance, through their participation in rehabilitation activities the volunteers gained a greater environmental ethic and would then be more likely to undertake informal advocacy with friends, family, and neighbors. The volunteers might not consciously join a group to engage in advocacy type activities, but their participation in the rehabilitation can often lead to individual action. Indeed, advocacy often occurs through the act of education, in that being exposed or witnessing others in advocacy roles can often influence a volunteer's level of advocacy engagement.

> (g) Can't stop Joe homeowner from dumping crap in the storm drain, but if his kids confront him and tell them they painted the yellow fish on the storm drains for a reason, it will have a bigger impact, and more of an exponential impact.

> (dd) …that engagement in technical activities, leads directly into advocacy, as there is the sense of ownership

Additionally, as advocacy generally comes about through individual or common group decisions and motivations, what often happens is that groups may make a conscious decision not to be advocates.

8.6 Resources

My preliminary research confirmed that funding and resources are essential to facilitating more successful volunteer projects. The importance of funding was further demonstrated by how often the respondents highlighted the importance of resources in other unrelated questions (e.g. chapter 6).

The lack of funding/resources is listed as a strong deterrent to achieving successful volunteer projects. Volunteer projects are highly dependent on the availability of funding sources and success can often be based on having sufficient and sustainable sources of funding. Unfortunately, many of the respondents also stated that while funding was a key element to success, there generally was insufficient funding or resources to support sufficient volunteers for the work that needed to be done. Furthermore, the lack of funding meant that in many instances, there was not the capacity to undertake projects despite an abundance of volunteers available to undertake the projects. A lack of funding also limited volunteer groups and coordinators in undertaking outreach activities to garner more volunteer or public support for a project.

When asked whether the respondents felt they were getting sufficient volunteers to engage in the activities that were available, a lack of resources was given as a significant limiting factor in not being able to use the volunteer pool.

While not mentioning a specific location, the respondents stated that the location where volunteers live can also play a significant role in the availability of resources. For instance, a project located in a remote rural area would require more resources in order to carry out the volunteer activities. Furthermore, the respondents felt that a lack of resources was limiting government agencies in their capacity to adequately assist volunteer projects. Ultimately, the issue does not seem to be so much that there are insufficient volunteers to undertake projects, but rather that there are insufficient resources to support the volunteers that are eager and available.

8.7 Social Networks

Social networks are an essential component of any process involving extensive social interactions, as social institutions will likely fail without the development of effective communication and interaction among all the individuals involved. In the next section I explore the importance of communication and awareness as integral components of establishing effective social networks of volunteers. I also look at the role of cooperation in establishing effective and engaged volunteer groups.

Communication and Awareness

A key component in achieving cooperation in successful community-based organizations is a high level of awareness and communication among members within a group, and among groups. To explore this factor, I asked respondents to

elaborate on how much communication existed among the volunteers, and how it was achieved. Their responses are listed in the following table.

Table 8.6.1   Volunteer Communication

Responses	Number of Responses			Respondents
Do people have a way of communicating with one another?				
Yes	20	10	C	a, b, d, s, u, v, z, aa, bb, cc
		10	V	h, k, n, o, q, r, w, x, y, ff
Somewhat	7	2	C	m, dd
		5	V	c, g, j, l, t
No	4	3	C	e, i, p
		1	V	ee

Most of the respondents reported that there is some mechanism for the volunteers to communicate with one another (20). A number of respondents felt that there was some communication (7), and only a few said there was none (4). The most common form of communication was email whereas informal meetings garnered far fewer responses. Only a few CAs and VCs mentioned newsletters, phone, conferences, and formal meetings. Of the less prevalent forms of communication, CAs stated that newsletters and conferences were more common, whereas VCs felt that phone and formal meetings were more prevalent.

Next I explore what respondents felt was the level of awareness by the volunteers of other projects and activities. Such larger scale awareness might include knowing about regional resource management or landscape level resource plans.

Table 8.6.2   Volunteer Awareness of Larger-scale Activities

Responses	Number of Responses	Respondents		
How much awareness do the volunteers have of larger scope activities affecting their watersheds?				
Lots	10	4	C	e, s, u, v
		6	V	j, o, q, t, w, y
Somewhat	11	6	C	a, b, i, z, aa, dd
		5	V	c, g, l, r, ff
Little to none	10	5	C	d, m, p, bb, cc
		5	V	h, k, n, x, ee

There tends to be a lot of communication among the volunteers, and to a lesser extent among the volunteers in different groups attending conferences. But the respondents were generally evenly divided regarding whether they felt that the volunteers had any degree of awareness of larger-scale activities, with ten stating there is lots, ten stating there is little to none, and eleven stating that there is some degree of awareness.

The level of awareness was influenced by the type of activities. The respondents also stated that the level of volunteer participation may be influenced by the volunteer's level of engagement and thus their level of awareness of other activities.

(ee) There certainly is awareness at that level, but for the volunteers that come out on a project to project basis, the majority would not be interested, not because they don't care, but because they have other concerns. And sometimes it can be too overwhelming.

Cooperation

(y) Remembering the words of the elders, about the war with DFO years ago, there was always a heavy conflict. The elders don't want to see the war going on, want to see negotiations, agreements.

An important component of building functioning social networks is cooperation among members and the different parties involved (such as agency officials). When I asked the respondents about communication among members within a group, some of the respondents answered that the groups would do better if there were more coordination among the group members. Other respondents also mentioned examples of certain groups cooperating and thus being able to achieve more effective rehabilitation.

> (d) Groups got together, found some funding, put large woody debris back in the creek, and wild salmon are returning over the last 2 to 3 years.

8.8 Leadership

Key to establishing effective collaborative planning and/or successful environmental volunteering, is having an effective leader. In the following question, I asked respondents about the importance of a leader, and the leader's role in achieving a functioning and sustainable volunteer-based project.

Table 8.8.1   Effect of Leadership on Project Success

Responses	Number of Responses	Respondents	
Is an effective leader a main reason volunteers remain with a particular agency or project?			
Yes	28	13	C	a, b, d, e, i, m, s, u, v, aa, bb, cc, dd
		15	V	c, h, j, k, l, n, o, q, r, t, w, x, y, ee, ff
		10	P	ii, jj, kk, ll, mm, oo, pp, rr, ss, vv,
No	3	2	C	p, z
		1	V	g
		6	P	gg, qq, tt, uu, ww, xx

The majority (28 versus 3 respondents, and 10 versus 18 of the volunteers) felt that having a strong leader was an important factor for encouraging volunteer motivation. Additionally, six respondents stated that

leadership was an important factor in facilitating successful volunteer projects

(See table 8.1). Respondents spoke of how an individual in a leadership role

needs to be able to provide support and motivate the volunteers, while also

helping to coordinate and facilitate volunteer projects. According to Morten (2005

pers. comm.) a strong leader is one who understands the volunteers in the

group, and can 'prod' and 'delegate' without 'dictating' how the group should act.

The leader needs to also be able to care for and understand his/her group, to

share their passions and vision, and essentially recognize in what direction to

lead the group.

> (bb) very important, one volunteer group has a great leader, and
> the other just lost theirs, and is now floundering…..And that is true
> in any group.

Volunteer coordinators, and to a lesser extent the community advisors

perform an essential leadership role for the groups. These individuals are

generally more energetic individuals, and are more likely to take on activities

such as lobbying of governments, and attending public meetings.

The advisors and coordinators also act as liaisons between volunteer

groups and other organizations, such as government ministries, etc. In their role

as liaisons, they may also act as translators, such that they inhabit two worlds:

one world is on the ground, in the streams; the other world is in offices, on the

phone, at agency meetings. Through the role of liaison, the advisors and

coordinators may translate requests of the volunteers to the ministries, and

conversely, communicate new legislation or other government information to the

volunteers. In this role they may sometimes act as lobbyists.

Decision-making Style of the Volunteer Groups

To further explore how leadership influences volunteer groups, I asked

whether their group was hierarchical or more democratic in decision-making.

Table 8.8.2   Decision-making Style of the Volunteer Group

Responses	Number of Responses			Respondents
Are volunteer groups governed by more democratic, or hierarchical decision processes?				
Hierarchical	2	2	C	m, p
		0	V	
Hierarchical because of the leader	9	6	C	e, p, s, u, v, bb
		3	V	q, r, ff
Democratic	12	1	C	aa
		11	V	c, f, g, h, j, k, o, t, w, x, ee
The groups are democratic because of organization within the group	5	3	C	d, i, v
		2	V	f, y
Both are applicable	17	11	C	a, b, d, e, i, s, u, v, z, bb, dd
		6	V	l, n, q, r, y, ff

Only two of the respondents, both CAs, reported that volunteer groups

were strictly hierarchical, and only one CA (versus 11 VCs) felt that the volunteer

groups were democratic. Conversely, seventeen of the respondents (11 CAs,

and 6 VCs) reported that some form of both types of governance were applicable

to volunteer groups.

> (tt) No, we all pull our weight and share the leadership, our group is
> like a jazz band.

Type of leadership was given as the main reason why a group was

hierarchical, and the democracy in a democratic group was believed to stem from

the degree of organization within the group. Three CAs (b, d, and v) and no VCs

felt that the smaller groups were more likely to be hierarchical, whereas two CAs

(w, x) thought smaller groups were more often democratic. None of the

respondents said that the larger groups were hierarchical, whereas one CA (b)

felt a smaller group was likely to be more democratic. One respondent stated the following about democracy in a volunteer project:

> (p) Democracy can ruin a project, democracy can polarize the group. For example there was a group that sprang a questionaire which posed the question whether they would allow smoking, half the group were smokers, and often the hardest workers were smokers, and three hours later half the group were like "we won we won", and the other half ripped up their memberships and walked away. Democracy does not always work.

8.9 Summary

Without some sense of commitment and responsibility for a project or the activities related to a project, it is unlikely that the project will last very long or continue to garner volunteer support. A successful project essentially requires continual volunteer commitment for the duration of the project in order to ensure completion. And a continued commitment requires a marked success in the project. The most common response was that achieving success in a project occurs when the volunteers participate in rehabilitation activities that achieve some specific outcome, essentially, a physical change in the resource.

High volunteer empowerment may also be a strong determinant of the success of volunteer rehabilitation projects, and empowerment is based on how much the volunteers perceive that their participation leads to some positive change for watershed resources. Indeed witnessing the successful completion of a project can provide inspiration and fuel energy to participate in additional activities and projects. For instance, volunteers are more likely to feel empowered when they witness that their contributions to some resource management decision have actually had some influence (refer to chapter 7).

Hence, the ability to perceive evidence of positive resource outcomes appears to be the primary factor in successful projects, and the existence of this condition in turn enhances a secondary factor: commitment

Recognition and trust in the volunteers can also strongly influence volunteer empowerment and motivation. Many volunteers depend on the recognition from agencies and the public for the work they are undertaking in order to gain inspiration. But recognition is not just a feeling that comes from the powers above. It is also felt through the interactions with other volunteers and through seeing the successful fruition of their labours. Hence having a strong sense of community within the group is another major factor which influences volunteer motivation. Furthermore, participating in projects that accomplish something, or having some significant result can also play into a volunteer's sense of satisfaction from participating in a project.

The level of communication and awareness of the volunteers also plays a significant role in volunteer motivation. Volunteers that communicate more among themselves and with other groups are more likely to feel a greater sense of community with the rehabilitation and enhancement "community". The communication also helps to foster greater awareness of larger scale implications on watershed resources, further inspiring more commitment to a project and the activities. Unfortunately, too much participation and awareness can have the opposite effect in some cases, by overwhelming the volunteers. Hence the volunteer coordinators and community advisors have an important

role to play in keeping their finger on the pulse of the group and particularly recognizing and mitigating signs of burn-out in volunteers.

Coupled with cooperation and social networking is the need for outreach and education of people about the need for rehabilitation-type activities. Indeed, when asked whether the respondents felt that they had a sufficient number of volunteers to be effective, the need for more education and outreach to attract and retain volunteers was a topic that came up frequently.

Rehabilitation projects involve more than just the hands-on activities; often there may be an even stronger educational component. Most successful volunteer groups are engaged in education and outreach activities as such activities garner community support by attracting more volunteers and/or resources necessary for sustaining the groups. Indeed, given the plethora of volunteer activities available, it is almost imperative that groups engage in outreach, lest they lose their members to competing activities. Furthermore there is a strong need to recruit volunteers to replace retired volunteers as they age.

Having access to sufficient resources, is another key element in the success of volunteer projects. Having adequate funding ensures that a group can afford the tools necessary for implementing activities, as well as paying for educational and promotional activities. In some cases the funding can also be used for ensuring better organization within a group, through the use of a paid volunteer coordinator, education coordinator, or financial coordinator, but it is the volunteer coordinator who undertakes the management of the group and its resources.

The respondents generally felt, but to a lesser extent than all of the other reasons, that an effective leader was an important component of successful volunteer groups. A strong leader or coordinator is important for empowering the volunteers, but acts more as a facilitator in the decision-making for the group. Indeed, an effective coordinator can be essential for ensuring the organization within a group, especially in the case of larger groups. Conversely, while the majority of respondents felt that most groups tended to be governed in a more democratic fashion, the respondents also expressed that the type of leadership influenced whether a group was more hierarchically governed.

PART 3   CONCLUSIONS

9   CONCLUSIONS

In this chapter I reflect upon the results of my surveys, and particularly their implications for society at large. How can the results be applied to volunteer projects, or communities where such volunteer activities are occurring? What do they suggest about how volunteer groups and agencies can work more collaboratively to ensure decisions regarding the planning and management of watershed resources are more effective and sustainable over the long term?

9.1 Limitations

Interviewing surrogate volunteers risks the loss of more personalized volunteer perspectives. But I do not believe the answers of the volunteers would have differed substantially from those of the respondents, as there was little discrepancy between the responses of the non-volunteer respondents (CAs) and the VCs (which are predominantly volunteers themselves). Furthermore, the generalized volunteer motivations I provide herein are substantiated by the fact that the themes expressed by both sets of respondents are consistently shared.

Overall, if I had the opportunity to redo this study with the benefit of hindsight, I would not change the individuals I interviewed, as they provided detailed responses which satisfied the scope of my research. The questions I

chose also provided a depth of responses from which I was able to ascertain more detailed conclusions. However, I might eliminate a number of questions which were not used in the analysis, and add several additional questions in order to more clearly explore a specific point. For instance, in order to better explore the role of volunteers in decision-making, I would add the question: "Does participation in decision-making influence volunteer motivation?" If I did repeat my research, I would spend time in the field with the respondents. Interacting one-on-one with the respondents would provide a more intimate perspective on both the respondents' responsibilities, but also their level of interaction with the volunteers.

9.2 Implications

Successful fish-habitat rehabilitation projects occur when there is some perceived improvement in a resource outcome. This in turn reinforces positive personal and group outcomes such as individual self-efficacy and/or group cohesiveness, and acts as a positive feedback loop in increasing the effectiveness of resource outcomes.

This study found that positive social dynamics within a group is a particularly important element of successful volunteer groups. Not only is the desire for camaraderie a strong influence on volunteer motivations, but volunteer groups also serve as a venue for bringing together a diversity of people working collectively to address environmental deterioration. The reciprocal encouragement and recognition among volunteers creates an atmosphere that increases the energy and likelihood of accomplishing significant resource

rehabilitation. Finally, a group has a much louder voice than an individual in lobbying the public and external agencies for better watershed protection. Agencies thus play an important role: ideally creating a favourable atmosphere in diverse situations where groups or group leaders are better able to create a sense of community and encourage camaraderie within the group.

A volunteer's residential location can affect volunteer participation, particularly in cities which have more competing activities and interests to attract volunteers away from a particular project. In such cases volunteer groups would do well to invest more resources in advocacy and advertising in order to gain greater volunteer support. On the other hand, in smaller communities which often have more neighbourly communication, a volunteer group might do better to allocate resources to offset the increased travel costs or provide better support for volunteers to access the activities.

While my research focussed on watershed and fish-habitat rehabilitation, and predominantly in coastal parts of B.C., I see the results as being applicable to almost any rehabilitation project. My research backs up existing literature which states that one of the biggest reasons for volunteering in rehabilitation activities is to put something back into the environment. Regardless of where someone resides, if volunteers are participating to effect change in the resource, they will participate. What will change is the type of resource that is being rehabilitated. But regardless of the resource, where there is a greater sense of urgency to help protect some resource, one will more likely see volunteer activity.

My research focussed on volunteer groups which were predominantly organized or initiated under the auspices of some government strategy. Also, the volunteers referred to in this research generally maintain a degree of continued interaction with a government employee such as the Community Advisors or local fisheries biologists. Hence the research provides a window through which one can glimpse the relationship that exists between government agencies and the volunteer groups. Both of these groups together can use this research to more effectively and selectively nurture the conditions facilitating volunteerism when attempting in future to rehabilitate watersheds.

One of the biggest factors reported to inhibit volunteerism was the perception of volunteers that agencies did not take seriously their input into relevant resource-related decisions. Hence, it might be useful for agencies that do involve volunteers in decision-making to re-evaluate how volunteer inputs are being implemented (or how the reasons for failure to implement are being communicated). This finding presents a good opportunity to further explore what factors or options would allow volunteers to feel their participation is being used effectively. Likewise, rehabilitation strategies that have longer life-spans, versus the more common sunset programs, would allow more time for the volunteer activities to become established and sustainable, and potentially lead to a higher level of trust between the volunteers and those making decisions.

Conversely, when external bodies such as government agencies do allow for the creation of an atmosphere of trust and recognition of volunteers, participants will feel respected and be more willing and eager to share their

knowledge and experience. Volunteers can contribute to a more positive

relationship as well. For instance, volunteer data - stock assessments,

monitoring data, etc. - and expertise is more likely to be used when there is

consistency and reliability, which leads to a build up of social capital between the

volunteers and the government agencies. Hence the volunteers have a

responsibility to ensure that their activities are consistent and particularly involve

rigorous methods agreed upon with government agencies.

A final key finding was that an increase in external support to volunteers

would likely contribute to more effective and sustainable watershed rehabilitation.

For instance, where there may be a break down in a group's sense of

community, the Community Advisors may be able to step in and encourage and

facilitate communication among the volunteers. Conversely when a group is

faltering due to insufficient resources, government agencies can provide funding

and resources, or suggest alternate avenues for procuring resources.

Additionally, government agencies can help groups attract more volunteers, by

assisting in advocacy and advertising.

9.3 Future Research

Further research that would augment the results I have presented could

involve surveying actual volunteers. I chose not to survey volunteers as I was

interested in obtaining a broader external perspective on volunteer motivations.

However, a follow-up survey with different groups of volunteers could test and

extend the research findings I have presented. For instance, a comparative study

of the factors that motivate volunteers in urban groups versus rural groups would

be particularly useful in highlighting the influence of geographic residence on volunteer motivations.

There are a number of other questions about the relationship of external agencies and volunteer participation, which were not answered through my research. Do non-governmentally-led projects share similar characteristics and dynamics to those led or initiated by government agencies? To what extent would volunteer projects operate independently of DFO or differently without DFO support? For instance, are volunteers dependent on DFO for funding, and if so, would different volunteers participate if there was no DFO support? Finally, is DFO helping to foster stewardship through the projects it helps initiate, and if not, what can they do to promote greater stewardship?

While the responses from my research do not specifically answer these questions, my findings suggest that having government assistance is more likely to result in more effective accomplishments and substantial resource changes. Government agencies are generally the decision-makers and are thus in a better position to make decisions that can positively influence the success of a project or facilitate the operation of a project. This is particularly true where there is an established level of trust and interaction between the government agency and the volunteers. Additionally, where there are more resources available to undertake rehabilitation and fish bolstering, less time needs to be spent on fundraising activities.

Furthermore, programs such as Streamkeepers, which are promoted by DFO, are designed to encourage stewardship of local resources by encouraging

the local participants to take increasing control over rehabilitation and monitoring of watershed resources (through the streamkeeper modules). Also, while my research may not specifically answer the question of DFO's role in promoting stewardship, one of the main purposes of the Oceans, Habitat and Enhancement Branch of DFO is encouraging fish-habitat and fish stewardship. Accordingly, the respondents stated that the SEPs and CAs, which are key components of OHEB, have been successful in encouraging successful rehabilitation by volunteers.

9.4 Final Remarks

Ironically as we work to save the salmon it may turn out that the salmon save us (Paul Schell, Mayor of Seattle)

As land is developed and subsequently watershed health is compromised, watershed rehabilitation becomes increasingly important. My findings highlight the importance of factors which encourage or discourage sustainable and effective volunteer-based watershed rehabilitation, stewardship, and conservation. My research suggests that the majority of the volunteers (74%) participate in watershed rehabilitation because they want to give something back to the environment and feel like they are working towards something that is going to make a difference on a larger scale. Given the importance of wanting to protect the environment, I originally hypothesized that volunteers would be interested in influencing resource management decisions. This turned out to be only partially true. Some volunteers do specifically participate for these reasons (particularly volunteers participating in boards and roundtables), but overall the respondents stated that the volunteers will be inclined to participate in decision-

making when their participation "makes a difference". There are at least two ways this can happen. Government rehabilitation strategies can more effectively empower volunteers and promote community involvement when they demonstrate they have incorporated volunteer inputs in resource management decisions. But probably even more important for all volunteers, government agencies can design rehabilitation strategies that are planned to be more long-term, so volunteer groups are not left lacking resources and support before the project is fully complete and has been monitored for a sufficient period of time to ensure success – so they can feel they have indeed "made a difference".

APPENDIX A: RESPONDENT SURVEY QUESTIONS

Preliminary Questions

1. What does your position involve,–duties-? What reporting do you do and to whom do you report? What information are you required to collect?

2. Is the position paid?

3. How do you spend your time? What percentage of time spent doing what?

4. How long have you been doing this work?

5. What did you do before?

6. (If working with a group), what stage of development is the group at/where the majority or the group is (if the group has any cohesion, it will have some kind of group ethos (culture) about what it likes/wants to do)*?*

7. How many volunteers/groups are you working with/coordinating?

8. How many volunteers needed/ get? (recruitment/retention rate desired)?

9. How do you categorize groups you work with? How many in each category, (%)?

10. What are differences between the groups?

11. How and do you get people to together to meet?

12. How do you communicate with your group(s)/volunteers?

13. Do you have example projects you would consider highly successful, revelatory cases - where people highly motivated, lots of volunteer activity, strong advocacy - [if so] what were key elements of success? (e.g. what done to meet objectives)?

14. What is your definition of success and how do you measure it?

15. Do you know where the volunteers live?

16. How many volunteers do you think are considered rural/suburban/urban?

17. Does people's choice of where they live effect the level of volunteering

18. What is the sense of community, are they community oriented?

19. What do you think is a "sense of community"? What is it, what is more/less of it? When and where experience this? What enhances it, and what are essential or minimum aspects?

20. What other factors might matter in distinguishing communities, what other major differences exist in the communities?

21. Are certain groups more democratic, or hierarchical (decision making)?

22. What do you think made the volunteer experience particularly special?

23. How successful has DFO been in constructing a supportive constituency for habitat protection and rehabilitation?

24. How effective have they been at constituting volunteerism?

Main Questions

25. What do you think the underlying reasons for volunteering are? Other reasons?

26. Do you feel the following factors are important for creating volunteer motivation? Can you rate the factor's relative importance?

Factor A: It is important for volunteers to find a sense of community (solidarity) with other volunteers?

Factor B: Volunteers participate because they hope to improve the condition of the watershed/salmon stock (effect change in resource conditions)

Factor C: Career experience, networking and opportunities are key reasons for volunteering?

What proportion of people/groups fall into each category? Do you think some people volunteer for more than one reason? (%)

Sub-questions

27. Do you think some communities are more applicable to a specific factor(s)?

28. Are there short/long term volunteers, which factor would these volunteers fall into?

29. What is the average length of time volunteers commit?

30. Do you think people volunteer more frequently, and for different reasons depending on stages of life? What is your guess to what those reasons are?

31. Do you think the stage of their life will influence the length of time spent volunteering?

32. Have you found that any groups tended to feed into a social advocacy….if yes, how many times have you encountered this, can you describe it in greater detail?

33. Do you think volunteers are more likely to stay volunteers if they are provided a greater capacity or opportunity to influence public decision making, (e.g. DFO resource management decisions regarding habitat restoration and/or enhancement)?

34. Are Volunteers more likely to be maintained if they are involved in; Data collection; Data analysis; Involved in some aspect/evaluation/monitoring of project work?

35. What are some decisions that volunteers/groups help agencies make?

36. What levels of exposure or opportunities do volunteers have to participate at higher levels in a decision making hierarchy (choices available)?

37. Are volunteers used for later feedback, auxiliary knowledge (LK), connections?

38. How much monitoring of a project's effectiveness takes place following the completion of a project?

39. Can you think of cases where volunteers are able to directly/indirectly influence management decisions?

40. Do people have a way of communicating with each other, and do they use it?

41. Is there, and how much integration or awareness is there of volunteers in smaller locally-based projects with other projects or larger scope activities/plans?

42. Do you think an effective leader and/or coordinator is a main reason volunteers remain with a particular agency or project? (Effective: good social/people skills, champion)

43. Do you feel the age, maturity, and/or developmental stage of the group affects motivations, and advocacy activities? (e.g advocacy groups)

44. What corporations, if any, provide volunteers, why?

Wrap-up Questions

45. Do you think I might have I missed anything important?

46. Can you recommend any other useful sources of information? Any other important coordinators? I want to get a range of opinions, so I wondering if you can also recommend other coordinators/volunteers who are maybe not as satisfied with restoration activities?

APPENDIX B: VOLUNTEER SURVEY-FORM QUESTIONS

1. Name, and contact info (optional)?

2. How long have you been volunteering (years)?

3. What makes a successful volunteer project?

4. Where do you live (region/city), and do you consider yourself: Rural, urban or suburban?

5. What makes volunteering special?

6. What is your underlying reason for volunteering?

7. What stage of life are you at (ex. Student, career, family, retired, etc.)?

8. Does having an influence on public decision making effect whether you continue to volunteer?

9. Can you provide a case where volunteers have been able to influence management decisions?

10. Is an effective leader /or coordinator a main reason you remain with your group/project? (example?)

APPENDIX C: SURVEY RESPONSE IN TABULAR FORM

Themes	Question 8.							
	yes	no	1	2	3	4	5	6
a.C		1	1					
b.C	1				1	1		
d.C		1				1	1	
e.C		1		1	1	1		
i.C		1					1	1
m.C		1						
p.C		1			1			
s.C		1						1
u.C								
v.C		1			1			1
z.C								
aa.C	1				1			
bb.C		1	1		1			1
cc.C								
dd.C		1				1	1	1
c.V	1							
f.V	1							
g.V		1						1
h.V	1				1			
j.V	1		1					
k.V	1							1
l.V	1			1				
n.V						1	1	1
o.V	1						1	
q.V	1							
r.V		1						1
t.V								
w.V								1
x.V								
y.V								1
ee.V	1							1
ff.V								
Total	11	12	3	3	8	3	5	12

REFERENCES

Aberley, D. ed. 1993. The Lure of Mapping: An introduction. *In* Boundaries of Home: Mapping for Local Empowerment. New Society Publishers. Philadelphia.

Alexander, D. 1993. Chapter 9: Storm – An Evolution of a Stewardship Group. *In* Environmental Stewardship: Studies in Active Earthkeeping, ed. S. Lerner. Department of Geography Publication Series, No. 39. University of Waterloo. Pp. 193-203.

Anderies, J.;M. Janssen; and E. Ostrom. 2003. Design Principles for Robustness of Institutions in Social-Ecological Systems. Presented at "Joining the Northern Commons: Lessons for the World, Lessons from the World", Anchorage, August 17-21, 2003.

Andranovich, G. (1995). Achieving Consensus in Public Decision Making: Applying Interest-Based Problem Solving to the Challenges of Intergovernmental Collaboration. Journal of Applied Behavioral Science 31(4): 429-445.

Baland, J-M; and J-P. Platteau. 1996. Halting Degradation of Natural Resources: Is there a Role for Rural Communities? Oxford: Clarendon Press.

Barkan, S. 2004. Explaining Public Support for the Environmental Movement: A Civic Voluntarism Model. Social Science Quarterly. 85(4):913-937.

Bandura, A. 1982. Self-Efficacy Mechanism in Human Agency. American Psycholog. 37(2):122-147.

Benthrup, G. 2001. Evaluation of a Collaborative Model: A Case Study Analysis of Watershed Planning in the Intermountain East. Environmental Management 27(5):739-748.

Berg, B. 2004. Qualitative Research Methods: For the Social Sciences. Fifth Edition. Pearson. USA.

Boyd, D. 2003. Unnatural Law: Rethinking Canadian Environmental Law and Policy. Vancouver: UBC press.

Brady, D. 1996. The Watershed Protection Approach. Water, Science and Technology 33(4-5): 17-21.

Burns, N.; K. Schlozman; and S.Verba. 2001. The Private Roots of Public Action: Gender, Equality, and Political Participation. Cambridge: Harvard University Press.

CCP. 2000. The Benefits of Volunteering: The National Survey of Giving, Volunteering, and Participating. Canadian Center for Philanthropy. <Accessed February 17, 2005: www.givingandvolunteering.ca/pdf/factsheets/Benefits_of_Volunteering.pdf>.

Coleman, J. 1988. Social Capital in the Creation of Human Capital. American Journal of Sociology 94:s95-s120.

Cormick, G., N. Dale, P. Emond, S.G. Sigurdson, and B. D. Stuart. 1996. Building Consensus for a Sustainable Future: Putting Principles into Practice. National Round Table on the Environment and the Economy. Ottawa.

DFO. 2004. Department of Fisheries and Oceans. A Policy Framework for Conservation of Wild Salmon. < Accessed February 20, 2005: www-comm.pac.dfo-mpo.gc.ca/publications/wspframework/default_e.htm>.

-. 2005. Implementing Watershed-based Fish Sustainability Planning. Fisheries and Oceans Canada, Ministry of Sustainable Resource Management, Ministry of Water, Land and Air Protection.

Dietz, T.; P. Stern; and G. Guagnano. 1998. Social Structural and Social Psychological Bases of Environmental Concern. Environment and Behavior 30:450–71.

Francis, G. 1993. Ecosystem Management. Natural Resources Journal 33:315-345.

Fraser, J. 2001. Watershed-based Fish Sustainability Planning: Conserving B.C. Fish Populations and their habitat. Department of Fisheries and Oceans; BC Fisheries; Ministry of Environment, Land, and Parks.

Freeman, H. 1999. Totem Salmon. Life Lessons from Another Species. Boston: Beacon Press.

Fukiyama, F. 1995. On the Human Situation at the End of History. In Trust: The Social Virtues and the Creation of Prosperity. Simon and Schuster, NewYork, USA. Pp. 3-12.

Gamman, J.K. 1994. Overcoming Obstacles in Environmental Policymaking: Creating Partnerships Through Mediation. State University of New York Press, New York.

Glaser, B.and A. Strauss.1967. The Discovery of Grounded Theory. Chicago: Aldine.

Grumbine, R. 1994. What is Ecosystem Management? Conservation Biology 8: 29-31.

Johnson, N.; H. Ravnborg; O. Westerman; and K. Probst. 1999. User Participation in Watershed Management and Research. Collective Action and Property Rights Working Paper NO.19.

Leach, W.; and N. Pelkey. 2001. Making Watershed Partnerships Work: A review of the Empirical Literature. Journal of Water Resource Planning and Management 127(6):378-385.

Leach, W.; N. Pelkey; and P. Sabatier. 2002. Stakeholder Partnerships as Collaborative Policymaking: Evaluation Criteria Applied to Watershed Management in California and Washington. Journal of Policy Analysis and Management 21(4):645-670.

Lerner, S. 1993. The importance of Active Earthkeeping. *In* Environmental Stewardship: Studies in Active Earthkeeping, ed. S. Lerner. Department of Geography Publication Series, No. 39. University of Waterloo. Pp. 134-156.

Lerner, S; and J. Jackson. 1993. Reflecting On What We Have Learned. *In* Environmental Stewardship: Studies in Active Earthkeeping, ed. S. Lerner. Department of Geography Publication Series, No. 39. University of Waterloo. Pp. 134-156.

Leslie, L.; C. Velez; and S. Bonar. 2004. Utilizing Volunteers on Fisheries Projects: Benefits, Challenges, and Management Techniques. Journal of Fisheries 29(10): 10-14.

Litke, S. and J.C. Day. 1998. Building local capacity for stewardship and sustainability: The role of community-based watershed management in Chilliwack, British Columbia. Environments 25 (2 & 3): 91-109.

McGinnis, M; J. Wooley; and J. Gamman. 1999. Bioregional Conflict Resolution: Rebuilding Community in Watershed Planning and Organization. Environmental Management 24(1):1-12.

MSRM. 2005. Community Watershed History, Water Resource Information. Ministry of Sustainable Resource Management. British Columbia. <Accessed November 30, 2005: srmwww.gov.bc.ca/wat/cws/cwshome.htm>

MWLAP. 1996. Water Act. Ministry of Water, Land and Air Protection. <Accessed December 4, 2005: www.qp.gov.bc.ca/statreg/stat/W/96483_01.htm>

Morgan, G. 1986. Toward Self-Organization: Organizations as Brains. *In* Images of Organization. Sage Publications. Newbury Park. Pp.79-110.

Nehlsen, W.; J. Williams; and J. Lichatowich. 1991. Pacific Salmon at the Crossroads: stocks at risk from California, Oregon, Idaho, and Washington. Fisheries 16: 4-21.

OHEB. 2006. Oceans, Habitat, and Enhancement Branch. Fisheries and Oceans Canada. <Accessed August 28, 2006: http://www-heb.pac.dfo-mpo.gc.ca/community/scihome_e.htm>.

Ordubegian, L. 1993. Talking with Ontario Breeding Bird Atlas Volunteers *In* Environmental Stewardship: Studies in Active Earthkeeping, ed. S. Lerner.

Department of Geography Publication Series, No. 39. University of Waterloo. Pp. 4-7.

PSKF. 2006. Pacific Stream Keepers Federation. The Stream Keeper Program. <Accessed August 28, 2006: http://www.pskf.ca/program/program.html#why>

Pike, R. 2004. Coastal Needs Assessment Study for Watershed Management. Forrex-Forest Research Extension Partnership, Kamloops, BC.

Pinkerton, E. 1991. Locally Based Water Quality Planning: Contributions to Fish Habitat Protection. Canadian Journal of Fisheries and Aquatic Science. 48:1326-1333.

-. 1999. Factors in Overcoming Barriers to Implementing Co-management in British Columbia Salmon Fisheries. Conservation Ecology 3(2): 2 <http://www.consecol.org/vol3/iss2/art2>

-. 2003. Toward Specificity in Complexity: Understanding Co-management From a Social Perspective. *In* The Fisheries Co-management Experience, eds. D. Wilson; J. Nielsen; and P. Degnbol. Kluwer Academic Publishers. Dordrecht/Boston/London. Pp. 61-77.

Pinkerton, E.; and M. Kepkay. 2004. Creating Conservation Through Strategic Frame-Shifting: An Integrated Account Demonstrating Anthropology's Contribution to the Study of Complex Cooperation. Paper presented to the conference of the International Association for the Study of Common Property. Oaxaca, Mexico.

Pinkerton, E.; and M. Weinstein. 1995. Table 1: Management Functions and Community Rights and Duties. *In* Fisheries that Work :Sustainability Through Community-Based Management. The David Suzuki Foundation. Vancouver.

Risser, P.G. 1985. Towards a Holistic Management Perspective. Bioscience 35:414-418.

Romaine, M.J. 1996. An Emerging Model for Future Watershed Management in British Columbia. *In* Watercourses: Getting on Stream with Current Thinking, ed. R. Hicks. Proceedings of a conference organized by the British Columbia Branch of the Canadian Water Resources Association, Vancouver, BC, 23-24 October, 1996. Cambridge, ON: Canadian Water Resources Association.

SEHAB. 2005. Salmon Enhancement and Habitat Advisory Board <Accessed February 22, 2005: www.sehab.org/>.

SEP. 2005. Salmonid Enhancement Program; Habitat Restoration Branch; Department of Fisheries and Oceans. <Accessed February 10, 2005: www-heb.pac.dfo-mpo.gc.ca/facilities/salmonid_e.htm>.

SRWR. 1996. Interim Ecosystem Health Goals and Objectives for the Salmon River Watershed – 1996. Salmon River Watershed Roundtable (also Appendix 2. for SRWR 2003).

-. 2003. Final Report on the 2002-2003 Salmon River Watershed Planning Project.: A Pilot Watershed-Based Fish Sustainability Plan. Salmon River Watershed Roundtable.

Schlager, E.; and E. Ostrom. 1993. Property-Rights Regimes and Coastal Fisheries: an Empirical Analysis. *In* The Political Economy of Customs and Culture: Informal Solutions to the Commons Problem, eds. T. Anderson; and R. Simmons. Rowman and Littlefield Publishers. Pp. 13-41.

Senge, Peter. 1990. The Fifth Discipline: the Art and Practice of the Learning Organization. New York: Doubleday.

SLDF. 2000. Muddied Waters: The Case for Protecting Water Sources in British Columbia. Sierra Legal Defense Fund.

Silver, J. 2004. Reactions of Fishers to Participation in Fisheries Research in the Turks and Caicos Islands, BWI. Thesis. Geography – University of Western Ontario.

Singleton, S. 1998. Early Institutions of the Pacific Northwest Tribes. *In* Constructing Cooperation: the Evolution of Institutions of Co-management. University of Michigan Press. Pp. 29-54.

Singleton, S. 2000. Co-operation or Capture? The Paradox of Co-management and Community Participation in Natural Resource Management and Environmental Policy-making. Environmental Politics. 9(2): 1-21.

Slaney,T.; K. Hyatt; T. Northcote; and R. Fielden. 1996. Status of anadromous salmon and trout in British Columbia and Yukon. Fisheries 21(10): 20-35.

Slocombe, D. 1993. Environmental Planning, Ecosystem Science, and Ecosystem Approaches for Integrating Environmental and Development. Environmental Management 17:289-304.

Smith, C.; and J. Gilden. 2002. Assets to Move Watershed Councils: From Assessment to Action. Journal of the American Water Resources Association. 38(3):653-662.

Symko, C. 2000. Watershed Management Planning in a Mountain resort community: A case study of whistler's crabapple creek. 699 report. Resource and Environmental Management – Simon Fraser University. Report No. 261.

Tindall, David B. 2002. Social Networks, Identification and Participation in an Environmental Movement: Low-Medium Cost Activism Within the British Columbia Wilderness Preservation Movement. Canadian Review of Sociology and Anthropology. 39(4):413–52.

Verba, S; K. Schlozman; and H. Brady. 1995. Voice and Equality: Civic Voluntarism in American Politics. Cambridge: Harvard University Press.

Williams, J.; C. Wood; And M. Dombeck (ed.s). 1997. Watershed Restoration: Principles and Practices. American Fisheries Society, Bethesda, Maryland.

Yaffee, S.; A.F. Phillips; I.C. Frentz; P.W. Hardy; S.M. Maleki; and B.E. Thorpe. 1996. Ecosystem Management in the United States: An Assessment of Current Experience. Island Press, Washington, D.C.

Yin, R. 2003. Case Study Research. 3rd Edition. Thousand Oaks, California, Sage Publications.