

**SOCIAL LEARNING AS A TOOL TO UNDERSTAND  
COMPLEX ADAPTIVE MANAGEMENT INSTITUTIONS**

by

Kira Furman  
B.A., University of Idaho, 2006

RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF RESOURCE AND ENVIRONMENTAL MANAGEMENT

In the  
School of Resource and Environmental Management  
Project No. 499

© Kira Furman 2010

SIMON FRASER UNIVERSITY

Summer 2010

All rights reserved. This work may not be  
reproduced in whole or in part, by photocopy  
or other means, without permission of the author.

# APPROVAL

**Name:** Kira Furman  
**Degree:** Master of Resource and Environmental Management  
**Title of Thesis:** Social Learning as a Tool to Understand Complex Adaptive Management Institutions  
**Project Number:** 499  
**Examining Committee:**

**Chair:** Miku Lenentine  
Master of Resource Management  
School of Resource and Environmental Management

---

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

---

**Dr. Murray Rutherford**  
Supervisor  
Professor of Resource and Environmental Management, SFU

**Date Defended/Approved:** \_\_\_\_\_

## **ABSTRACT**

Social learning has been found to facilitate the effectiveness of resource and environmental management decision making. The Washington Forest Practices Adaptive Management Program is a collaborative institution whose participants include a diverse array of forest stakeholders. Over 20 years ago the first iteration of this program began with a shared spirit of learning. This report examines the status of social learning in the program today and, in areas where social learning is low, potential causes of this impasse are explored along with possible opportunities to overcome current obstacles and foster future learning. While collaborative processes are often recommended in environmental decision making, the study of the effectiveness of these processes over periods as long as two decades is rare. The objective of this research is to provide insight into social learning issues which emerge in long term collaborative partnerships.

**Keywords:** co-management; collaboration; social learning; common property theory; adaptive management; TFW Agreement; Forest and Fish Report; forest practices

**Subject Terms:** co-management; social learning theory; Washington State; adaptive management; forest practices

## **DEDICATION**

*To my parents,*

*For introducing me to the wonders of our natural world and for their unconditional belief  
that I can make a difference in it.*

*To my sister,*

*For her ability to make me laugh when I need it the most.*

*And to Dave,*

*For so many things, particularly his unwavering patience and support.*

## **ACKNOWLEDGEMENTS**

First I would like to thank my supervisor, Dr. Evelyn Pinkerton. Throughout the last four years, she has been more than a supervisor; she has been a mentor. I will always be grateful to her for helping me to wade through the complexities of collaborative resource management. I would also like to thank Dr. Murray Rutherford. I sincerely appreciated his kind and thoughtful feedback.

I would like to thank the Washington Forest Practices Adaptive Management Program for its support of this research. I am very thankful for the time and insight its members have shared with me. Without them this research would never have been possible.

I am grateful for the support of the Social Sciences and Humanities Research Council of Canada through their grant #410-2004-1378 to Dr. Evelyn Pinkerton.

Last, but definitely not least, I would like to thank my fellow Remmers. I feel so lucky to have met such a great group of people. I would particularly like to thank Miku and Meghan for being such good friends and colleagues.

# TABLE OF CONTENTS

<b>Approval</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iii</b>
<b>Dedication</b> .....	<b>iv</b>
<b>Acknowledgements</b> .....	<b>v</b>
<b>Table of Contents</b> .....	<b>vi</b>
<b>List of Figures</b> .....	<b>viii</b>
<b>List of Acronyms and Abbreviations</b> .....	<b>ix</b>
<b>Glossary</b> .....	<b>xi</b>
<b>Chapter 1: Introduction</b> .....	<b>1</b>
<b>Chapter 2: How Did We Get Here? A Brief History of the Adaptive Management Program</b> .....	<b>4</b>
The Development of the West and Negotiation of Treaties .....	4
The Forest Practices Act .....	5
The Boldt Decision .....	5
The Timber Fish and Wildlife Agreement: Litigation to Collaboration .....	7
The Impetus for Collaboration .....	8
“The TFW Spirit” .....	9
TFW Organization .....	10
Science: Going Where the Truth Leads .....	12
The Forest and Fish Report .....	13
Conflict and Lack of Consensus .....	15
Incidental Take Permit and Clean Water Act Assurances .....	16
Washington Forest Practices Adaptive Management Program .....	17
Adaptive Management Program Structure .....	18
Desired Future Condition .....	21
Conclusions .....	23
<b>Chapter 3: Theoretical Context</b> .....	<b>24</b>
The Tragedy of the Commons .....	24
Social Learning in Sustainable Environmental Management .....	25
The Components of Social Learning .....	27
Systems Orientation .....	27

Reflection .....	30
Integration .....	31
Collaboration.....	32
Negotiation.....	39
Conclusions .....	40
<b>Chapter 4: Methods .....</b>	<b>41</b>
Literature Review.....	41
Data Collection.....	41
Ethical Considerations .....	42
Observation of Meetings.....	43
Interviews .....	43
Data Analysis .....	45
Data Reporting.....	47
Reflections on Researcher Perspective.....	47
Limitations.....	48
<b>Chapter 5: Where Are We Now? Research Findings and Discussion.....</b>	<b>50</b>
The Status of Social Learning in the AM Program.....	50
Generating Hypotheses about Social Learning Challenges.....	53
Hypothesis One: Social Learning and the Changing Environment.....	56
Sub-hypothesis One: The Costs and Benefits of Collaboration.....	57
Sub-hypothesis Two: Lack of Commitment.....	62
Sub-hypothesis Three: A Lack of Leadership in the WFPAM Program.....	66
Sub-hypothesis Four: Mentoring and the TFW Spirit.....	68
Hypothesis Two: The Role of Science .....	71
Hypothesis Three: The Role of Clearly Defined Program Guidance.....	75
Hypothesis Four: Facilitation and Negotiation Training.....	81
<b>Chapter 6: Where Are We Going? Conclusions and Recommendations.....</b>	<b>86</b>
<b>Appendices.....</b>	<b>94</b>
Appendix A: Letter of Introduction.....	94
Appendix B: Sample Interview Framework .....	96
<b>References .....</b>	<b>102</b>

## **LIST OF FIGURES**

Figure 1: TFW Organization .....	12
Figure 2: Washington Forest Practices Adaptive Management Program Structure .....	20
Figure 3: Ecological Cycles .....	29
Figure 4: The Learning Cycle .....	31
Figure 5: Arnstein’s Ladder of Public Participation.....	34
Figure 6: Co-management ‘Bundle’ of Rights.....	35
Figure 7: Collaborative Planning Best Practices.....	37



## **LIST OF ACRONYMS AND ABBREVIATIONS**

Admin – Administrative Committee

Board – The Washington Forest Practices Board

CMER – Cooperative Monitoring, Evaluation Research Committee

CWA – Clean Water Act

DFC – Desired Future Condition

DOE – Department of Ecology

DNR – Department of Natural Resources

DFW – Department of Fish and Wildlife

EIS – Environmental Impact Statement

EPA – Environmental Protection Agency

ESA – Endangered Species Act

FEIS – Final Environmental Impact Statement

FIC – Field Information Committee

FF – Forest and Fish

FFR – Forest and Fish Report

HCP – Habitat Conservation Plan

ITP – Incidental Take Permit

LWD – Large Woody Debris

NEPA – National Environmental Protection Act

NMFS – National Marine Fisheries Service

NOAA – National Oceanographic and Atmospheric Administration

FF Policy – Forest and Fish Policy Committee

REIT – Real Estate Investment Trust

RSAG – Riparian Science Advisory Group

SAG – Scientific Advisory Group

Services – The United States Fish and Wildlife Service and the National Marine Fisheries Service

SRC – Scientific Review Committee

TIE – Technical Information and Education Committee

TIMO – Timber Investment Management Organization

TFW – Timber, Fish and Wildlife

WFFA – Washington Farm Forestry Association

WFPA – Washington Forest Protection Association

WFPAM Program – Washington Forest Practices' Adaptive Management Program

USFWS – United States Fish and Wildlife Service

## **GLOSSARY**

<b>Adaptive Management</b>	An approach to natural resource policy that treats policies as experiments and uses monitoring to learn and improve future policies (Lee 1993, 9).
<b>Collaborative Planning</b>	An approach to developing resource management plans which relies on consensus building and interest-based negotiations (Frame et al. 2004, 57).
<b>Co-management</b>	Power-sharing in the exercise of resource management between a government agency and a community or organization of stakeholders (Pinkerton 1992, 331).
<b>Consensus Building</b>	An effort in which stakeholders with various interests come together for face-to face, long-term dialogue to address policy issues of concern (Innes and Booher 1999, 412).
<b>Desired Future Condition</b>	A term the Washington Forest Practices Program uses to describe the condition of mature, unmanaged riparian stands in Washington at the age of 140 years (Washington DNR 2005a).
<b>Incidental Take Permit</b>	A permit issued by the United States Fish and Wildlife Services and National Marine Fisheries Service (the Services) which allows otherwise unlawful ‘take’ of species under the Endangered Species Act because certain species protection measures have been met (Washington DNR 2005a).
<b>Interest-based Negotiations</b>	Interest based negotiations focus on resolving disputes through identifying common interests and building win-win solutions (Fisher et al. 1991).
<b>Grounded Theory</b>	A method of conducting qualitative research that focuses on creating conceptual frameworks or theories through building inductive analysis from the data (Charmaz 2006, 187).
<b>Habitat Conservation Plan</b>	A planning document required under the Endangered Species Act as part of an application for an incidental take permit which describes the anticipated effects of the proposed taking, how those impacts will be minimized, and how the Habitat Conservation Plan will be funded (USFWS 2009).

<b>Mentoring</b>	A nurturing process in which a more skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels, and befriends a less skilled or less experienced person for the purpose of promoting the latter's professional and/or personal development. Mentoring functions are carried out within the context of an ongoing, caring relationship between the mentor and protégé (Anderson and Shannon 1988, 40).
<b>NVivo</b>	Qualitative data analysis software.
<b>Social Learning</b>	A process of iterative reflection that takes place as groups share experiences, ideas and environments with one another (Keen et al. 2005b, 9).
<b>Take</b>	To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, endangered species or to attempt to engage in any such conduct (United States 1973).

## CHAPTER 1: INTRODUCTION

Washington State's forest practices standards and rules are the result of collaborative negotiations among federal, state and local governments, Washington Treaty Tribes and Executive Order Tribes, the timber industry and environmental groups. Collaborative development of forest practices has been ongoing in Washington for over 20 years. This effort continues in the form of the Washington Forest Practices Adaptive Management Program (Washington DNR 2005a). The goal of this research is to examine the Washington Forest Practices Adaptive Management program to gain insight into the long-term effectiveness of this type of collaborative process.

The earliest version of Washington State's forest practices standards and rules appeared in the *Forest Practices Act* of 1974, and were later more fully developed through a number of collaborative multi-stakeholder agreements and sub-agreements. The first of these collaborative agreements, the Timber Fish and Wildlife Agreement of 1987, was negotiated between Washington State, Washington treaty tribes, the timber industry and environmental groups as an alternative to ongoing litigation between the timber industry and tribes (Pinkerton 1992). However, due to the pending listing under the Endangered Species Act of several species and the failure of numerous streams to meet water quality standards outlined in the federal Clean Water Act, the original stakeholders as well as federal and local governments renegotiated this original agreement into a non-consensus decision in 1999 called the Forest and Fish Report (Call 2005). The collaborative Washington Forest Practices Adaptive Management Program was formalized in order to receive federal permits for the forest practices and standards created through the Forest and Fish Report.

Increasingly, collaborative processes are considered preferable to their technocratic and command and control counterparts in environmental decision-making (Frame et al. 2004). However, while collaborative processes are often recommended,

there is little research evaluating the effectiveness of these collaborative processes over extended periods. Because it is the latest iteration of over twenty years of collaborative efforts, the Washington Forest Practices Adaptive Management Program offers a unique opportunity to examine collaboration over an extended length of time. This program also provides a particularly challenging example of collaboration due to the multiplicity of parties involved and the history of litigation among them. Therefore, the goal of this research is to examine the effectiveness of long-term collaborative multi-party processes using the Washington Forest Practices Adaptive Management Program as a case study.

Specifically, this research examines how diverse groups of stakeholders share experiences, ideas and environments with one another, a concept referred to in the literature as social learning (Keen et al 2005b, Schusler et al. 2003, Woodhill and Röling 1998). The objectives of this research were threefold:

- (1) determine if and how social learning is occurring in the Washington Forest Practices Adaptive Management Program;
- (2) where social learning is not occurring, develop hypotheses about why and retrospectively test these to the extent possible using information collected during the data gathering phase of the research; and
- (3) offer suggestions for opportunities to enhance social learning.

To determine if and how social learning is occurring in the Washington Forest Practices Adaptive Management Program a literature review was first carried out. This review was used to determine what characteristics make for effective social learning. Next, semi-structured interviews were conducted with current and past members of two key Adaptive Management Program committees, the Cooperative Monitoring and Evaluation Research (CMER) committee and the Forest and Fish (FF) Policy committee. In addition, observation of CMER and FF Policy committee meetings occurred throughout the summers of 2007 and 2008. The interviews were then transcribed and coded and analyzed using a grounded theory approach.

This report is organized into six sections. The introduction briefly describes the research question and its context. Chapter 2 provides a historical overview of forest practices in the State of Washington. The purpose of this overview is to critically examine the last 20 years of collaborative efforts to see which activities may have led to

current challenges or successes and, based on this information, to extrapolate what activities may facilitate more effective collaboration in the future. Chapter 3 describes social learning and its application to the Washington Forest Practices Adaptive Management Program. Chapter 4 describes the methods used to conduct this research. Chapter 5 analyzes the data and describes research findings. Finally, Chapter 6 summarizes the key results of the research.

## **CHAPTER 2: HOW DID WE GET HERE? A BRIEF HISTORY OF THE ADAPTIVE MANAGEMENT PROGRAM**

The Washington Forest Practices Adaptive Management (WFPAM) Program has a long and complex history. The historical aspects of the WFPAM Program which are examined in this research are described in this chapter. Much of this historical information was used to shape interview questions, develop hypotheses about potential obstacles to the WFPAM program today, and produce recommendations on how social learning could be facilitated in the future.

### **The Development of the West and Negotiation of Treaties**

For thousands of years Washington tribes relied on salmon runs for sustenance (Cohen 1986, 21). The establishment of the United States and its subsequent push to settle the western frontier led to increased exploration and settlement in the Pacific Northwest. The continuous development of western lands created conflict over resources and strained relations between settlers and tribes. As a result, from 1854 to 1855 several treaties were negotiated including the Treaty of Medicine Creek, the Treaty of Point Elliott, the Treaty of Point No Point, the Treaty of Neah Bay, and the Yakima Treaty. In signing these treaties, northwestern tribes believed that they had protected their traditional fishing rights (Cohen 1986).

However, development began to seriously affect tribes' ability to fish. With the development of canneries, European settlers began fishing in ocean-going vessels and intercepting fish before they reached traditional fishing locations. Other aspects of development also threatened salmon including dam-building, logging, farming, and industrial development. Dams altered the flow of rivers and in some cases altogether stopped the passage of salmon upstream. Industrial development and farming affected salmon by releasing sediments and chemicals into streams. Logging affected nearly



every aspect of salmon habitat. As a result, salmon populations began to decline causing serious negative impacts to tribes who were dependent upon them (Cohen 1986).

## **The Forest Practices Act**

In spite of the effects of logging on fisheries, forest practices in Washington remained unregulated through the end of the nineteenth century. In 1974, the Washington State Legislature passed the *Forest Practices Act* (Washington DNR 2007, NOAA's NMFS and USFWS 2006). The *Forest Practices Act* sought to balance the protection of Washington's resources with the maintenance of a viable forest industry through the regulation of certain timber industry operations including logging and silviculture practices (NOAA's NMFS and USFWS 2006). The *Forest Practices Act* also established the Washington Forest Practices Board (the Board) as an independent state agency. The *Forest Practices Act* charged the Board with the responsibility of adopting forest practice rules, as well as protecting public resources while maintaining a viable timber industry (Washington DNR 2005a). However, reaching this balance proved a challenging task.

## **The Boldt Decision**

On August 27, 1973 the United States, representing 14 western Washington Indian tribes, sued the state of Washington in *U.S. v. Washington* (384 F. Supp. 312 W.D. Wash 1974). This case was not the first court case to address the issue of treaty salmon-fishing rights, but was rather part of a long and bitter struggle. For nearly 87 years, there had been court cases in which Washington tribes sought the right to fish as they traditionally had, a right they thought they had protected through treaties, while non-Indian fishermen sought to block these rights for fear their own livelihoods and recreational or sport fishing hobbies would be lost. However, the *U.S. v. Washington* case proved to be unique. On February 12, 1974, the senior federal judge for western Washington, George H. Boldt, made his ruling on this case, which later came to be known as the "Boldt Decision." The Boldt Decision affirmed the right of most Washington treaty tribes to fish for salmon in accordance with federal treaties signed over 100 years earlier. Judge Boldt based his ruling on the grounds that tribes had been

assured access to their traditional fishing grounds as part of federal treaties signed between 1854 and 1855 (Cohen 1986).

The Bolt Decision consisted of two phases. The Phase One decision was heard in 1973 and questioned whether Native Americans had treaty rights to fish outside of their reservations. The answer to this question depended almost entirely on the Judge's interpretation of nearly identical phrases contained in the treaties in question. This phrase stated, "The right of taking fish, at all usual and accustomed grounds and stations, is further secured to said Indians, in common with all citizens of the United States" (From Treaty of Point No Point. 12. Stat. 933 in Cohen 1986, 5). Judge Boldt interpreted 'in common' to mean half of and granted Washington treaty tribes up to 50 percent of the salmon harvest each year (Cohen 1986). In his definition of harvestable fish, Judge Boldt excluded: (1) those fish that Indians catch on the reservations; (2) those that Indians catch for ceremonial and subsistence needs; and (3) those that are necessary for escapement or for the continuation of the species (Cohen 1986). While the Boldt Decision was appealed, the US Supreme Court upheld it in 1979.

The Phase Two Boldt Decision ruling built on the Phase One ruling, to answer two questions: (1) do the fish allocated to Indians include hatchery-bred fish and artificially propagated fish and (2) do the treaties guarantee the continued protection of the salmon against destruction of its habitat? On September 26, 1980, Judge Orrick, who had taken over for retired Judge Boldt, ruled that: (1) hatchery-bred fish and artificially propagated fish fell within the meaning of the treaties and (2) that the right to have fishery habitat protected from degradation by man-made activities was implied in the treaty fishing clause (*U.S. v. Washington*, 506 F. Supp 187, W.D. Wash. 1980). As a result, state agencies, federal agencies, corporations and other entities would not be allowed to degrade habitat to the extent that it would deprive the tribes of their living needs (Cohen 1986).

Aspects of the Phase II decision were appealed and two judicial panels reviewed the cases. Each of the panels came to a different conclusion. In order to resolve the conflict between the panels' interpretations of *U.S. v. Washington*, Phase II rulings, the tribes requested that the entire complement of judges on the Court of Appeals for the

Ninth Circuit<sup>1</sup> review the case. In 1983, the Ninth Circuit Court of Appeals agreed to withdraw the ruling that did not uphold the Boldt II Decision (*U.S. v. Washington*, 474 U.S. 994, 1985) and agreed to rehear *U.S. v. Washington*, Phase II, *en banc*<sup>2</sup> or in full court. While the ruling was never finalized, this decision by implication gave treaty tribes new clout which they used to stop several projects which would negatively impact salmon habitat (Call 2005). Washington stakeholders came to understand that pursuing their interests in court would be a lengthy and costly process (Call 2005).

The most recent iteration of the Boldt II Decision focused on the passage of fish through culverts. The tribes initiated this case in 2001 when they sought to compel the state to repair or replace culverts that were blocking fish passage. The State sought relief against the United States for placing a disproportionate burden of meeting the treaty-based duty on the State. On August 22, 2007, Judge Ricardo Martinez ruled that the treaty right of taking fish imposes a duty on the State to build culverts in a way that allows fish passage and found the State of Washington in breach of this duty *United States v. Washington* (W.D. Wash. Aug. 22, 2007). Thus there is continued legal pressure to protect fish habitat.

## **The Timber Fish and Wildlife Agreement: Litigation to Collaboration**

Throughout the 1980s, conflict raged between the timber industry and Washington treaty tribes as tribes used litigation and the weight of the Boldt Decision to stop or delay logging permits (Pinkerton 1992). Environmental groups also won a ruling in the “Classic U” case (*Noel v. Cole*, 98 Wn.2d.375) which established that timber sales would no longer be exempt from State Environmental Policy Act (SEPA) (Call 2005, Gunton and Flynn 1996). The ongoing litigation in Washington resulted in an extremely contentious and volatile atmosphere.

---

<sup>1</sup> Black’s Law Dictionary defines the Court of Appeals as “an intermediate appellate court.” (Garner 1999, 587). The Ninth Circuit has jurisdiction over the following district and territorial courts: Alaska, Arizona, Central California, Eastern California, Northern California, Southern California, Hawaii, Idaho, Montana, Nevada, Oregon, Eastern Washington, Western Washington, Guam, Northern Mariana Islands (United States Court of Appeals for the Ninth Circuit).

<sup>2</sup> Black’s Law Dictionary defines *en banc* as: “with all judges present and participating; in full court”. (Garner 1999).

## **The Impetus for Collaboration**

Washington State forest managers were increasingly faced with conflict and it became increasingly difficult for the Forest Practices Board and other regulators to weigh the competing interests of the timber industry, tribes, environmental groups, and federal government regulators (NOAA's NMFS and the USFWS 2006, Pinkerton 1992). In 1986, the Forest Practices Board began to revise forest practice regulations concerning riparian zone protection and cumulative effects (Call 2005, Washington DNR 2005a). Due to conflicting stakeholder interests, it became apparent that stakeholders would not be satisfied with the revisions (Gunton and Flynn 1996).

The timber industry feared that the rules adopted by the Forest Practices Board would be detrimental to their operations (Pinkerton 1992). As a result, the Northwest Water Resources Committee (NWRC), a committee comprised of northwest timber corporations, hired James Waldo to analyze their options for addressing the Phase II decision. Waldo outlined four basic opportunities for the corporations. These options included (1) a judicial attack on the Phase Two appeal, (2) congressional abrogation of treaty rights, (3) judicial attacks on a case-by-case basis, and (4) direct negotiation with the tribes. Due to the high costs of continued legal proceedings Waldo recommended the final option and the corporations agreed (Call 2005).

Tribal leaders also agreed to negotiate (Cohen 1986). Billy Frank Jr., the chairman of the Northwest Indian Fisheries Commission, when asked why he was willing to negotiate, stated, "We can keep winning in court ...but it doesn't protect the life of the salmon" (Cohen 1986, 146). Because litigation protected salmon on a case-by-case basis, it produced few protection outcomes and tribes wanted to work proactively towards more rapid and holistic fisheries conservation. Furthermore, litigation was extremely costly. Through negotiation, the tribes and industry agreed that joint implementation of the Phase II decision was in their best interests and they agreed to forgo further litigation. The NWRC was disbanded and industry and tribes formed the Northwest Renewable Resource Center (NRRC) (Call 2005).

The success of this effort caused other stakeholders to become interested in collaboration. In 1986, Jim Waldo, Bill Wilkerson, Director of the Washington Department of Fisheries, Billy Frank Jr. of the Nisqually Tribe and Northwest Indian Fisheries Commission, and Stewart Bledsoe of the Washington Forest Protection Association met and began to discuss the potential for collaborative negotiation. After agreeing to collaborate, other caucuses (stakeholder groups) followed suit, including environmental groups, timber interests, and the Departments of Natural Resources, Fisheries and Game, and Ecology. These stakeholders requested that the Forest Practices Board withhold the creation of new rules until they could reach an agreement. The Forest Practices Board agreed to this proposal but set a deadline of December 1986 (Call 2005, Washington DNR 2005a, Gunton and Flynn 1996).

In July of 1986, the Timber Fish Wildlife negotiations opened between Washington treaty tribes, the timber industry, environmental groups and state governmental agencies. The groups reached an agreement after more than 60 meetings (Gunton and Flynn 1996). This agreement was finalized in 1987 and called the Timber, Fish, and Wildlife Agreement (Washington DNR 2005a). The State Legislature then accepted the recommendations of the negotiation and amended the Forest Practices Act to follow the recommendations made in the Timber, Fish, and Wildlife Agreement (Gunton and Flynn 1996).

The high cost and low outcome litigation process was a driving force that led to the TFW Agreement. The challenges associated with litigation provided incentives or pressures for groups to collaborate (Pinkerton 1992). If social learning is not occurring today, is it possible that the desire to avoid litigation is no longer producing enough pressure to bring groups to consensus? In Chapter 5 several hypotheses and sub-hypotheses are explored to gain insight into potential barriers to social learning. Sub-hypothesis one tests this idea.

### **“The TFW Spirit”**

Throughout these negotiations, the atmosphere of conflict that had previously clouded over forest practice issues began to shift towards collaboration. Before the TFW

negotiations, disputes over resource use led to legal struggles and bitter rivalry. However, through interest-based negotiations a remarkable shift occurred: (1) caucuses came to see other caucuses' concerns as legitimate needs requiring attention; (2) caucus actions tended to move from competitive to cooperative; and (3) levels of trust between caucuses increased (Mangin 1989). The attitude of respect and shared understanding that emerged from this agreement came to be known as the "TFW spirit".

While the TFW negotiations began in an environment rife with contention, through the negotiation process caucuses came to respect and value each other's viewpoints (Mangin 1989). This represented a remarkable shift in values. Without the historical context, this collaborative approach could be difficult to understand. If new participants to the process were not taught to value collaboration, viewpoints could easily revert from collaboration-oriented to caucus-oriented. If social learning in the WFPAM program today is facing challenges could this be due to a lacking of mentoring and training of new participants? Sub-hypothesis four explores this idea.

Call (2005) suggests that several factors led to the success of the TFW negotiations. First, the skilful mediation by Jim Waldo and the mediation team allowed negotiators to build relationships and trust, therefore enabling them to reach agreements on tough issues. Second, high-level caucus leaders including Stu Bledsoe, Billy Frank, Jr., Bill Wilkerson, Marcy Golde, Dick Wallace, and others, participated in the process and were available to negotiate on behalf of their caucus. Without these leaders' involvement, negotiators would have to report back to upper management, a time consuming process which interrupts the flow of consensus building (Call 2005). If the WFPAM program is currently facing social learning challenges, could lack of facilitation or lack of high-level involvement be contributing? Sub-hypothesis three explores the lack of high-level involvement as a barrier to social learning and hypothesis four explores the lack of facilitation as a barrier to social learning.

## **TFW Organization**

Following the TFW Agreement the Timber Fish and Wildlife Organization (TFW Organization) was created to implement the agreement. Figure 1 outlines the structure of

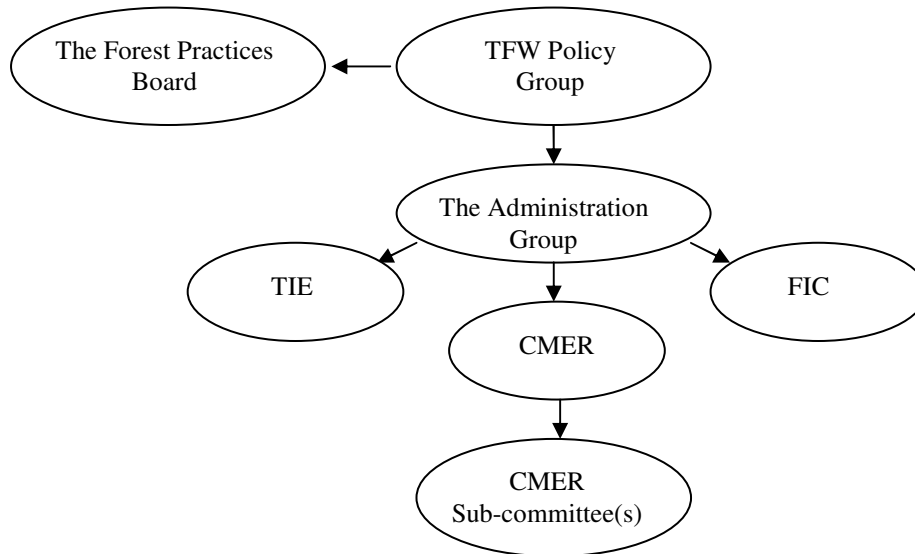
the TFW Organization. The TFW Organization consisted of several levels of committees. The Forest Practices Board (Board) enacted rule changes based on the recommendations of the TFW Policy Group. The TFW Policy Group resolved policy issues regarding the implementation of the TFW Agreement. The Administrative Group advised the TFW Policy Group on technical issues and brought policy questions to the TFW Policy Group for resolution. Three additional committees, the Technical Information and Education committee (TIE), the Field Information Committee (FIC), and the Cooperative Monitoring Evaluation and Research Committee (CMER), supported and advised the TFW Policy and Administration Group. The TIE committee was responsible for training, information, and education regarding the TFW Agreement and the subsequent rule changes. The FIC committee supported ID<sup>3</sup> teams and advised the Administration Group on the field implementation of the TFW Agreement. The final committee, CMER, carried out most of the monitoring, research, and evaluation associated with implementing the TFW Agreement (Currie 1989). After its formation, CMER established six sub-committees to assist in these activities. This structure is very similar to the structure of the WFPAM Program today with the exception that the Administration Group, the FIC Committee, and the TIE committee are no longer part of the program. If there are challenges associated with the WFPAM program today could these challenges be linked to shifts in the structure of the program? This question is further explored in Chapter 6.

Adaptive management played an important role in the implementation of the TFW Agreement. Because of the complexity and uncertainty associated with resource management impacts on public resources, the TFW Agreement outlined a procedure to monitor and evaluate forest practices. CMER oversaw most of this research. However, Lee (1993) critiqued the TFW organization for the lack of a formal mechanism to incorporate scientific findings into the policy process. For example, if CMER carried out

---

<sup>3</sup> ID or Interdisciplinary teams were organized by the Washington Department of Natural Resources to respond to technical questions associated with proposed forest activity. Each DNR management region had an ID team consisting of members from the Department of Fisheries and Game, the Department of Ecology, and whenever available, experts from the tribes, the timber industry and universities. The parties involved in ID teams decided by consensus recommendation what forest practices should apply to the site or if a cutting permit should be denied. ID teams resolved conflict over forest practices on a site-by-site basis (Pinkerton and Kepkay 2010).

**Figure 1: TFW Organization**



Adapted From: Currie 1989, 5.

a study, the TFW Policy Committee was not required to take that study into account when making policy decisions. Lee felt that this hindered institutional learning. Could the lack of formal mechanisms linking scientific findings to policy-making that Lee describes be a factor that is negatively affecting social learning in the WFPAM program today? This question is further explored in Chapter 5 in hypothesis three.

### **Science: Going Where the Truth Leads**

One of the building blocks of the TFW Agreement, as well as the implementation of the agreement, was trust in science. Stakeholder groups relied on the science to act as an impartial judge and jury and to direct the disagreeing parties on a way to proceed. An industry leader's statement, "we are going where the truth leads us," exemplifies this attitude (Pinkerton and Kepkay 2010). Trust in the science provided a valuable tool for bring caucuses to consensus. However, caucuses can have various expectations regarding the certainty and accuracy of the science (Kepkay 2003, 33). Today do the various caucuses of the WFPAM program have a shared understanding of how science will be used to resolve conflict? If not, is this causing barriers to social learning?



Hypothesis two tests whether the role of the science is effectively defined in the WFPAM Program.

## **The Forest and Fish Report**

Three issues emerged in the mid-1990s that led to the creation of emergency rules, as well as permanent rule changes in Washington forest practice regulations. First, an increasing number of streams in Washington did not meet the water quality standards of the Federal *Clean Water Act*. In Washington, by 1998, the Environmental Protection Agency (EPA) and Washington Department of Ecology (DoE) had listed more than 660 streams on the 303(d)<sup>4</sup> list because they did not meet the standards outlined in the *Clean Water Act* (Call 2005, Washington DNR 2005a).

The second issue arose over the accuracy of water typing maps. Water typing base maps were used to establish fish presence or absence in order to implement appropriate forest practices. In the early 1990's biologists with tribes and environmental groups reported sightings of fish further upstream than maps recognized. Therefore, new emergency rules that revised the gradient and width criteria for fish-bearing waters were created.

The third and final issue was the pending listing of several species of salmonids in Washington as threatened or endangered under the Federal *Endangered Species Act* (Washington DNR 2005a). By 1999, the National Oceanic and Atmospheric Administration National Marine Fisheries Service and the United States Fish and Wildlife Service had listed seven species of salmonids as either threatened or endangered (Call 2005). As a result of these listings, new standards would likely be required to protect these species from further decline.

In response to water quality and aquatic endangered species issues, the Board adopted emergency water typing rules in 1996 and salmonid emergency rules in 1998. In addition, in 1997 Governor Locke formed a Joint Natural Resources Cabinet and charged it with creating a salmon recovery plan for Washington State by June of 1998. This recovery plan included three components: (1) an agricultural module, (2) a forestry

---

<sup>4</sup> This list is know as the 303(d) list because it is described in section 303(d) of the CWA. Waters listed under the 303(d) list require a water cleanup plan (Washington DNR 2005a).

module, and (3) and an urban module. The Joint Natural Resources Cabinet turned to the Timber Fish and Wildlife organization to develop recommendations for the forestry module (Call 2005).

In 1996, TFW Policy invited the National Marine Fisheries Service (NMFS), the United States Fish and Wildlife Service (USFWS) and the Environmental Protection Agency (EPA), the federal agencies responsible for species listing and water quality, to join the forestry module. These officials and TFW Policy agreed that the TFW Organization would be a good forum to address the listing of threatened and endangered species and 303(d) regulations. The TFW Policy Group decided a collaborative approach, like that used in the TFW Agreement, was better than a top down approach for determining the recommendations of the forestry module. Therefore, the TFW Policy Group decided to use their group as a forum to address the forestry module. In addition to the original members of the TFW Policy Group, two new caucuses were invited to participate. These caucuses included the federal caucus and the local government caucus. The federal caucus would represent federal organizations and address federal environmental protection requirements. The local government caucus would represent local governments regarding issues of implementation and coordination at the local level (Call 2005).

TFW Policy held its first forestry module meeting in May of 1997. A timeline of November 1997 to February 1998 was established, and the participants decided an agreement-in-principle would be presented to the state legislature by December of 1997. After updating them for the current context, participants agreed to follow the TFW ground rules. The negotiation process consisted of numerous two-to-three day sessions with all of the participants, as well as smaller breakout sessions (Call 2005).

The negotiation focused on four key goals. These goals included (1) providing compliance with the Endangered Species Act for aquatic and riparian-dependent species on non-Federal forestlands; (2) restoring and maintaining riparian habitat on non-Federal forestlands to support a harvestable supply of fish; (3) meeting the requirements of the Clean Water Act for water quality on non-Federal forestlands; and (4) keeping the timber industry economically viable in the state of Washington (Washington DNR 2005a). The best available science was to be used to approach these issues. Technical teams were

organized and assigned to examine and frame issues based on scientific information. Essentially, the negotiations focused on the degree of protection necessary for salmon and in what areas this protection should be implemented.

### **Conflict and Lack of Consensus**

Disagreement within and between the caucuses made reaching an agreement very challenging during the forestry module negotiations. Within the timber industry caucus some of the large companies felt the proposed regulations were too strict; others agreed with the proposed regulations but disagreed on the implementation strategies. Small forest landowners fought regulations that would disproportionately affect them. The land owned by these small landowners had a substantial amount of acreage adjacent to streams and larger riparian management zones in the proposed regulations meant that more trees would be left, therefore, negatively affecting the small landowners' profit. However, in the end the timber industry supported the proposal that included compensation to small forest landowners.

There were also divisions among tribes. Some tribes such as the Quinault and the Colville supported their own timber economies, while others such as the Muckleshoot and Puyallup supported a fishing culture. In the end, the Muckleshoot, Puyallup and Tulalip tribes opposed the final outcome (Call 2005).

As the negotiations drew to a close, environmental groups were unable to find common ground with the other stakeholders. The environmental caucus was opposed to the final outcome for two key reasons: (1) they felt there was a need to base policy decisions on better scientific information; specifically they felt that this applied to riparian buffer zones and (2) the environmental caucus was uncertain whether the forest practice rules would adapt over time as more scientific information became available. Within the Conservation Caucus there was division regarding whether they should withdraw from the negotiation. Finally, the environmental caucus announced that it did not have the resources to participate in the process and withdrew (Call 2005).

Due to the withdrawal of the Muckleshoot, Puyallup, and Tulalip tribes and environmental groups, a consensus decision was not reached. After their withdrawal, environmental groups insisted the process could no longer be called Timber, Fish and

Wildlife and it was renamed Forest and Fish Report. The nature of the Forest and Fish Report was very different than the nature of the TFW Agreement due to the lack of consensus support. Without consensus support there is great potential for animosity to build between disagreeing parties. Has long-standing animosity arisen between parties and could this affect social learning in the WFPAM today? This idea is further examined as part of the discussion in sub-hypothesis two.

The remaining stakeholders completed the Forest and Fish Report (FFR) on April 29, 1999 (Call 2005). Using the recommendations provided in the FFR, the Washington DNR drafted legislation. In 1999, the Washington legislature passed the 1999 *Salmon Recovery Act*, also called the “Forest and Fish Law,” and directed the Forest Practices Board to adopt rules consistent with the FFR (Washington DNR 2005a). The Forest Practices Board adopted emergency rules in January 2000 and permanent rules became effective in May 2001 (Washington DNR 2005a). The FFR regulations apply to approximately 9.3 million acres of private, state, and local government land.

### **Incidental Take Permit and Clean Water Act Assurances**

The federal *Endangered Species Act* (ESA) prohibits the take<sup>5</sup> of endangered and threatened species. Because of the direct impact of Washington Forest Practices on salmon and other aquatic species listed under the ESA, Washington Forest Practices required the approval of two federal agencies, the United States Fish and Wildlife Service (USFWS) and NOAA Fisheries. Section 10(a)(1)(B) of the ESA allows applicants to submit a habitat conservation plan (HCP) to ensure that the proposed actions are also in compliance with federal regulations. If the HCP is approved, a permit may be issued that allows for the incidental take of a listed species while conducting otherwise lawful activities (Washington DNR 2005a). This permit is known as an Incidental Take Permit (ITP). The Washington Department of Natural Resources (DNR) therefore created and submitted an HCP for the Washington forest practices negotiated during the Forest and Fish Report in order to ensure the regulations were also in compliance with the ESA and CWA (Washington DNR 2007, Washington DNR 2005a).

---

<sup>5</sup> Under the ESA the term ‘take’ means to “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct” (United States 1973).

The *National Environmental Policy Act* (NEPA) of 1969 states that federal agencies must integrate environmental values into their decision making process. NEPA requires analysis and full disclosure of the environmental impacts of proposed Federal actions with the potential to significantly affect the quality of the human environment. The issuance of ITPs under Section 10(a)(1)(B) or a limit from take prohibitions under Section 4(d) of the ESA by NOAA Fisheries and the USFWS are actions subject to NEPA. Therefore, the issuance of these permits to the state of Washington triggered the environmental assessment process (Washington DNR 2005a). Because Washington's forest practices had the potential to cause significant environmental impacts, an Environmental Impact Statement (EIS) was required to evaluate the Washington Forest Practices Habitat Conservation Plan (FPHCP). After developing an EIS, NOAA Fisheries and the USFWS issued the State of Washington ITPs for listed aquatic species based on the protective measures described in the FPHCP. The permit was issued June 5, 2006 and would last for 50 years (Washington DNR 2005a).

The purpose of the federal Clean Water Act (CWA) is to restore and maintain the nation's water quality (Dzurik 1996). The Washington State Water Pollution Control Act designates the Washington Department of Ecology (Ecology) as the agency responsible for carrying out provisions of the Federal Clean Water Act on behalf of the Environmental Protection Agency (EPA) within the state of Washington. In order to gain assurances under the CWA, a representative of Ecology serves on the Forest Practices Board and facilitates Ecology's co-adoption of the Washington Forest Practices Rules that apply to water quality and ensures that all current and future forest practice rules are consistent with State and Federal water quality standards (NOAA's NMFS and the USFWS 2006, 1-26; Washington DNR 2005a, 13).

### **Washington Forest Practices Adaptive Management Program**

The USFWS and NOAA fisheries require an adaptive management strategy for HCPs that pose a significant risk to ESA listed species (Washington DNR 2005a). The USFWS and NOAA fisheries define adaptive management as, "a method for examining alternative strategies for meeting measurable biological goals and objectives and then, if necessary, adjusting future conservation management actions according to what is

learned” (Washington DNR 2005a, 173). The Washington Forest Practices Adaptive Management (WFPAM) Program was therefore created to ensure that programmatic changes will occur as needed to protect resources, to ensure that there is predictability and stability in the process, and to ensure that there are quality controls applied to scientific study design, project execution and the interpreted results.

### **Adaptive Management Program Structure**

Uncertainty was an issue throughout the FFR negotiations. It was not possible in the brief span of the negotiations to resolve all the issues of scientific uncertainty facing negotiators. Therefore, FFR recommendations, many of which later became regulations, were based on limited data. However, FFR negotiators documented these areas of uncertainty in a list known as Schedule L-1. Schedule L-1 forms the base of the adaptive management program (Washington DNR 2005a). The WFPAM program was designed to scientifically research these areas of uncertainty and change regulations where necessary.

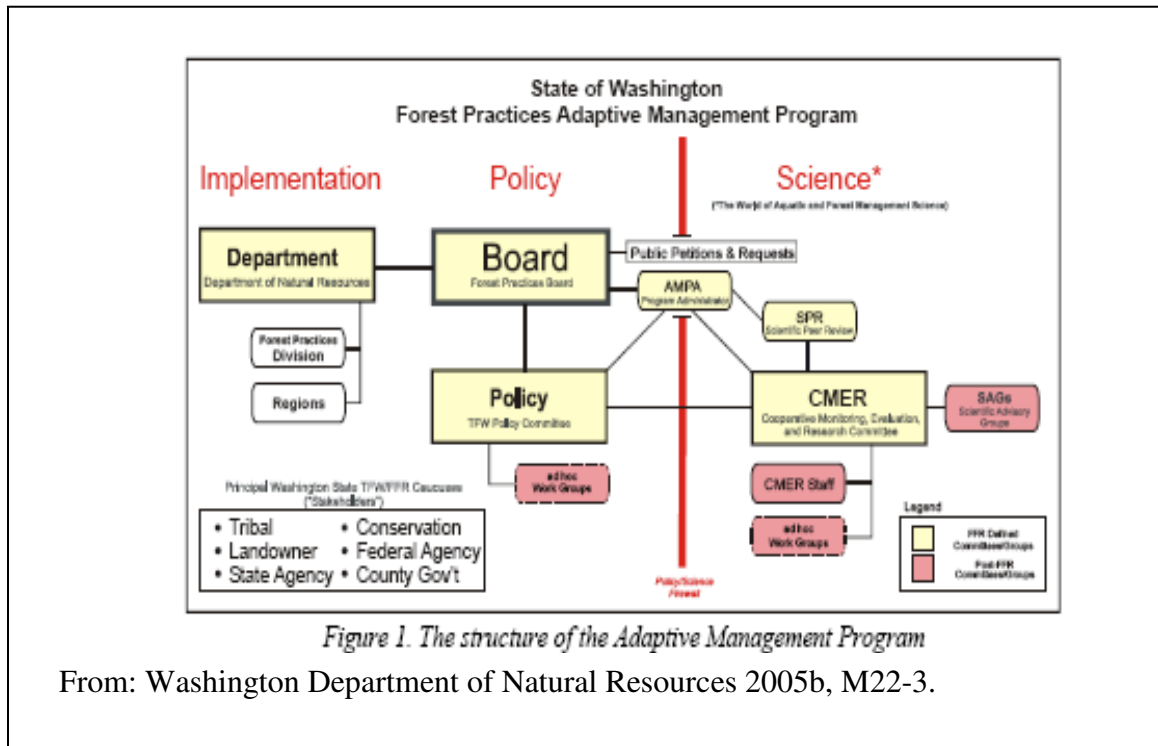
The five basic components of the WFPAM program consist of the Forest Practices Board (the Board), the Forest and Fish Policy Group (FF Policy), the Cooperative Monitoring, Evaluation and Research Committee (CMER), the Adaptive Management Program Administrator (AMPA), and the Scientific Review Committee (SRC). Each of these components plays a role in the WFPAM program and will be further examined in this section.

In many ways, this structure is similar to the structure of the original TFW Organization. Like the TFW Organization, the WFPAM program consists of the Board, Policy group, and CMER. However, the WFPAM program also has the AMPA and the SRC. The role of the AMPA is to oversee the WFPAM program and support CMER. The SRC is an independent peer review process that verifies the accuracy of CMER’s work. The SCR is composed of individuals who meet the experience requirement and have no affiliation with CMER. CMER determines which documents will undergo scientific review, although generally most final reports, study proposals, final study plans, and certain recommendations undergo scientific review (Washington DNR 2005a).

CMER is responsible for conducting the scientific research that moves the WFPAM program forward (Washington DNR 2005a). The CMER Protocol and Standards Manual states that, “CMER’s charge is to conduct objective scientific inquiry, regardless of ideology or organizational interests, into questions posed by the Board and FF Policy and to provide technical information and consensus based recommendations to the Board” (Pleus and Rowton 2005, 2-3). The CMER committee consists of members of each of the six caucuses. The FF Policy group essentially manages the policy forum that supports the WFPAM Program. The guidelines for the Adaptive Management Program state that, “the function of FF Policy is to develop solutions to issues that arise in the Forest Practices Program. These issues may be raised by scientific reports on rule and program effectiveness or policy questions on the implementation of forest practices” (Washington DNR 2005b). To address these issues, FF Policy is responsible for making recommendations to the Board regarding CMER priorities and projects, final project reports and forest practice rule changes or amendments. The Board is responsible for managing the WFPAM program by establishing resource objectives to inform and guide activities and setting priorities for action. The Board approves CMER projects, annual work plans, expenditures, and CMER committee members. In addition, if an agreement cannot be reached in CMER or FF Policy then a dispute resolution process can be initiated. It is the responsibility of the Board to decide on a course of action if a resolution cannot be reached through the use of the dispute resolution process. Figure 2 outlines the structure of the adaptive management program.

The Adaptive Management Program can be divided into three different areas of focus. The first focus of the WFPAM Program is science. CMER’s purpose is to conduct the science necessary to move the WFPAM Program forward. Between CMER and FF Policy there exists a theoretical yet very real science/policy line. Once CMER studies cross this line, the policy implications of these studies are open to debate. FF Policy negotiates decisions based on these studies and makes recommendations to the Board which has the authority to make any rule changes. The third area of focus is implementation. The Washington Department of Natural Resources carries out the implementation of any rules changes.

**Figure 2: Washington Forest Practices Adaptive Management Program Structure**



There are many similarities between the current WFPAM program and the TFW Organization. However, one major difference is that the WFPAM program has been formally written into the rules. The current Adaptive Management Guidelines and the CMER Protocols and Standards Manual outline the adaptive management process. These documents outline the steps and timelines for different types of procedures in the WFPAM program. An outcome of this is that the FF Policy committee must take action on products that CMER produces. This closes the ‘learning loop’ and ensures that policy decisions take new information into consideration, addressing a flaw that Lee 1993 had identified in the TFW Organization structure. Another major difference is the clear division between the science and policy sides of the process. This formalization of committee roles is discussed further in Chapter 5.



## Desired Future Condition

One of the first studies to pass through the WFPAM Program, following the FFR, was a study regarding desired future condition (DFC) in riparian areas. As the present social learning research was being conducted, the DFC study was passing through the WFPAM Program. As a result, the DFC issue served as a case study for this research. Because the DFC study is one of the first studies to pass along the WFPAM Program, analysis of this study provides an excellent opportunity to examine how effectively social learning is occurring in this fairly new program. Furthermore, as this study moved through the path of the WFPAM Program it faced several challenges. These challenges provided insight into social learning barriers. The remainder of this section describes the DFC issue and traces the path of the DFC study and the challenges it faced.

DFC is a forest management term which the WFPAM Program uses to refer to the condition of mature, unmanaged riparian stands in western Washington at the age of 140 years and is based on the basal area<sup>6</sup> of trees (Washington DNR 2005a). The purpose of DFC is to mimic the state of unmanaged riparian stands so that large woody debris (LWD) can be effectively recruited into streams and approach the condition similar to that found in unmanaged landscapes. Throughout the history of Washington Forest Practices, DFC of riparian areas has been contentious due to the fact that high value timber is found in an ecologically sensitive system.

One of the reasons riparian areas are ecologically sensitive is because salmon require complex habitats to thrive. These high quality habitats consist of channel complexity, gravel beds, pools, undercut banks, riparian vegetation, low water temperature, and large woody debris (LWD) (Wing and Skaugset 2002). “Of these components, LWD may be the most important because it can influence almost all other components” (Wing and Skaugset 2002, 796). However, the accumulation of LWD is often lower in harvested areas than in areas of virgin forest<sup>7</sup> due to activities such as logging, agriculture and development (Webster et al. 2008, Wing and Skaugset 2002).

---

<sup>6</sup> The volume of a tree computed from a measurement of the circumference of the tree taken at diameter breast height (dbh) (Avery 1975).

<sup>7</sup> Virgin forest is defined as, “an original forest, usually containing large trees that has not been significantly disturbed or influenced by human activity” (Helms 1998 , 196).

As a result the desired future condition (DFC) of riparian areas has been a long standing concern.

The Riparian Science Advisory Group (RSAG) conducted a study prepared by Dave Schuett-Hames, Robert Conrad and Ashley Roorbach to validate the DFC performance targets (Schuett-Hames et al. 2005). This study examined unmanaged riparian forests at the average age of 140 years and compared the size of these trees to current DFC standards. The study identified several key findings; one of these findings was that the mean live conifer basal area per acre (LCBAPA) in unmanaged forests is significantly higher than the basal area in the current DFC rule targets. Because the findings in the study did not match the current rule standards, this study had potential rule change implications.

In February 2005 RSAG submitted the DFC study to CMER for approval. Within CMER there was disagreement over the accuracy of the science (personal communication, [14], November 2, 2007). However, a month later, in March of 2005, CMER approved this study and forwarded it on to FF Policy (Cooperative Evaluation, Monitoring, and Research Committee 2005a, Cooperative Evaluation, Monitoring, and Research Committee 2005b). At the FF Policy level there was again disagreement over the accuracy of the science. While FF Policy was able to agree that a rule change should be made, it was unable to recommend a rule change to the Board. In spite of this impasse the alternative dispute resolution process was not invoked. On August 30, 2005, FF Policy recommended the Board change the DFC regulations, but did not recommend what this change should be (Washington Forest Practices Board 2005).

Generally, FF Policy would make a policy recommendation which the Board would move into rule making. However, without a recommended course of action, the Board was forced to change its normal course of action. This change in the Board's process created some confusion with WFPAM Program participants (personal communication, [10], June 8, 2008). The Board moved three options into the rule making process. These options were created through stakeholder meetings and the work of Dr. Turnblom from the University of Washington (Washington Forest Practices Board 2008a, Washington Forest Practices Board 2008b, Washington Forest Practices Board 2008c). After further research by CMER regarding one of the proposals, the Board

reached its decision on August 12, 2009 (Washington Forest Practices Board 2009a, Washington Forest Practices Board 2009b). While a DFC decision was reached, the study faced several challenges due to: disagreement over the science, FF Policy's incomplete recommendation to the Board, FF Policy's decision not to go into the Dispute Resolution Process, and confusion over the Board Process. These challenges are further discussed in Chapters 5 and 6.

## **Conclusions**

The WFPAM Program has a rich history of complex interactions with a variety of participant groups. This history has shaped the WFPAM Program and led to its current form. This history can provide insight into the strengths and weaknesses of social learning in this program. Several issues are introduced in this chapter which are further explored in Chapters 5 and 6 in order to gain insight into the current barriers to social learning and to develop recommendations to improve social learning.

## **CHAPTER 3: THEORETICAL CONTEXT**

Collaborative processes like the Washington Forest Practices Adaptive Management Program are complex. While Chapter 2 describes the historical context of the research, this chapter describes the theoretical context. Much of this information was used to shape interview questions, develop hypotheses and sub-hypotheses about potential obstacles to social learning in the WFPAM program today, and to produce recommendations on how social learning could be facilitated in the future.

### **The Tragedy of the Commons**

In 1972 the United Nations Conference on the Human Environment was held in Stockholm, Sweden. This event was the first global forum to address common pool resource issues (Edwards 2005). A common pool resource is a resource to which many people have access (Dietz et al. 2002). The “tragedy of the commons” as Hardin (1968) described occurs when such resources are over-exploited or polluted by their many users. “Nearly all environmental issues have aspects of the commons in them” (Dietz et al. 2002, 4). Forest management issues in Washington also exemplify this situation. As timber is harvested, water quality, flow regimes, and stream conditions may be impacted, therefore degrading fish habitat and potentially decreasing fish populations (Gomi et al. 2005, Kreutzweiser and Capell 2001, Department of Fisheries and Oceans 2000, Newcombe and MacDonald 1991, Cederholm and Reid 1987).

Efforts to sustainably manage common pool resources range from international efforts such as the Agenda 21 and the Montreal Protocol (United Nations Conference on Environment and Development 1992, Dietz et al. 2003) to community and local level efforts through the management or co-management of local resources (Pinkerton and Weinstein 1995, Pinkerton 1989, Jentoft and Kristoffersen 1989). In recent years there has been an effort to move away from the technocratic, or expert based model of planning

and the command and control approach in an effort to engage communities, stakeholders and the public in the management process (Gunton and Day 2003, Leach et al. 2002).

While participatory environmental and resource management is increasingly being encouraged in the literature, little research has been done to evaluate the long-term outcomes of collaborative processes. However, the work of Leach et al. (2002) suggests that time may be an important component in facilitating collaborative processes. The Washington Forest Practices Adaptive Management Program has been part of a collaborative process for over 20 years. Due to its age, the WFPAM Program provides a unique opportunity to examine the resilience of collaborative institutions. By drawing upon the collaborative planning, co-management, adaptive management and social learning literature, the benefits and challenges of collaborative processes will be determined and used to assess the strengths and weaknesses of the WFPAM Program. This in turn may add to our understanding of long-term collaborative processes.

## **Social Learning in Sustainable Environmental Management**

The concept of social learning has been present in the literature for over 60 years. Following World War II, social learning theory emerged within the discipline of psychology (Rotter 1982). Social learning theory examines human behaviour as a continuing interface between cognition, behaviour and environmental determinants. This theory holds that while people have the ability to direct outcomes, they are limited to an extent by external forces. The concept that humans may self-direct spurred on research which examined people as their own source of change (Bandura 1977).

Social learning theory has since been borrowed, adopted and adapted to various disciplines including economics and environmental resource management. This research examines social learning from a resource and environmental management perspective. Decision makers in environmental management institutions are tasked with the challenge of making decisions regarding complex natural systems, often with limited information regarding these ecosystems. Social learning in environmental management examines opportunities to create tighter feedback loops among diverse resource users, environmental managers, and the resources themselves. These linkages can allow decision makers to develop wiser management plans by incorporating information from

various disciplinary sources and the knowledge of resource users. These plans are then monitored in order to learn from past decisions and improve future plans.

Social learning has been defined in the resource and environmental management context in several ways. Woodhill and Röling (1998, 64) defined social learning as, “a framework for thinking about the knowledge processes that underlie societal adaptation and innovation.” Schusler et al. (2003, 311) define social learning as, “learning that occurs when people engage one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action.” Finally, Keen et al. (2005b, 9) define social learning as, “a process of iterative reflection that occurs when we share our experiences, ideas, and environments with others.” While each of these definitions describes social learning as a framework for sharing and reflecting on our experiences and building a new common understanding which will be used to collaboratively and innovatively approach existing and future resources issues, Keen et al.’s (2005b, 9) definition will be adopted for the purpose of this discussion because it is the most comprehensive.

Keen et al. (2005b: 6) state that three factors are necessary for social learning to occur. First, there must be equitable learning partnerships among communities, professionals, and governments. Second, there must be mechanisms or processes to resolve conflict, collaboratively learn, and to move from collective decisions to action. Keen et al. call these processes learning platforms. Finally, there must be a willingness to examine pre-conceptions and experiment with new ideas and approaches.

Upon initial examination it appears that the WFPAM Program meets each of the requirements necessary for social learning to occur. First, the WFPAM Program’s structure allows for equitable learning partnerships through the representation of all the caucuses and open public meetings. Second, the WFPAM process encourages consensus decision making and includes a dispute resolution mechanism within the process. Third, the WFPAM Program itself allows for transformative learning. The effectiveness of Washington’s forest practices are monitored at several levels (Washington DNR 2005a). These monitoring processes provide feedback into the system and the WFPAM Program provides a forum in which rules and regulations can be adjusted if targets and objectives are not being met, therefore creating a structure where transformative learning can occur.

## **The Components of Social Learning**

Keen et al (2005b) visualize social learning as consisting of five braided strands. Each strand represents an important aspect of environmental management. However, it is not until these strands are used (woven) together that they become a truly effective tool. The strands of social learning consist of: (1) systems orientation and systems thinking; (2) reflection; (3) integration; (4) collaboration and (5) negotiation. These strands run through all aspects of the social learning process and serve to tie together various stakeholders, levels of government, the complexities associated with ecosystem uncertainty and the phases of the social learning process itself.

### **Systems Orientation**

The first strand of social learning is systems orientation and systems thinking. As described earlier, resource and environmental management is challenging because of the complexity of environmental decision making. Systems theory proposes a method of examining an issue by bringing together what has in the past been considered as unrelated sources of knowledge and information and synthesizing them to create a clearer and more comprehensive picture of the issue. Systems theory provides a means to reflect on the linkages between humans and ecosystems and lends understanding to the changes which result from their interactions (Dyball et al. 2005).

Ecological systems were initially viewed as moving towards a final stable point, such as a “climax forest,” where characteristics were determined by climate and edaphic<sup>8</sup> conditions. However, ecological systems are now seen by Holling, a leader in ecological systems and resilience thinking, as undergoing continuous cyclical changes. There are many names for this approach including complex systems behaviour, discontinuous change, chaos and order, self-organization, nonlinear systems behaviour, and adaptive evolving systems (Holling 1995).

---

<sup>8</sup> The Dictionary of Forestry defines edaphic as, “related to or caused by particular social conditions” (Helms 1998, 54).

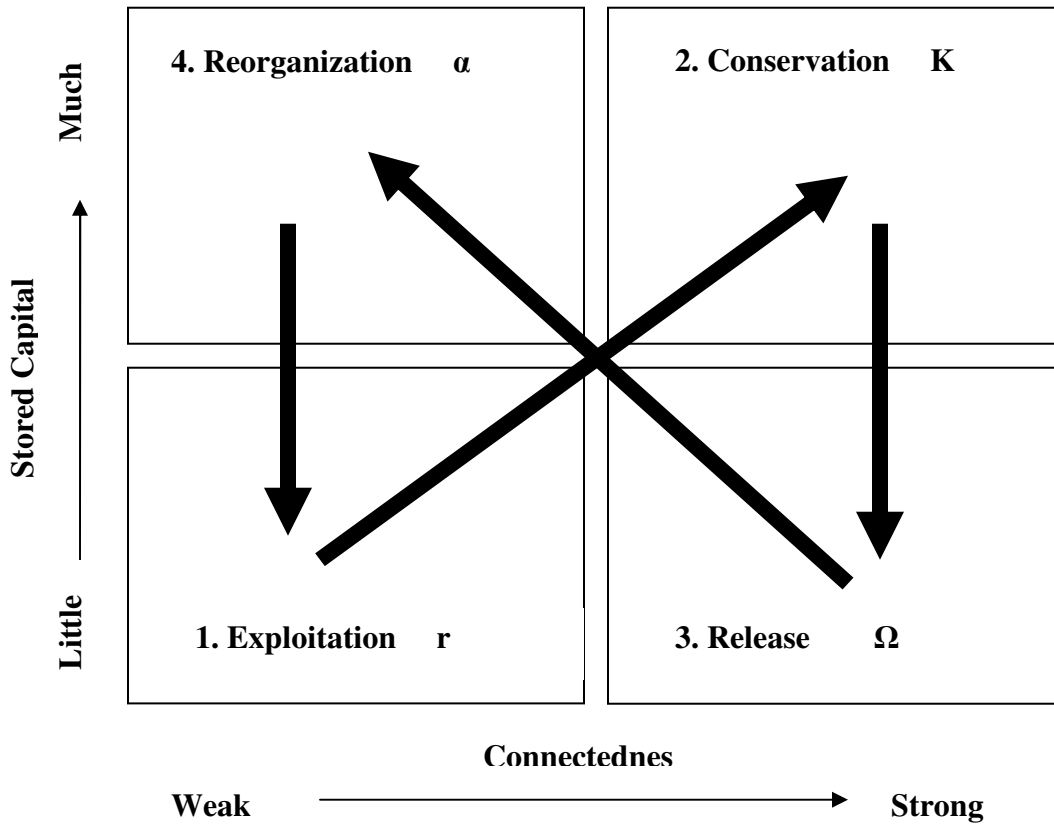
In Holling's view, systems undergo four cyclical changes. Figure 3 illustrates this cycle. These changes are a result of potential built up within the system and the connectedness of the components which make up the system. The first phase is exploitation and consists of the rapid colonization of recently disturbed areas due to low connection of system components. Conservation, the second phase, is characterized by high connectedness and interdependence of system components as well as large amounts of stored capital. In the reorganization phase, over connectedness in the system leads to increasing fragility until the stored energy is released such as in a wildfire or insect outbreak. The final phase, reorganization, consists of the use of released capital to reorganize the system. After the reorganization phase the cycle repeats itself (Holling and Gunderson 2002, Holling 1995).

The resilience of the system shifts as it moves through the adaptive cycle. In the reorganization phase, resilience is high. As species begin to move in and occupy a disturbed area, diversity is high, thereby creating resilience. High resilience continues through the colonization stage to the early reorganization phase. However, as niches are developed, rigidity increases, which in turn leaves the system less able to quickly and efficiently adjust to changing elements. As a result, release occurs and the cycle is repeated.

Within ecological systems there are subsystems which are nested within each other at different ranges and scales known as nested hierarchies. Holling et al. (2002) build from this idea with the concept of panarchies. Holling et al. (2002, 74) define panarchies as, "the adaptive and evolutionary nature of adaptive cycles that are nested on and within one another across space and time scales." Panarchies differ from hierarchies in two key ways: (1) in the panarchy view, the adaptive cycle, and the reorganization phase in particular, is seen as the driver of change in the cycle; (2) the emphasis is placed on the connections between nested levels. In panarchies change can cascade up and down the adaptive cycle hierarchy.



Figure 3: Ecological Cycles



Adapted From: Holling and Gunderson 2002, 34.

Systems thinking provides an important holistic view of environmental management issues. Ecological systems are not static but ever-changing. An environmental decision which is made based on an observation or study done at one point in time may not account for the full range of potential outcomes for that system. Furthermore, the concept of panarchies illustrates the connectedness of ecological systems and how a change in one portion of the system may cascade up or down the entirety of the system affecting the greater ecosystem in unanticipated ways. Systems thinking illustrates the need to take a comprehensive view of the issues and continually monitor management decisions and refine knowledge. This concept and its application to forest management in Washington State is explored further in the next section on reflection.

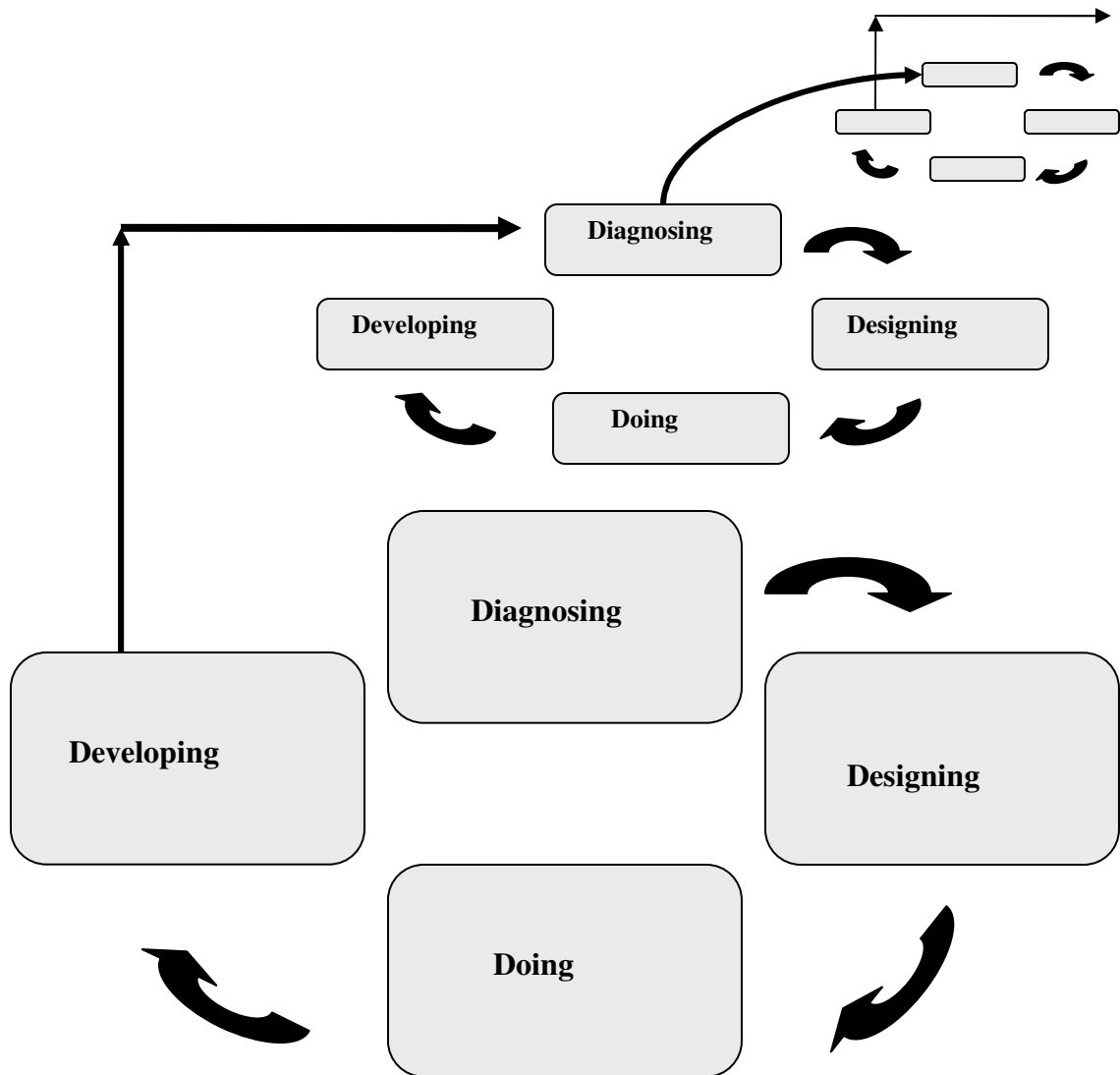
## **Reflection**

The second strand of social learning is reflection. Reflection leads to learning by critically examining past actions and evaluating their outcomes. The process of reflection in social learning is described by Keen et al. (2005b, 9) as an iterative process of diagnosing, designing, doing and developing. The first step is diagnosing the current situation by evaluating what is occurring. In the second phase, designing, new values, interests, ideas, and skills are incorporated into the process and a vision of what could be is created. The next phase, doing, consists of incorporating a vision of what could be into the current system. Finally, in the developing phase, evaluation of the process occurs based upon its successes and failures and the next step of the process is planned. This process continues to cycle as an iterative learning loop. Figure 4 illustrates the reflection process. The process of reflection is widely accepted in the literature as the point of departure of many processes including: participatory rural appraisal, participatory learning, and adaptive management (Keen et al. 2005(b)).

## **Adaptive Management**

Due to the uncertainty associated with changing ecological and social systems resource and environmental management is challenging. Adaptive management has been proposed as a means of addressing this uncertainty by incorporating the changing nature of adaptive systems into the management process. There are many definitions of adaptive management and the widespread use of the term has resulted in different interpretations of its meaning (Failing et al. 2004, Bormann et al. 1999, Halbert 1993 in Stankey et al. 2005). This research will rely on Lee's definition of adaptive management because it captures its fundamental principle. Lee (1993, 9) defines adaptive management as, "an approach to natural resource policy that embodies a simple imperative: policies are experiments; learn from them." In adaptive management human interactions with the environment are treated as scientific probes which lead to better understanding of the human/environmental interface. For adaptive management to be successful managers must be clear about what they expect from management actions and treat these expectations as "hypotheses". These "hypotheses" are then tested by

Figure 4: The Learning Cycle



From: Keen et al. 2005b, 9.

collecting scientific information about the outcomes of the management activity. Learning occurs as this information is analyzed (Lee 1993). The WFPAM Program is based on this principle.

### Integration

The next strand of social learning is integration. As described in the systems thinking section, sustainable environmental management is complex due to the complex

and changing nature of ecosystems. Our social and economic systems are in turn built upon these ecosystems. To effectively learn from and improve sustainable environmental management, those involved must be willing to look at new relationships and connections within resource data. In addition, learning requires new sources of information and forms of knowledge.

Integration is such a fundamental component of environmental management that it has come to apply to many aspects of environmental management and has come to be known as many things including: collaboration, cooperation, systems, synthesis, holism, and unity. While the concept of integration is contained in each of these terms, it is also the combination of these concepts. Keen et al. (2005b) state that “the goal is not a single consensus, nor the lowest common denominator, but a search for a rich tapestry that weaves together diverse ideas to reveal the nature of complexity.” The ability to incorporate all the relevant concepts, scientific disciplines, stakeholders, worldviews, and tools is the key to successful social learning.

Washington forest management provides an excellent example of why integration is important. The impacts of forest practices cannot be understood without incorporating the disciplines of forestry, biology, geomorphology, hydrology, ichthyology, etc. Furthermore, forest management does not solely involve foresters and forest managers. It involves tribes, landowners, recreationalists, environmental groups, government agencies and the public. Each group has knowledge and values that are important to consider in forest management decision making. The plurality of stakeholders described above leads us to the fourth strand of social learning: collaboration.

## **Collaboration**

In environmental resource management collaboration begins as communities, individuals, institutions, agencies, governments, and corporations come together to address environmental issues. Wondolleck and Yaffee (2000, 18-19) describe four major benefits to the inclusion of collaboration in environmental management. (1) Collaboration builds understanding by fostering the exchange of information and ideas among agencies, organizations, and the public and provides mechanisms for resolving uncertainty. (2) Collaboration provides a forum to address common problems and build

support for decisions. (3) Collaboration can build efficiency through coordination of cross-boundary activities, fostering joint management activities, and mobilizing an expanded set of resources. Finally, (4) collaboration develops the capacity of agencies, organizations, and communities to deal with the challenge of the future.

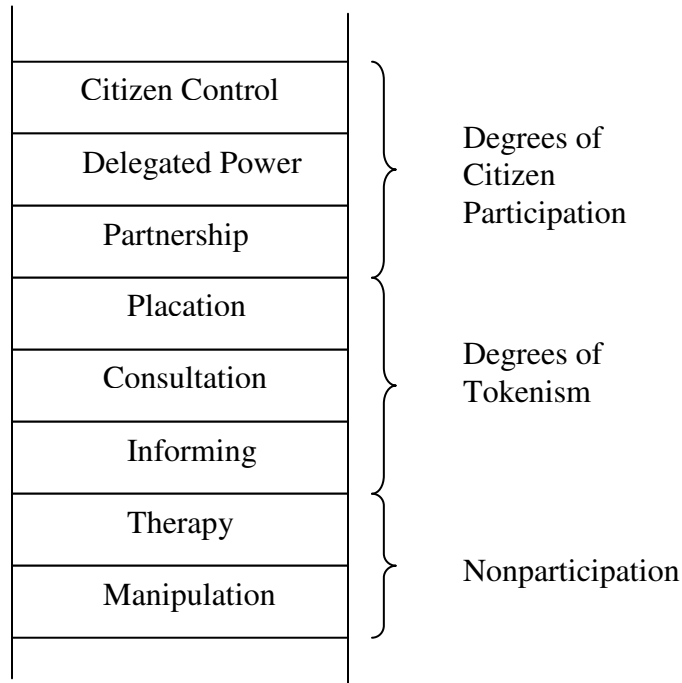
While there are many benefits to collaboration, several authors warn that there are challenges and limitations to collaborative environmental management. First, institutional culture which is resistant to change and lacks flexibility can challenge collaboration (Frame et al. 2004, 59). Other institutional challenges include lack of support from governmental organizations and difficulty reaching consensus within an organization (Gunton and Day 2003, 8; Margerum 2002; 248). Finally, the consensus rule may lead stakeholders to seek second best solutions (Gunton and Day 2003, 8). In spite of these limitations, collaboration is commonly believed to enhance environmental decision making (Frame et al. 2004, Gunton and Day 2003, Wondolleck and Yaffee 2000, Innes and Booher 1999).

Collaboration can take many forms. Arnstein (1969) constructed a ladder of citizen participation which described a scale of partnerships from bad (manipulation) to good (citizen control). Figure 5 illustrates this concept. Arnstein (1969) advocated for the public to have a more substantive role in the decision making process (Margerum 2002). While resource management agencies rarely allow for total citizen control over resource decision making, collaborative decision making using consensus building<sup>9</sup> is a step in that direction and is becoming more common (Selin and Chavez 1995, 189). Two forms of collaboration that have emerged from the environmental management literature, which are high on Arnstein's ladder of participation, are: (1) co-management and (2) collaborative planning. The WFPAM Program is a form of both co-management and collaborative planning.

---

<sup>9</sup> Consensus building refers to a myriad of processes. I use a commonly accepted definition of consensus building proposed by Innes and Booher (1999, 412) which is, "practices in which stakeholders, selected to represent different interests, come together for face-to-face, long-term dialogue to address a policy issue of concern."

**Figure 5: Arnstein's Ladder of Public Participation**



From: Arnstein 1969, 217.

### **Co-management**

Co-management can be defined as, “power-sharing in the exercise of resource management between a government agency and a community or organization of stakeholders” (Pinkerton 1992, 331). Government’s co-managing partner may be a community, First Nation, or groups of communities and First Nations. Co-management arrangements vary from situations where the co-manager plays a very small role and the government plays a large role to situations where the co-managers play a larger role than the government (Pinkerton 1992).

The effectiveness of the management effort is tied to the level of responsibility the co-manager has to manage the resource. A property right is, “the authority to undertake a particular action related to a specific domain” (Schlager and Ostrom 1993, 14). Schlager and Ostrom found that owners, proprietors and claimants that had more property rights were likely to be more successful at addressing common pool resource

issues than authorized resource users. The authors identified five key *de jure* (formal) or *de facto* (informal) property rights including (1) the right to withdraw resources, (2) the right to regulate internal use partners, (3) the right to determine who can withdraw the resource, (4) the right to sell or lease access rights, and (5) the right to transfer rights. Pinkerton and Weinstein (1995) add (6) the right to enforce harvest and habitat protection, (7) the right to monitor harvest and habitat-affecting activities, (8) the right to protect habitat, and (9) the right to coordinate with other resource users. These rights may also be conceptualized as duties to future generations. In situations where the co-managers have all of the listed property rights, co-management is very high on Arstein's ladder of public participation.

**Figure 6: Co-management 'Bundle' of Rights**

1. The right to withdraw resources
2. The right to regulate internal use partners
3. The right to determine who can withdraw the resource
4. The right to sell or lease access rights
5. The right to transfer rights
6. The right to enforce harvest and habitat protection
7. The right to monitor harvest and habitat-affecting activities
8. The right to protect habitat
9. The right to coordinate with other resource users

Adapted From: Schlager and Ostrom 1993 and Pinkerton and Weinstein 1995.

**Collaborative Planning**

Common pool resources are often subject to competing interests from various stakeholders. Frame et al. (2004, 57) state that the resolving of disputes among stakeholders over the limited abundance of natural resources is one of the primary challenges to sustainable management. Collaborative planning (CP) is an approach to

developing resource management plans which relies on consensus building and interest-based<sup>10</sup> negotiations.

Gunton and Day (2003) identify 10 'best practices' for collaborative planning. While Selin and Chavez (1995, 190) suggest that collaborative processes be tailored to the unique demands of the situation because resource and environmental management agencies evolve dynamically in response to a host of internal and external factors, Gunton and Day's (2003) best practices can provide a foundation or framework for creating effective collaborative planning processes. Figure 7 summarizes these best practices. Several of these 'best practices' are further examined in the Chapter 5 and 6 as potential recommendations to foster social learning in the future.

In their article Gunton and Day (2003) state it is important to determine if collaborative planning is appropriate for the situation. For collaborative planning to be effective there must be: (1) commitment from all stakeholders; (2) urgency that the issue needs resolution; (3) absence of fundamental value differences; (4) existence of feasible solutions. However, weighing these criteria can be challenging because the collaborative planning process can bridge issues and foster relationships between parties, allowing them to resolve otherwise insoluble problems. Inclusive representation is essential and if some interests are not represented directly, efforts should be made to engage these parties. Third, the process should be guided by clear ground rules and a process for updating or changing the ground rules should be specified. Fourth, any inequalities among stakeholders need to be reduced. Stakeholders must also be accountable to their organizations and the planning process must be accountable to the public. The planning process should also make use of a facilitator and set realistic guidelines. Finally a monitoring program should be established and evaluation of the agreement should be based on multiple-objective criteria including criteria such as: (1) reaching superior agreements; (2) reaching agreements more efficiently and (3) achieving social capital.

---

<sup>10</sup> Interest-based negotiations focus on resolving disputes through identifying common interests and building win-win solutions (Fisher et al. 1991).



**Figure 7: Collaborative Planning Best Practices**

- 1. Determine if collaborative planning is appropriate**
  - ✓ Commitment from all stakeholder interests
  - ✓ Urgency that the issue be resolved
  - ✓ Absence of fundamental value differences
  - ✓ Existence of feasible solutions
- 2. Ensure inclusive representation**
  - ✓ Organize unrepresented interests
- 3. Provide clear ground rules including:**
  - ✓ Process for adding and removing stakeholder
  - ✓ Process for amending ground rules
  - ✓ Role of the facilitators
  - ✓ Role of stakeholders in the decision making process
  - ✓ Role of the public
  - ✓ Role and obligations of stakeholders
  - ✓ The media policy
  - ✓ The record keeping policy
  - ✓ The decision rules
  - ✓ The code of conduct
  - ✓ Confidentiality requirements
  - ✓ Identification of key stakeholder groups
- 4. Reduce inequalities among stakeholders**
  - ✓ Provide training
  - ✓ Provide equal access to information
  - ✓ Provide financial resources
- 5. Ensure process accountability**
  - ✓ Representatives are accountable to their organizations
  - ✓ Process is accountable to the general public
- 6. Remain flexible and adaptive**
  - ✓ Ground rules should specify how to make process changes
- 7. Provide sound process management**
  - ✓ Management by skilled and neutral staff
  - ✓ Appointment of professional and neutral chair
- 8. Provide realistic timelines**
  - ✓ Provide clear timelines for milestones
  - ✓ Outline process for decision making if consensus cannot be reached
- 9. Provide implementation and monitoring processes**
  - ✓ Provide clear milestones for implementation
  - ✓ Mandatory public reporting system
- 10. Use multiple objectives in evaluation including:**
  - ✓ Reaching superior agreements
  - ✓ Reaching agreements more efficiently
  - ✓ Achieving social capital

Adapted From: Gunton and Day 2003.

## **Defining Collaboration in Washington**

Co-management and collaborative planning vary in the duration of non-governmental actor participation in the environmental management process. Collaborative planning is often the first phase of a management process during which the management plan is established. While ongoing efforts might continue in the form of an implementation or monitoring committee, the bulk of the effort is dedicated to creating the plan which will govern the management of the resource. Co-management on the other hand is the sharing of resource management responsibilities with a group or community. These management efforts do not stop or start with a phase of the process, but are intrinsic to the management process itself. Therefore the length of non-governmental involvement in the process is by definition more long term than in collaborative planning processes.

The TFW Agreement and the subsequent FFR have elements of both collaborative planning and co-management. The TFW and FF negotiations had characteristics of collaborative planning processes in that conflicting stakeholders including the federal, state and local governments, tribes, industry and environmental groups came together to negotiate a management plan using consensus building techniques as well as interest-based negotiation. However, efforts have continued beyond this initial planning phase as stakeholders implement the rules, carry out in-depth monitoring, and modify rules based on new information through the WFPAM Program. The long term nature of WFPAM therefore makes it a co-management effort. However, this is not “complete” co-management because the WFPAM Program participants do not have a complete set of rights (Pinkerton 2003). Of the nine co-management property rights, the WFPAM Program participants only have three; (1) the right to regulate internal partners, (2) the right to monitor and (3) the right to manage forests to provide habitat protection for fisheries. Because the WFPAM Program is a collaborative planning and co-management effort, both the collaborative planning and co-management literature can provide insight into this program.

## Negotiation

The final strand of social learning is negotiation. While negotiation is closely linked to collaboration, these two components of social learning also vary greatly. Collaboration describes cooperation between various groups as they work towards a common goal. Conflict can arise as groups with different backgrounds, worldviews, and ideas work together. Negotiation is a tool to resolve conflict and allow groups to effectively collaborate.

Keen et al. (2005b, 15) take a constructive approach to conflict. They view conflict thus:

- Conflict is an inevitable – it is not a sign of failure of people or the system.
- Conflict is a step toward a solution – it is not a signal to give up.
- Conflict is shared – it is not the sole responsibility of any one person or group.
- Conflict is part of the process – it is not an outcome, a barrier, or an excuse.
- Conflict is a matter for negotiation – it is not the end of the line.

With the viewpoint that conflict is a stepping stone as opposed to an impassable barrier, conflict becomes easier to manage (Brown et al. 1995 in Keen et al. 2005b, 15). In cases such as the WFPAM Program, conflict arises on a daily basis and this view can make dealing with conflicts more manageable.

Fisher et al. (1991) examine principled negotiation, also known as interest-based negotiation, as a tool for resolving conflicts and reaching agreements. Principled negotiation is a method of negotiation which focuses on interests as opposed to positions. Positions are what negotiators say they must have, while interests are the underlying reasons, needs, or values that explain why individuals take the positions they do (Carpenter 1999, 6). By focusing on interests as opposed to positions, principled negotiation is designed to produce wise outcomes. A wise outcome is defined as, “one that meets the legitimate interests of each side to the extent possible, is durable and takes community interests into account” (Fisher et al. 1991, 11).

Fisher et al. 1991 identify five key aspects of principled negotiation. First, it is necessary to separate the people from the problem and treat the other party or parties with courtesy and respect. The second component of principled negotiation is to focus on interests rather than positions. The next component is investigation of options for mutual

gain. The final component of negotiation is the development of the best alternative to a negotiated agreement (BATNA). These principles are discussed in more detail in Chapters 5 and 6 as a potential recommendation for improving social learning.

## **Conclusions**

Environmental management is complex due to the variety of ecological and socio-economic variables involved in decision making. As Holling described, ecosystems are not static but ever changing. Furthermore, there is often a variety of groups with interests and knowledge associated with the management area or the management outcome. The WFPAM Program is unique because it regards management strategies as hypotheses and monitors outcomes. It also uses a collaborative model and involves the principal caucuses in environmental decision making. This is a very challenging model to follow due to the variety of interests it incorporates into decision making. Social learning theory allows us to examine linkages between variables and make more robust management decisions. This section outlined some of the fundamentals of social learning theory because social learning theory can inform these types of collaborative, adaptive processes. This information will be drawn upon in Chapters 5 and 6 in order to explore potential barriers to social learning and offer recommendations to improve social learning.

## **CHAPTER 4: METHODS**

### **Literature Review**

The research began with an in-depth literature review. First, I examined the history of forest practices in Washington, current Washington Forest Practice regulations, the Washington Forest Practices Adaptive Management Program, and the adaptive management literature. In addition, I reviewed the literature on common pool resources and collaborative processes that seek to address common pool resource issues as discussed in the previous chapter. This included the social learning literature, the co-management literature and the collaborative planning literature. This review grounded the research in an understanding of the common challenges faced by collaborative process and ‘best practices’ which can assist in overcoming these challenges.

### **Data Collection**

The findings of the literature review shaped the research plan and assisted in the design of the research questions. Due to the limited scope required in a master’s program, it was not possible to examine the entire WFPAM Program. Therefore, to scope the research I selected the Cooperative Monitoring, Evaluation, and Research (CMER) Committee and the FF Policy Committee as the focus of the study. The CMER Committee manages the scientific research which drives the WFPAM program, while the FF Policy Committee examines the science and negotiates rule changes. These two committees represent the heart of the WFPAM program and for this reason I chose them as the focus of the study.

Qualitative research methods were selected for this research. I chose qualitative research over its quantitative counterpart because of the complexity of the interactions between the various WFPAM parties and the long history these groups share. I believed

that qualitative methods, such as observation and semi-structured interviews, would allow me to gain more detailed information than surveys or other quantitative tools.

Two primary methods were used to collect data for this research, (1) observation of WFPAM meetings and (2) semi-structured interviews. Participant observation and interviewing often form the keystones of social research (DeWalt and DeWalt 2002, Rubin and Rubin 1995). Participant observation is a valuable tool for learning both explicit<sup>11</sup> and tacit<sup>12</sup> cultural aspects (DeWalt and DeWalt 2002). While participant observation is often thought of as a tool for fieldwork in non-western cultures, it is also useful for gaining insight into institutional culture. One-on-one interviewing is another important tool as it allows others to describe how they think and feel in detail beyond what can be captured in other research tools such as surveys (Rubin and Rubin 1995). The following sections describe these methods in detail.

### **Ethical Considerations**

A key concern in qualitative research is the fair and just treatment of research participants. The research design was submitted to Simon Fraser University's Ethics office and approved. To ensure participants had sufficient information to decide if they wanted to participate in the research, I provided a letter of introduction. The purpose of this letter was to share information about the purpose of the research with potential participants, explain how data would be collected and used, and to request their involvement in the study. This letter is included in Appendix A. Due to the sensitivity of issues discussed in the interviews I decided the identity of participants would be kept confidential. Research participants had the opportunity to review the draft of this manuscript and their quotations before the final version was prepared.

---

<sup>11</sup> "Explicit culture makes up part of what we know, a level of knowledge people can communicate about with relative ease" (Spradley 1980, 7 in DeWalt and DeWalt 2002, 1).

<sup>12</sup> Tacit culture is aspects of culture which remain outside of our consciousness and awareness (DeWalt and DeWalt 2002, 1).

## **Observation of Meetings**

Following the completion of the literature review, I began attending CMER and FF Policy Committee meetings. Sitting in on these meeting allowed me to meet many of the participants of the WFPAM program, gain an understanding of the workings of the process and see first hand the challenges the WFPAM program is facing. I noted contentious issues, group dynamics, emotional atmosphere, process issues, points of success, and challenges. These early observations helped to refine the results of the literature review and shape the interview questions. Observation continued throughout the summers of 2007 and 2008. Over these two summers, I attended six CMER Committee meetings and six FF Policy Committee meetings. I also attended several FF Policy subcommittee meetings regarding the desired future condition (DFC) of riparian areas.

## **Interviews**

Interviews began late in the summer of 2007 and continued throughout the summer of 2008. Interviews followed a semi-structured format that allowed the researcher to guide the conversation while providing the interviewee freedom to steer the researcher to valuable sources of information (Rubin and Rubin 1995). The literature review and early observations of the process informed the initial interview questions. As new information came to light during the interviews, the interview questions were modified to further explore these topics. A list of interview questions is included in Appendix B.

Throughout the course of the interviews, I spoke with a total of twenty-two official and non-official CMER Committee members and past and present FF Policy Committee members. To ensure that a broad range of viewpoints was represented, I interviewed one member from each caucus. I also interviewed participants who had been involved in the process for varying lengths of time. To ensure diverse sampling, and for the purposes of analysis, I divided the WFPAM program participants into two categories: (1) the Timber, Fish, and Wildlife (TFW) generation and (2) the Forest and Fish (FF)

generation. The TFW generation consists of participants who became involved in the process during the negotiation or implementation of the first collaborative agreement, the TFW Agreement. Dates of involvement for this generation range from 1987 (or pre-1987) to 1995. The FF generation consists of participants who became involved in the process during the negotiation and implementation of the second collaborative effort, the FFR. Dates of involvement for this generation range from 1996 to the present. The purpose of this sampling was to help shed light on how viewpoints within the process may shift over time, and whether or not learning was passed on to new program members. In addition, I interviewed participants throughout the state to capture state-wide views of the process.

I used the snowball technique to identify key actors in the process. At the end of many interviews, I asked the interviewee if there was anyone else they felt I should be sure to speak to. When the same names began to come up repeatedly, I felt that I had identified the key actors in the process. While I tried to speak with as many of these key actors as possible, time constraints and scheduling conflicts did not permit me to speak with everyone.

During the course of these interviews I spoke with at least one member from each caucus. The majority of the interviews were held with past or current CMER and FF Policy Committee members. Nine of the participants I spoke with were CMER Committee members and ten were FF Policy Committee members. The remaining three members supported the WFPAM program through various other roles and committees. Eight of the WFPAM program participants I interviewed were members of the TFW generation. Eleven participants were members of the FF generation. The 'generation' of the three remaining participants is not clear because this question was not asked during the interview. Generally, for the purpose of transparency a researcher would identify the caucus, the length of participation, and the location of each of the interviewees. However, due to the small size of the WFPAM Program it would likely be possible to deduce the identity of the interviewee, were this information provided. Therefore, in order to protect the identity of the research participants I omitted this information from this report. To provide a degree of transparency, each interviewee is assigned a number.



In Chapters 5 and 6, when quotations from the interviews are used to support the findings, the number of the interviewee is provided in brackets at the bottom right hand corner of the quotation. This allows the reader to assess the strength of the finding through the plurality of voices illustrating the finding.

## **Data Analysis**

Analysis was carried out through the use of grounded theory. Charmaz (2006, 2) describes grounded theory methods as, “systematic, yet flexible guidelines for collecting and analyzing qualitative data ‘grounded’ in the data themselves.” The principle behind grounded theory is to follow where the data leads. Instead of grouping the data into categories based on current theories and hypotheses, grounded theory allows the data to shape theories. To do this the portions of data that share a common theme are grouped together and hypotheses are built from reoccurring themes (Bazely 2007, Charmaz 2006).

Several steps were taken to prepare the data for data analysis. First, with the interviewee’s permission, I recorded the interview. I then transcribed each recorded interview and imported the transcript into NVivo, a qualitative data analysis software. This software facilitates grounded theory analysis by allowing the text of the interview to be broken down into different themes that are “coded” or labelled. The coded themes can then easily be queried and organized to explore different relationships in the data (Bazely 2007).

Because the goals of this research were three fold, the data analysis consisted of three distinct phases. The first phase explored the status of social learning in the process. Several questions regarding trust and communication were asked consistently throughout the interviews. The responses to these questions were analyzed to assess how effectively the various WFPAM Program parties were working and learning together. The data revealed that there were likely challenges to social learning in the WFPAM Program. Therefore, the second phase of analysis explored potential obstacles to social learning in the WFPAM Program.

Ideally grounded theory research follows an iterative cycle of interviewing and analysis until common themes are revealed or inconsistencies in themes are explained. However, due to the scope of a Master's project, it was not possible to repeat interviews. Therefore, it was not possible to return to the earlier participants and further question them about barriers to social learning. As a result, four hypotheses and several sub-hypotheses exploring potential barriers to social learning were tested retrospectively, to the extent possible, on the data collected during the interviews. The historical and theoretical context for these hypotheses is explored in Chapters 2 and 3 and the analysis of the hypotheses is described in Chapter 5.

Finally, the goal of the third phase of analysis was to identify opportunities where social learning could be improved. Again, much of this analysis was performed retrospectively on data collected during the interviews. The historical and theoretical context of these recommendations is described in Chapters 2 and 3 and the recommendations are described in Chapter 6.

The data analysis revealed several key themes. To confirm the significance of these themes I triangulated (compared) the significance of these findings with (1) existing research on the WFPAM Program, (2) three follow-up interviews and (3) review of draft findings by research participants. First, I compared my findings to that of an informal study the Washington Department of Natural Resources conducted on the various caucuses' views of the WFPAM Program (Forest and Fish Policy Committee 2007). The findings of this study were very similar to the findings of my research. Second, I conducted follow-up interviews in the fall of 2009. The follow-up interview questions were based on the results of the analysis and were designed to test the preliminary findings and shape the final research results. I held follow-up interviews with three individuals from two caucuses. Interviewees were selected based on several factors including their availability, the depth and breadth of their knowledge of the WFPAM Program, duration of involvement in the process, and interest in the research. Finally, I submitted a draft version of this research project to participants for review. Participants were given 2 weeks to review the draft and submit feedback. I carefully considered all comments, but did not include solely self-interested statements.

## **Data Reporting**

The credibility of qualitative research, like its quantitative counterpart, is determined through validity and reliability. In qualitative research validity is achieved through triangulation. As described above, in order to ensure validity I triangulated my findings with similar research on the WFPAM Program, follow-up interviews, and review of the findings by interviewees. Reliability in qualitative research is achieved through saturation. Saturation occurs when further inquiries into a theme fail to yield new information (Charmaz 2006). To ensure the data were reliable I attempted to reach saturation. However, in some cases due to the scope of a Master's project and the contentious nature of some issues, saturation was not reached. In these cases inconsistencies in the data are explored. Qualitative research is based additionally on transparency and communicability (clear description) (Rubin and Rubin 1995). To ensure transparency this research clearly outlines the research design, findings and conclusions. Finally, rich descriptions of the findings, including quotations from the participants are included in Chapter 5. In some cases the quotations were slightly modified to mask individualized speech patterns which may identify the interviewee. However, the quotations were not modified in a way which would change the meaning of the statement.

## **Reflections on Researcher Perspective**

Throughout the research process, there are several opportunities for bias to enter the research. Either consciously or unconsciously, a person's background may lead them to interpret an observation or phrase an interview question differently than a person with a different background. As a result reflexivity is recommended as a critical practice for social research (Adkins 2002). By sharing her perspectives and areas where potential biases may enter the research, the author allows the reader to critically interpret the findings. Therefore, in this section I will attempt to share my perspective.

I am a young, white, middle-class female. While I currently live in an urban centre, I was born in a small logging town in northern Idaho where my father worked as a

forester. I believe my rural upbringing has taught me to understand the vital role resource extraction plays in supporting communities. Years spent living in large urban centres and in the developing world taught me the finite nature of natural resources and instilled in me a sense of caution towards our use of natural resources. I am university educated with undergraduate degrees in Anthropology and Spanish. My research interests lie in finding sustainable solutions at the intersection of social and ecological spheres. In an environment as diverse as the Washington Forest Practices Adaptive Management Program, these characteristics can both aid and impede the establishment of rapport. While my background may have unconsciously impacted my interpretation of events and conversations, I have made a conscious effort to remain unbiased. In order to prevent the filtering of participants viewpoints several anonymous quotations are included in Chapter 5.

## **Limitations**

There are four key limitations to the research. First, as Albert Einstein said, “the only source of knowledge is experience.” As a master’s candidate, this is my first research experience. To overcome this challenge I carried out an in-depth literature review on the research topic and sought Dr. Pinkerton’s expert opinion in situations of uncertainty. Second, the WFPAM Program is a large and complex program and I only examine two committees within the program. Therefore, while the research can provide insight into the WFPAM Program, it may not provide a complete picture. In addition, caucuses are diverse. While I interviewed at least one member from each caucus, this likely does not represent the full range of views within the caucus. The next limitation of the research is a lack of follow-up interviewing. Ideally, grounded theory analysis and interviewing would follow each other in an iterative cycle until saturation is reached. However, it was only possible to conduct three follow-up interviews. This was particularly problematic while testing the hypotheses and sub-hypotheses regarding potential obstacles to social learning. Therefore, much of the analysis on these sub-hypotheses relied on statements that were not in direct response to my questions. Finally, it was not possible to account for all external factors which may influence the WFPAM

Program. Examples of external factors that were not considered in the paper include: climate change, salmon interception, and changes in the global market.

## **CHAPTER 5: WHERE ARE WE NOW? RESEARCH FINDINGS AND DISCUSSION**

As described in the introduction, the objectives of this research were three fold. The first objective was to determine if and how social learning is occurring in the Washington Forest Practices Adaptive Management Program. If social learning was not occurring in the program, or if levels of social learning were low, the second objective was to hypothesize about barriers to social learning in the program. Finally, the third objective was to offer recommendations on how current program participants might overcome these barriers by building upon past and existing social learning frameworks and utilizing collaborative ‘best practices’. Because much of the field research was completed before the status of social learning could be determined, the hypotheses exploring potential barriers to social learning were generated retrospectively and the analysis that was performed on data was not always in response to the question being examined. Therefore, this research cannot provide a complete analysis of barriers to social learning or a comprehensive set of recommendations. However, the research does identify some useful information and research directions which could be further investigated by the program participants or future researchers. This chapter explores the status of social learning as well as potential barriers to social learning. The next chapter summarizes the findings and offers recommendations for fostering social learning and for future research.

### **The Status of Social Learning in the AM Program**

To determine the status of social learning, as objective one entails, the level of social learning must be measured. An abstract concept such as social learning is very challenging to measure. How does one measure whether caucuses are reflecting on their shared ideas, experiences and environments? It was assumed that caucuses must

communicate and have a basic level of trust for social learning to occur. Therefore, in order to assess social learning, participants were asked about trust and communication in the WFPAM Program.

In the interviews 19 of the 22 research participants were asked about the level of trust between the caucuses involved in the program. Questions ranged from “How would you define trust” to “Could you rate, on a scale of 1-5, the current level of trust in the process.” Six of the 19 participants stated they felt there was a low level of trust between the caucuses. The following quotations are examples of participants’ comments.

... when I got here I realized that there are a lot of veterans of the TFW days who were pretty cynical and I was new and fresh and smiley and liked everybody and [I] could tell there was something going on and vowed never to become that way. But, I guess for me it [trust] has plummeted and is down to approximately 0 right now. [17]

I think trust is the number one most important thing. Sadly and unfortunately I would have to report for your research that I don’t believe that there is any trust currently and that is a major obstacle to this program. [18]

Thirteen of the 19 participants that were asked this question stated that the level of trust varies greatly. Different reasons were suggested for the varying levels of trust. Several participants stated that trust varies from caucus to caucus. One participant stated,

I think it [trust] is strained right now. I don’t think that there are high levels of trust among some of the caucuses and I think those trust relationships are differential. If you look at the six caucuses, caucus one may trust caucus two a lot more than it trusts caucus three so you don’t have equivalent trust among the caucuses. Where trust is strained right now are among the caucuses that have significantly different objectives. [12]

Others suggested that trust is dependent on groups following through with what they agreed to. If caucuses have not completed what they had agreed to do in the past, this can strain relationships and reduce trust. For example, one participant stated, “When people don’t deliver what they said they would deliver, your trust level goes down and so we all have expectations of each other and if those expectations aren’t met then it is difficult to

trust” [6]. Another participant stated trust is dependent on having time to develop relationships.

There is a friendship that develops over time and some level, varying levels of trust. So I think there is a genuine desire a lot of the time to see the other person’s side of it, and see if they can’t fit their own needs into that just because of the personal connection that is there. But that doesn’t always work. [2]

No participants described a high level of trust among all the various caucuses. At least one member of each caucus is included in this sample. This suggests that trust does not exist or is not strong amongst all the caucuses. Without trust, it would likely be difficult for groups to be able to work together effectively enough to allow social learning to occur.

Thirteen research participants were asked if there is effective communication within the WFPAM Program. One of these thirteen participants felt that communication within the WFPAM Program was fairly effective. This participant stated, “It [communication] is not bad. I think there is some lack of follow through” [11]. The remaining twelve participants who were asked this question, as well as an additional participant who was not asked this question, stated that communication is lacking in the process. One member of each of the caucuses was represented in this group of 12 participants. One participant stated, “I think the communication is not as robust as it should be” [14]. Other participants described a lack of communication between the various caucuses.

It used to be that in old CMER and old TFW,....industry and tribes would step aside and say here is what I need, lets do it this way and then go back and say “stop arguing here is what we are going to do.” They would work things out between them in the old days. I don’t see that happening much if at all any more. [22]

Participants also described communication challenges within the WFPAM Program, particularly between CMER and FF Policy.



I think there is a breakdown from time to time between Policy and CMER and often times CMER has to come back and get a clarification. I have seen that happen a couple of times and so we [Policy] have tried very hard to get them to understand. [5]

Communication with Policy has been a little frustrating because...Policy has often said that they don't understand what or how CMER has conducted their business, and yet I have a filing cabinet full of documents that CMER has produced for Policy that explain how we have prioritized projects, what a study is going to tell us, what it is not going to tell us, how it relates to the L1 questions, etc. These documents were developed in order to help Policy understand what CMER has been doing. CMER seems to constantly go back to the drawing board to recreate how to present the information to Policy. [16]

In sum, none of the participants described a high level of trust among all the caucuses and 12 participants described a lack of communication in the WFPAM Program. Without trust and communication among caucuses, it is unlikely that groups would be able to work together effectively enough to allow social learning to occur. This evidence strongly suggests there may be challenges to social learning. In addition, as described in Chapter 2, the FF Policy group reached a consensus that a DFC rule change was required. However, they were not able to reach a consensus recommendation on a policy direction for this rule change. The DFC issue was extremely contentious and for this reason it provides an excellent opportunity to measure how well social learning is occurring in difficult conditions. FF Policy's inability to offer a consensus recommendation suggests that, particularly in contentious situations such as the DFC issue, social learning has likely stalled.

## **Generating Hypotheses about Social Learning Challenges**

The first stage of research established that there was a low level of social learning in the process. The research then attempted to learn why by generating hypotheses about possible causes of stalled social learning and mobilizing available data to lend varying degrees of credence to these hypotheses. To do this the historical and theoretical context of the WFPAM Program was examined and four hypotheses were proposed to test several lines of inquiry that might account for the low levels of social learning in the

process today.

First, I generated the hypothesis that social learning is more challenging in the WFPAMP Program today than previously as a result of internal and external factors which have changed since the TFW Agreement. While this hypothesis was generated to gain insight into the social learning challenges the WFPAM Program is currently facing, this hypothesis is difficult to test. Therefore, I generated several sub-hypothesis which are more amenable to testing and that can provide insight into the original question. These hypotheses examine a combination of external and internal factors.

Sub-hypothesis one examines external incentive for caucuses to collaborate. As described in Chapter 2, the high cost and low outcome litigation process was a driving force that led to the TFW Agreement. It was costly to continually battle over forest practice regulations in the courts and it did not produce the long-term protection measures that the tribes sought. The challenges associated with litigation provided incentives or pressures for groups to collaborate (Pinkerton 1992). Are there currently pressures that provide incentives for groups to collaborate and if there are not, could this account for the lack of social learning in the process today? To see if this might be the case it was hypothesized that there are less externally-driven incentives for stakeholder to collaborate today than there was prior to the TFW Agreement. I then set out to test this hypothesis to the extent possible with available data.

The remaining sub-hypotheses examine internal factors which may be changing within the WFPAM Program. The next sub-hypothesis examines caucus commitment to collaboration. The participants of the TFW Agreement reached a consensus. As a result, the final agreement was supported and accepted by all participants of the negotiation (Call 2005, Mangin1989). However, the FF Agreement was not supported by all the participants. Before an agreement was reached several tribes and the Conservation Caucus withdrew from the negotiation. Therefore, not all of the participants of the negotiation supported the final agreement. Could this lack of support be one of the factors hindering social learning in the process today? To test this idea I hypothesized

that there is less commitment to the WFPAM Program than there was to the TFW Agreement due to the lack of consensus agreement.

The third sub-hypothesis examines leadership. Strong leadership was one of the factors that led to the success of the TFW negotiation (Call 2005). A lack of strong or effective leadership could be a factor limiting social learning in the program today. This idea was tested with the hypothesis that there is not the same level of leadership in the process today that there was during the negotiation and implementation of the TFW Agreement.

Finally, while the TFW negotiations began in an environment rife with contention, through the negotiation process caucuses came to respect and value each other's viewpoints (Mangin 1989). This represented a remarkable shift in values. Without the historical context, this collaborative approach could be difficult to understand. If new participants to the process were not taught to value collaboration, viewpoints could easily revert from collaboration-oriented to caucus-oriented. To test this idea I hypothesized that collaborative values were not passed on from the TFW generation to subsequent generations involved in the WFPAM Program through mentoring (Pinkerton and Kepkay 2010).

While the first hypothesis and its four sub-hypotheses are concerned with the nature of the social contract that the stakeholder groups have created, the last three hypotheses examined the way in which the stakeholders implemented this contract. These hypotheses examine if the WFPAM Program has sufficient program protocols. The second hypothesis examines the role of science in the WFPAM Program. One of the building blocks of the TFW Agreement was trust in the science. In addition, as described in Chapter 2, science continued to play a key role in the FFR and the issuance of the ITP. However, one theme that emerged from the analysis of the interviews was concern from the participants regarding the role that science is playing in the process. Based on the interviews it appeared that the role of science in the WFPAM Program was not clearly defined. I test this possibility with the hypothesis that the role of science in the WFPAM Program is not clearly outlined by process guidance.

Much of the collaborative planning and dispute resolution literature states that a clearly defined process is essential for bringing stakeholders to an agreement (Frame et al. 2004). If the WFPAM Program did not have these process rules clearly in place, this could negatively influence the program and contribute to the lack of social learning in the process today. While the adaptive management program has established rules, procedures, and protocols, the third hypothesis tested in this research explores whether these processes are sufficient for guiding the WFPAM Program. To examine this possibility I test the hypothesis that the WFPAM Program does not have sufficient protocols.

Finally, the negotiation and collaborative planning literature stresses the importance of having a skilled facilitator while negotiations are underway. Currently the WFPAM Program does not employ a facilitator. Within the FF Policy and CMER committees, the co-chairs conduct meetings. This lack of facilitation is one factor that could contribute to the low level of social learning within the WFPAM Program. Therefore, I test the hypothesis that the lack of a facilitator is impeding collaboration in the program. The following sections will explore each of these hypotheses and sub-hypothesis in greater detail.

### **Hypothesis One: Social Learning and the Changing Environment**

While the literature (Pinkerton 1992, Mangin 1989) described a dramatic shift in values from conflict to collaborative oriented following the TFW negotiation, this research suggests that social learning in the WFPAM Program is likely stalled. What factors have changed over the last twenty years to cause the pendulum to swing back towards conflict oriented values? To gain insight into this question I generated the hypothesis that social learning is more challenging in the WFPAM program today than prior to the TFW Agreement due to internal and external factors which have changed over time. Because of the difficulties associated with testing this nebulous hypothesis, I generated several sub-hypotheses which are more amenable to testing. These sub-hypotheses will be explored in detail in the following sections and used to gain insight into hypothesis one.

### **Sub-hypothesis One: The Costs and Benefits of Collaboration**

As described earlier, hypothesis one was selected to determine if there are external factors which inspire groups to reach an agreement and if these factors exert enough pressure to bring the groups to an agreement today. Hypothesis one asserts that there is less externally-driven incentive for stakeholder to collaborate today than there was prior to the TFW Agreement. This idea was developed very late in the research process and therefore only one participant was questioned about this idea in the initial interviews and three were questioned about this during follow up interviews. Therefore nearly all of the data regarding this hypothesis are drawn from participant responses that were not directed to this question. However, while only four participants were directly asked about this hypothesis, several interviews contained information relative to this question.

During the initial interviews two participants directly stated that currently there is pressure to reach consensus agreements in the adaptive management program and that this pressure arises from the fear of losing the incidental take permit (ITP). As described in Chapter 2, this permit provides assurances that any “take” or harm that occurs to species listed under the Endangered Species Act (ESA) as a result of Washington’s forest practices will be considered incidental. One of the conditions of the Services issuance of the ITP was adaptive management. Without the ITP those working in the forest industry would not have the same level of certainty. Because adaptive management is one of the conditions of the ITP, the Services could reconsider the issuance of the permit if they feel that this condition was not being met. Some participants believe that the fear of losing the ITP provides incentive for caucuses to collaborate. A participant described the importance of the ITP stating,

It [the ITP] is sort of like a little gun to somebody’s head here. I hate to say it like that but, lets face it. If this process doesn’t work the Services have to go back and take a look at our HCP and see if they need to permit the endangered species exemption... DNR doesn’t want to lose that, and I don’t think the timber industry wants to lose that. [5]

However, there is also evidence that suggests that the ITP is not pressuring groups to collaborate. Two different participants stated that they do not believe the Services will remove the ITP. One participant specifically stated,

You have heard this yourself, the environmentalist community's assertions that, 'you are going to lose the HCP because you aren't meeting the standards.' Well, you know what; they are not the people that get to make that decision. It is the feds that make that decision and I haven't once heard a federal person stand up and say "you are going to lose the HCP because you are not doing this right." So there are people out there trying to reinterpret the law to meet their needs, to meet their goals as opposed to the federal standard that was built into the ESA and the HCP. [8]

Another participant suggested that due to the effort it would take to sue the federal government and force them to revoke the ITP, it is unlikely that legal measures would be taken to pressure the Services to remove the ITP.

These comments suggest that at least some caucuses do not believe that the Services will revoke the ITP and assurances. However, participants must be concerned that the Services will revoke the ITP for the ITP to exert pressure to bring the caucuses to consensus. The inability of the FF Policy committee to reach a consensus policy recommendation on the DFC issue is further evidence that concern over losing the ITP is not a sufficient factor to bring groups to consensus.

While only four participants commented on this issue directly, the sample revealed very different views on the pressure to reach a consensus created by the ITP. Why are there conflicting viewpoints on this topic? Differences of opinion may be the result of generational differences. As described in Chapter 4, I divided the WFPAM Program participants into two categories: (1) the Timber, Fish, and Wildlife (TFW) generation and (2) the Forest and Fish (FF) generation. The TFW generation consists of participants who became involved in the process during the negotiation or implementation of the first collaborative agreement, the TFW Agreement. The FF generation consists of participants who became involved in the process during the negotiation and implementation of the following collaborative agreement, the FFR. The participants who suggested there is pressure exerted from the ITP are members of what is referred to in Chapter 4 as the Forest and Fish generation. The participants who observed

that there is not pressure bringing stakeholders together are members of the TFW generation, or members that became involved around the time of the TFW negotiation. Therefore, these varying viewpoints may reflect the generational differences between these two groups and the different conditions in which the process is occurring.

One research participant who was involved in the TFW negotiations described the difference between pressure to reach an agreement currently and pressure to reach an agreement during the TFW Agreement.

The real underlying problem is this climate, what I call the climate for negotiation. People have to be afraid of what might happen in order to get really serious about this. If one feels like they are in a really strong position and they are just kind of playing the game you know, push it as far as they can, that doesn't work. And, (sighs) well let me give you my view, this is just my view of what the climate was back then. You know the Boldt Decision was fresh and Boldt II was on the table and the real fear in my opinion, the real fear to the industrial timber community at the time was that there would be tribal members sitting on the Board of Directors as co-managers of their land. That was what they saw, I mean I heard those rumbles, so you know, Bledsoe was able to line his people up behind him and let him be their spokesperson and carry their ball through this process. And the tribes knew that the Boldt decision was hanging out there, but they also felt like they fought a lot of battles in court and if they could get industry to kind of line up and work with them that that would be a better solution than going to battle and trying to be an adversarial position in the courts. [8]

This comment suggests that during the TFW negotiation caucuses felt a strong sense of urgency to reach an agreement. While fear of losing the ITP may exert some pressure, it may not exert the type of pressure that threatened litigation was exerting at the time of the TFW negotiation. Further research on the role of the ITP in fostering collaboration in the WFPAM Program is recommended, as is further research into other factors which may foster collaboration in the WFPAM Program.

While the above discussion examines the ITP as a potential source of pressure that fosters collaboration, it is also possible that the ITP has the opposite effect. For example, if a caucus such as the industry caucus does not feel that the Services will revoke the ITP, then there is little incentive for them to negotiate as the negotiations will

potentially result in more stringent regulations. This idea was generated late in the data analysis phase. Therefore, no participants were asked about this possibility and no analysis was performed. However, this would be a useful issue to examine in future research.

One participant raised an important point regarding the assumption that the pressures that fostered the TFW Agreement might continue to foster collaboration. This participant explained that conditions have changed over the last 20 years and conditions that fostered collaboration during the TFW negotiation are different from the current conditions in the WFPAM Program.

In my mind there is not a direct one-on-one relationship between the original TFW and what is going on today. I mean the economics have changed dramatically. Politics have changed. Management techniques and operations have changed and the issues facing the population here in Washington have changed and so it is hard to say we should go back and duplicate what we did in the past. I think what we need to do is create the collaborative atmosphere that is correct for today. [3]

Therefore it is important to understand how dynamics have changed between caucuses over the last 20 years. This was not a question that was asked during the interviews. However, there were some participants who commented on this issue. While some useful information was gathered from analysis of the interviews, further research on this issue is recommended.

Five of the 22 participants interviewed mentioned changes occurring within caucuses, particularly in the tribal and industry caucuses. One participant described changes within the timber industry and how the industry has shifted away from vertically integrated companies to real estate investment trusts (REITs) and timber investment management organizations (TIMOs).

There is a number of large companies that used to operate similar to Weyerhaeuser. Weyerhaeuser is the last of the big ones<sup>13</sup>; it still is a vertically integrated company. The stockholders are unlikely to let the company remain a corporation much longer, unfortunately, which may change how forest land is managed. Companies like Port Blakely, I

---

<sup>13</sup> In follow-up discussions a few years later this participant informed me that Weyerhaeuser made the decision to become a REIT.



believe a family owned company, and they are not going to change. But other companies that are under these other tax instruments such as REITs and TIMOs, they may have a different objectives now. Because of the more disparate mix of forest landowners now within WFPA, it becomes harder for them to have a unified position when they come to the table. So it is harder to negotiate with them now. [9]

Another participant mentioned diversification within the tribal caucus.

Another factor is the tribes. It used to be one person could speak for the tribes. The tribes perhaps though not as splintered maybe as the WFPA, have splintered, somewhat.... So you are getting less ability for one person to speak for many there. [22]

Therefore, caucuses that may have had a more homogeneous viewpoint on an issue in the past now may have divided and splintered into seeing an issue from various viewpoints.

One participant also mentioned that changing market conditions limit the industry caucus' current ability to negotiate due to companies' reduced profit margins.

...much of the industry in 1987 was still in the hands of more or less the original owners or the people who acquired the land, you know during expansion and in early statehood and .... and now for the most part almost all of the land has changed hands and is now in the hands of people who have purchased the land at market value and they are not "exploiting" naturally grown timber any more; they are harvesting what they can grow and the profit margins on that are very slim and so they are operating in a completely different economic position than they were in 1987. [3]

This comment suggests that due to changing economic conditions, the timber industry may not be able to negotiate the way they did in the past.

Another important difference that was discussed above is the involvement of the Services and issuance of the ITP. One participant commented on this difference and explained that federal agencies are bound by federal rules and regulations and that this changes how they interact with the process.

We now have the federal government intimately involved with what we do and that is a significant change because they have, the federal agencies have, a different way of acting and working with these issues. They are prohibited from negotiating solutions. What they can do is sit in the room and tell you what they think might work. But in the end they have to go through their process of public review before they come to a decision,

which means, they can't commit themselves to anything until they have gone through the full public disclosure review and the NEPA process that they have to go through, and they are very careful about that because there are some serious consequences to failing to do that. [3]

This comment suggests that the involvement of the federal agencies changed the dynamic of the WFPAM Program.

In conclusion, this hypothesis tested the idea that there is less externally-driven incentive for stakeholder to collaborate today than there was prior to the TFW Agreement. A small sample of participants felt that fear of the Services revoking the ITP due to failed efforts within in the WFPAM Program provides the caucuses with effective external incentive to collaborate. However, an equally small group felt that the Services would not revoke the ITP and that concern over loosing the ITP is not effective incentive to collaborate. Further research on current collaboration incentives in the WFPAM Program is recommended. The research also highlighted several areas in which the WFPAM Program is different today than it was during the TFW Agreement including shifting dynamics within caucuses, changes in market conditions, and the involvement of the federal caucus. This suggests that not only have incentives to collaborate changed or disappeared over the last twenty years, but that the very nature of the stakeholder interaction may have changed as a result of changing socio-economic and environmental conditions. Due to lack of information this hypothesis cannot be accepted or rejected and the findings are weak. However, future research is recommended on external socio-economic and environmental conditions which affect the WFPAM Program and how these changes have impacted caucus interaction and social learning.

### **Sub-hypothesis Two: Lack of Commitment**

Each of the caucuses that were involved in the TFW negotiations signed and supported the TFW Agreement. However, the FFR was not supported by all the participants. During the Forest and Fish negotiations, caucuses struggled to find common ground and were unable to reach an agreement on several issues. As a result, the Conservation Caucus and several tribes withdrew from the negotiation. Therefore, there was not unanimous support for the FFR like there was for the TFW Agreement. Could

the lack of widespread support for the FFR be one of the factors currently hindering social learning in the WFPAM Program? To test this idea I hypothesized that there is less commitment to the WFPAM Program than there was to the TFW Agreement due to the lack of a consensus agreement.

This idea was one that emerged during the data analysis phase of the project. Therefore only one person was asked about the level of commitment to the process and no participants were directly asked how lack of consensus on the FFR affects collaboration in the WFPAM Program. However, nine participants mentioned that they were not certain that all caucuses were sincerely committed to the process. One participant stated,

I think the fundamental difference, even though it [TFW negotiation] was a negotiation, it was a much more collaborative negotiation. Everybody came; many people came to realize that the Forest and Fish negotiation was really a negotiation amongst some very high level people and there wasn't the sort of buy-in down, all the way down the ranks and we still suffer from [that]. So you have people that see this adaptive management process, or at least in my view, see it a way to get things that they didn't get, that their supervisors overlooked in the negotiations. So we suffer from a little bit of that, and we don't really have the commitment, because TFW was more of a commitment to a way of doing business, where Forest and Fish was just a way to negotiate a set of rules and there is a difference there. [3]

Three of the caucuses are represented in this group. Commitment to the process requires finding common ground and searching for solutions that will satisfy the interests of each of the caucuses. If caucuses are dedicating their efforts in the process to recovering what they see as lost ground, then they are not truly committing to the WFPAM Program. This lack of commitment could be a major barrier to social learning.

In addition, during the interviews 5 of 22 participants mentioned a feeling of dissatisfaction towards the outcome of the Forest and Fish negotiation and the resulting WFPAM Program. Three of the caucuses are represented by this group. The following quotations reflect several of these comments.

Yeah, the Forest and Fish negotiations were rife with it [stonewalling]. There was an attitude that anything I give in negotiations, I loose. That just never was the attitude in the beginning (in TFW days). The whole

thing (FF) got started then on that foot, anything I gave I lost, and now everyone feels like they lost the negotiations. So anything that needs a change now everyone says well I already gave at the office. I have heard them use that very phrase. I gave at the office, meaning, I already gave till it hurts and I am not giving any more. [22]

What continually surprises me was the consistent message that you get from everyone was they got screwed and it doesn't, it is everybody that is there with the possible exception of the local government. From the industry perspective if you are a large industrial, it is we gave up too much. If you are a small landowner, it is you ignored us completely throughout the process. If it's the tribes, well a lot of them walked away from the table and weren't even there at the end, so they have no ownership in it. If you are the conservation caucus it is, well so many things got agreed to that they negotiated political decisions with little science behind it and we got screwed in that way. And you have the agencies who are trying to implement all of it, kind of caught in the middle, kind of pushed by the legality of here is what the agreement says, here is what we got to live up to. Yet here you have got these parties on the other side continually trying to pick away at parts of it, either from the industry side trying to get commitments lessened and conservation side trying to get commitments strengthened on paper. [4]

These quotations suggest that there are participants and caucuses that are unhappy with the outcome of the Forest and Fish negotiation. Participants who share this belief feel that the FF negotiations left them with too little and as a result, they are using the WFPAM Program negotiations to get back what they feel they have lost.

Two additional themes, lack of staff time and lack of funding, also directly relate to the lack of commitment to the WFPAM Program. Eight of the participants were asked how time and funding affect the process. One participant discussed a different aspect of the program. The seven remaining participants, as well as eight additional participants stated that they, or others they work with in the process, do not have the necessary time to dedicate to the process. Participants, especially those working for government agencies, are not working in the adaptive management program full time. Instead, these participants must divide the time they work on the WFPAM Program with the other components of their jobs. One participant stated,

I think the biggest issue is the time issue. I don't think there is really anyone involved in the process top to bottom, whether you are talking

about Forest and Fish Policy or CMER or the individual projects, no one has as much time to put into those things as they should. [4]

This shortage of time effects the program in negative ways as the participants do not have the time to dedicate to learning the rules, communicating with other stakeholders, taking up leadership activities, mentoring, and carrying out all the readings and reviews necessary for bringing scientific studies through the WFPAM Program.

Seven of the eight participants were asked how time and funding affect the process. In addition to these seven participants, nine other participants mentioned a lack of commitment to funding for the WFPAM Program. The eighth participant commented on another aspect of the program. One participant said,

One of the challenges, we are trying to work through is that L1 list, and we are having this issue of a funding short, of an expected funding shortfall starting I think in 2010, is where we will have more projects that we are supposed to be working on than we have funds to do and so that means that the likelihood of picking up new projects is very low and that creates some tension... [14]

The lack of funding is particularly troublesome to members of the small landowner caucus and other caucuses who must fund their participation from a limited budget. Initially the WFPAM Program received a substantial amount of federal support. However, soon this funding will come to an end. In addition, due to the declining American economy, issues with funding are likely to continue or become more serious.

To conclude, because this idea emerged during the analysis phase of the research, no participants were directly questioned about how the outcome of the FF negotiation currently impacts collaboration in the WFPAM Program. However, several participants made comments that were applicable to this analysis. Nine participants questioned whether all participants were truly committed to the process and five participants stated that there is a feeling of dissatisfaction with the outcome of the FF negotiation. These findings suggest that lack of consensus did affect collaboration in the WFPAM Program. Due to dissatisfaction with the outcome of the FFR caucuses may be using the WFPAM Program to get back what they feel they lost. This potentially represents a major barrier to social learning because, rather than building on shared experience and knowledge to

develop options of mutual gain, caucuses are attempting to further their interests. Due to the small sample size for this analysis, and because all caucuses did not comment on this topic, the strength of the finding was weak. Therefore, I tentatively accept the hypothesis and recommend further research on this issue.

In addition, fifteen participants felt they did not have the time required to dedicate to the process and sixteen participants felt that the process required more funding. Significant numbers of participants from all of the caucuses are concerned about the time and resources dedicated to the WFPAM Program. This suggests there is a lack of time and funding commitment in the process.

### **Sub-hypothesis Three: A Lack of Leadership in the WFPAM Program**

Call (2005) stated that one of the factors that led to the success of the TFW negotiation was effective leadership. A lack of strong or effective leadership could be a factor limiting social learning in the program today. This idea was tested with the hypothesis that there is not the same level of leadership in the WFPAM Program today there was during the negotiation and implementation of the TFW Agreement.

The importance of leadership was an idea that emerged through the interviews. Six participants were asked how effective they felt leadership was in the WFPAM Program. Six of these participants, as well as three additional participants stated that they felt there was a lack of leadership in the process. Specifically, six of the participants described a lack of involvement from the caucus leaders. Below is an example of one of these comments.

One of the things that was pretty universally recognized is that the top level group has to be formulated somewhere, the Policy table is probably not the right place for that to be but somehow that group of highest level has to be getting back together to talk about resource issues because they are not and I think there will be an effort in the fairly near future to try to do that. We will see how successful it is because right now people aren't getting that top down direction of you need to make this work. [4]

Another participant stated,

There is a disconnect between what happens at the program level, so CMER participants and Policy participants and what the principals or employers are aware of and it creates kind of a vicious circle because at the CMER and Policy tables... you have certain caucuses who say we need to make sure we can show it is working at this level so that I can go get my principals' attention who are over worked and under resourced just like we are and then there is other people in the program who would say no, we need to get the principals to agree to this and to pass it from the top down and I think [this is] one challenge that we are facing... [18]

This comment suggests that there are challenges with not having the caucus leads at the FF Policy table because the FF Policy representatives must return to their respective caucuses and receive approval from the caucus before they can agree to a decision. This adds time to the negotiation process. It is also likely more challenging for a FF Policy member to create support for a proposal within their caucus than it is for a caucus lead.

Another participant suggested a reason that the caucus leaders have become less involved with the process.

The sense of urgency has sort of gone away.... all the leadership of all the various caucuses and so forth have many other issues they have to deal with and this is one that they have dealt with many times in the past and I think that there is a feeling out there that we have dealt with it from a policy point of view and so much of the stuff we are getting down to is the uncertainty of the science. There is a lot of technical stuff going on, that is what the difference is. So I think that is not necessarily the spirit of collaboration that has gone away but the big picture or the framework has been laid out and the leadership has gone on, they have moved on and it has been downloaded to staff... [21]

This comment suggests that after the initial FFR was reached the sense of urgency around the forest practice issues subsided and caucus leaders moved on to address higher priority issues.

In conclusion, these findings suggest that there is a lack of leadership within the WFPAM Program. The findings further suggest that involvement of caucus leaders in the decision making process could facilitate social learning. Further recommendations are explored in Chapter 6. Because ten participants commented on a lack of leadership in the process and because five of the six caucuses stated the same opinion, I felt that the

findings were significant and accepted the hypothesis. Because one of the caucuses was not included in the questioning, the strength of this finding is moderate.

#### **Sub-hypothesis Four: Mentoring and the TFW Spirit**

While the TFW negotiations began in an environment rife with contention, stakeholders emerged from the negotiation with a common understanding and shared values. This set of shared values was a key factor leading to the success of the TFW Agreement. As one member of the TFW generation described it,

If you fall back and look at the history of TFW when that crowd finished and went to the legislature, the legislature called it a love-in literally because we had people, Marcy Golde from the environmental council who was a rabid environmentalist and Stu Bledsoe who was a past legislator and was director of the Washington Forest Protection Association, the timber industry, Brian Boyle who was the commissioner of public lands and Billy Frank who was then the chair of the commission, the fish commission, stood up and held hands in front of the legislative committee and said we want you to pass this, we want you to accept this document and they called it a love in and what was amazing is it had a dramatic effect on people too. [8]

The TFW Agreement occurred over 20 years ago and many of the individuals who were involved in the Agreement and subsequent management efforts are no longer a part of the process. A lack of training and instruction regarding the collaborative nature of the agreement and the shared values associated with the process could contribute to the low level of social learning in the process today. Mentoring is recognized as the principal way that values are passed on in organizational culture and would thus apply to all the caucuses (Wilson and Elman 1990). Sub-hypothesis four explores mentoring in the WFPAM Program and seeks to determine if, through mentoring, the current generation of participants in the WFPAM Program inherited the shared values developed during the Timber Fish Wildlife negotiation.

To determine the prevalence of mentoring in the program 15 of 22 participants were asked if they had been mentored. Twelve of these participants responded that they did not have a mentor. Of these twelve participants there was at least one representative from each caucus. Three participants stated that they did have a mentor. Two of these participants were members of the Forest and Fish generation and one was a member of



the TFW generation. An additional member of the TFW generation responded that s/he did not have mentoring, but that training played an important role in the implementation of the TFW Agreement. This participant stated,

No, no actually not, there wasn't any training [for FF]. You know, that is probably one of the problems. When we did TFW, when that agreement was completed, they actually got, I can't remember the number, but I think it was close to 500 people over at Central Washington University in a big auditorium over there, and they had a two day, maybe it was a three day session where they got the leadership of the organizations that were involved. They got everybody, all the leaders up on stage giving everybody the rah, rah. It was much more, there was more training involved then there was with this process and I think it was, I mean it would have been better, if that training had continued and it would have been better if we had more sort of group get-togethers with the Forest and Fish. I mean DNR conducted training on how to implement the rules but not training on how to do adaptive management or how to get along or how to op, you know how to think about this. It was never done so that was, I think an oversight. I think it would have helped. [3]

The other participant who was mentored shortly following the TFW Agreement supports this comment stating,

[Omitted] was a good mentor for me, helping me get into the culture of TFW at the time, .... you know, helping me to understand the collaborative nature which was helpful. [9]

These comments suggest that mentoring played a valuable role in understanding the “cultural” context of the TFW Agreement.

Because only three of the 15 participants, as well as an additional participant who was not asked this interview question, received mentoring or training, and two of these participants receiving this mentoring and training early in their involvement with TFW, it appears that little mentoring is occurring. It therefore appears that sub-hypothesis four is at least somewhat supported. Without mentoring it is likely that the collaborative attitudes and techniques developed during the TFW negotiations have not been passed down to subsequent generations of participants involved in the WFPAM process. This could account, or partially account, for the lack of social learning in the process.

While most of those I spoke with were not mentored, five of 22 participants mentioned that they valued mentoring and training in the process. One individual stated, “It [mentoring] is absolutely necessary” [9]. Another individual stated,

It [trust] is mandatory, and it is tenuous and it is fragile and it is easily broken and the problem, back to your mentoring question, the problem is that trust ebbs and flows with the membership. As new people come in they have to go back and build that trust and it takes a long time... [8]

If participants value mentoring, why is it not occurring in the WFPAM Program? Three themes that emerged from the interviews and that may account for the lack of mentoring are turnover, lack of time, and lack of resources in the process.

Ten of the 22 participants interviewed mentioned turnover in the process. When asked if s/he was mentored one participant stated,

No and I think that probably is the answer you would get from most people who end up in it and I think that is one of our problems. It is particularly true for state and federal people .... because of everyone’s funding and everything it is very rare any more, in an agency setting, for you to come into a new job while the old person is still in that job and you get a lot of mentoring. It is more often that they have been gone for 3 months, 6 months, stuff is piling up on their desk and you just kind of get thrown into it. [4]

I think partially that [lack of mentoring] is due just to personnel [that] are to busy and they got their own, especially the regulatory members they have to do their regulation thing, as well as do CMER, um they got other obligations through their jobs, um, even the industry folks, they work for timber companies and so they are off doing other things as well, as opposed to coming to CMER. [1]

Many participants also view lack of time and resources as a challenge to the process as was discussed in the previous section. Based on these comments it appears that a likely cause for the lack of mentoring is turnover and lack of required job overlap and mentoring in the various caucuses, particularly the government caucuses, where there is little time and resources to allow for mentoring.

## **Hypothesis Two: The Role of Science**

The first hypothesis and its four sub-hypotheses examine the nature of the social contract that the stakeholder groups have created and how this contract has been modified over time as a result of changing external and internal factors. However, the final three hypotheses examine if the WFPAM Program has sufficient program protocols. The second hypothesis examines the role of science in the WFPAM Program by testing the hypothesis that the role of science is not clearly defined. This hypothesis emerged from the data analysis and as a result, no participants were directly asked about the role of science in the process. However, two themes emerged from research participants' comments: (1) policy agendas enter into CMER and (2) inconsistent viewpoints of how science is used to draft policy decisions.

The first theme raised by participant comments is the issue of policy agendas entering into CMER decisions. The Adaptive Management Program Guidelines draw a clear line between the policy side of the process and the science side of the process. This line is called the CMER/Policy firewall and it is demonstrated in Figure 2 taken from the Adaptive Management Program Guidelines. Although this firewall clearly distinguishes the policy side of the process, which addresses the economic and social concerns of the stakeholders, from the CMER side of the process, whose responsibility is to conduct pure science, ten participants stated that they feel that political agendas are entering into the CMER committee. Members from five of the six caucuses commented on this topic. Below are three examples of these comments.

There is a variety of needs being brought to the table, some of which benefit by maintaining the status quo, some of which benefit by slowing other projects down, [which] makes money more available for some other project. Some folks come to the table with their intention to not move science forward and that is the reality of it. They are there to slow things down and so they are the question monsters, they are the 11th hour monkey wrenchers .... That doesn't happen that often, but if you watch the wheels, you know, after awhile you start realizing, that oh there's certain topics, especially certain topic areas that benefits people to maintain the status quo, certain groups and I am talking all ends of the spectrum, you know maintaining the status quo or keeping certain work from occurring is beneficial to them in some way or another so their intention to come to a meeting and monkey wrench or throw in these 11th hour comments is to slow things down. Some folks come into it, they are

just blind, they don't know, maybe haven't prepared for the project, you know or something and they, their questions are all valid but they, they're based on a lack of knowledge but uh that's not entirely the case. [14]

There is a theoretical firewall between policy and technical and I revelled in staying in the technical part and having nothing to do with policy. I found that doesn't work very well because we are so influenced by what happens on the other side and you can't really, I guess I don't feel currently, this is jumping ahead, that the environment is very conducive to good science and good technical work right now and that is a real challenge for me. [10]

CMER is not an independent science review group. CMER is a group of individuals that all have their pay checks coming from individual caucuses and they strongly support the caucus view with their science. [8]

Figure 2 illustrates that according to the Guidelines for the Adaptive Management Program, CMER decisions should be based on scientific findings. However, participants' comments suggest that political agendas are entering into the science side of the process.

Why are agendas entering into CMER? Different participants had varying viewpoints on this. One participant suggested that receiving money from a caucus creates bias.

I think the people are agenda driven. Rightfully or wrongfully it is not a thing that I hold against them because if that is the way the game is played. You got to play the game by the current rules and the current rules are everybody gets to send their scientist to the table. Why do small landowners feel obligated to bring a scientist to the table? Cause nobody is there with their view, so they brought somebody and he is a really good scientist. [8]

Another participant stated that FF Policy members' lack of time negatively influences the process by drawing CMER members into the policy arena in order to provide information to the FF Policy members.

I think the biggest issue is the time issue...if you look around the table and you say who is really a Policy person and who is a technical person and you have a real mix and the reason that has happened is the Policy people don't have the time and aren't putting the time into understanding the technical issues so they tend to bring the technical people. So I mean you end up with that mixture there and it is not good for the process

because the scientists should be providing the best scientific information and recommendations they can for the Policy group and then the Policy group makes a management decision of what to do with that. When you have the mix at the table, to me it doesn't work.....Well again it puts the, if you are a scientist and you work for your particular organization and you are sitting listening to the Policy person present the caucus policy position that has to affect the way you approach the next discussion at the technical group. [4]

This comment suggests that because FF Policy members do not have the time to dedicate to the science, CMER members are being brought to FF Policy meetings. As a result CMER members are being exposed to caucus views which are influencing their decisions. The other comment suggested that participants are inherently biased, because they receive funding from their caucus.

The interviews raised another science related theme regarding inconsistent beliefs about the way that science should inform policy decisions. As described earlier, because this theme emerged during the analysis participants were not asked about how science informs decision making. Instead, I compared and contrasted participants' statements on how science is used to make policy decisions. While this method can produce some useful observations, these findings are preliminary and further research on this topic is required. Some participants felt that the science should be translated directly into a policy decision. Others felt that the science should inform the decision but other factors, including social and economic factors should be taken into consideration. One participant summarized the issue by stating,

Adaptive management is very easy to sketch out, well easy. Its one thing to sketch it out and to write it down and put processes in place and we are going to have policy informed by science. Does that mean it is still going to be public policy and you get, you review the science at what level you want to you know some different levels of intensities. No, I don't think it is that. Is it that science is the policy and whatever science says without ever going through any policy? I mean it is just, you know, take the policy makers away, maybe their help to direct what the policy questions are and what comes out of science is just not policy. No, I don't think it is that either, but there are folks that think probably on both of those spectrums to some degree. [13]

This comment suggests that there are varying opinions on the role science will play in policymaking and that the role of science is not clearly defined by the process.

The question of the role that science plays in the process came to the forefront during DFC negotiations. The initial DFC study carried out by Dave Schuett-Hames suggested that the regulatory DFC targets were below the basal area found in natural stands. However, the study did not provide policy direction. Some felt that the regulatory target should reflect the average basal area found in the Schuett-Hames study. Others felt a rule change was not necessary as the McConnell study found that DFC targets were often met (McConnell 2007). One participant stated,

You have to be willing to live with the decision science gives you and then move on, and then a few years down the road go back and say we have tackled some of these [other] issues, now we can go back and revisit the DFC, we just don't think that is really right and here is some new evidence after we implemented the new rule why we think it is not working. [18]

Another stated,

From my perspective, industry tries to protect themselves by being more concerned with the science having an outcome which shows "no impact". Stakeholders seem to lack trust and fight over what the science says ... "it is bad science if it does not have the favourable outcome". I wish that people could first just seek to understand what the science is really telling us. Then, if everyone was just up front and the results are too much for industry as far as economics and viability, all stakeholders would be more willing to work together to find solutions that achieve everyone's needs. [16]

Each of these quotations illustrates different methods of interpreting the science and incorporating it into policy.

To return to the hypothesis, it appears that the role of the science is not clearly defined. While the process establishes a clearly defined line between the science side of the process and the policy side of the process, the day-to-day reality of the WFPAM Program is blurring this line. Several participants feel that CMER members bring their personal or caucus bias to the CMER table, although the explanations as to why this occurs vary. Because 10 of 22 participants commented on agendas entering into CMER, I feel that this finding is of significance and I accept the hypothesis. In addition, it

appears that the role of science in decision making has not been defined and is not agreed upon by participants. Because no participants directly commented on this issue, only four of the six caucuses commented on this issue, and the analysis was conducted by comparing comments on other issues, the findings are weak. However, this comparison does suggest that this is a question that may merit further research.

### **Hypothesis Three: The Role of Clearly Defined Program Guidance**

The third hypothesis states that the Adaptive Management Program does not have clearly outlined process rules and regulations. The collaborative planning literature suggests that effective rules and regulations are important in the success of collaborative processes. Currently, several procedural documents exist to guide the WFPAM Program. These documents were created following the establishment of the WFPAM Program in order to help guide the WFPAM Process. The first of these is the Adaptive Management Guidelines. Several additional rules were created as the WFPAM Program matured and these include the CMER Protocols and Standards Manual and the CMER/Policy Interaction Document. These rules have formalized the process and have helped to address the policy gap that Lee (1993) identified by connecting the science/policy loop and ensuring Policy acts on CMER scientific findings. However, are these process guidance documents enough to ensure the process can run effectively?

In examining this hypothesis, several key themes arose from the interviews. The first was the lack of clearly defined process rules. Ten participants were asked if they felt the WFPAM Program has clearly defined rules and process guidance. Three of these participants, and five other participants who were not asked this question, stated there is a lack of clearly defined process rules or described an incident where there was confusion over the rules. Members from four of the six caucuses are included in this group. The following quotation provides an example of these comments.

That is usually what the challenge is, that we are going to do it through an adaptive management process but we don't have a process and frankly that is what has happened here in Washington. We said we are going to do it through adaptive management and we signed on the dotted line and then after the fact we have come up with a process, the process has only been designed by doing....In as much that I am no big fan of process, or of developing process, it helps establish the path and if you know where the

path is, there is a bright and shiny path you can follow you know and no matter how dark the wood. [14]

Two of the participants who were asked about the effectiveness of the WFPAM Program rules stated that there is a need to balance rules and using rules as delay tactics. One participant stated,

I really think we need sideboards and we need rules. CMER developed a handbook, but now what I see is people use that as road blocks to, for a certain position, I mean, if they don't like the study or a report or whatever, they tend to use this process just to delay things and hamstring it and make it go forever and um, so we need those things, we need those sideboards but we shouldn't allow them to bury us. [20]

This illustrates the challenges of focusing too much on process. The quotation also suggests a lack of commitment which is described in sub-hypothesis 2.

The remaining five participants said that the rules are sufficient or cited other issues within the WFPAM program. For example, one of these participants, as well as 9 other participants, stated that the members of the WFPAM Program do not have a strong understanding of the rules or they described a situation where there was a lack of understanding of process rules. The following two quotations provide examples of these comments.

I think it would be very healthy to put the ground rules maybe on a once a year or once every other year review cycle, because we constantly have to be boring in on those trying to make them perfect and I don't think they are completely there yet in terms that they are completely understood by everybody in the same way and they are consistently followed by everybody in the same way. [12]

How informed are people on the TFW Ground Rules? I would give that a 2" (on a scale of 1-5 with one being low and 5 being high). [17]

The lack of effective process rules and the lack of knowledge of process rules are difficult to measure as one may confound the other. However, the prevalence of both these comments suggests a lack of clearly defined process rules and a lack of knowledge of the process rules. While an effort has been made to develop effective guidance, the current WFPAM Program guidance may be insufficient. Therefore further effort may be



required by the various WFPAM Program committees to further define or clarify the programs protocols.

An additional theme closely tied to this issue is the lack of accountability to the rules. Nine of the 22 participants, including members from four of the six caucuses, mentioned that the ground rules were not being followed. As one participant stated, “I think the process itself is good; it is there to protect everyone’s interests. I just don’t think we are sticking with it” [16]. Participants proposed two explanations for the lack of accountability in the process. The first explanation was that some participants were not upholding their commitment to follow the rules. One participant stated,

I also think that criticism of the process can be confused with how people are operating in the process because we can have a great process but if people aren’t doing the things they are supposed to do within the process, the process won’t work and then the people lose trust in the process when in fact the process is just fine. It is that people aren’t upholding their commitments and responsibilities within the process. So I think most people have a really hard time differentiating other kinds of issues from whether the process is working or is trustworthy. [12]

Another explanation is that stakeholders have different interpretations of the rules. As mentioned in hypothesis two, there is turnover within the process. As a result, the person sitting at the table may not have been the person who negotiated the agreement or drafted the process and therefore may have a different interpretation of the rules than those who have been involved in the process longer.

Due to uncertainties associated with the rules, five out of 22 participants, including members from three of the six caucuses, mentioned the need to update outdated rules. The following quotations provide examples of comments.

.....I think we have been transparent all along, saying ‘folks these are the rules’ and we are not following XYZ rule. If it doesn’t work for this, for the construct of this program, let’s change it and put in place something everybody can agree to and everybody can work with. But, [instead] when it is written and we think we are using that, then the next day it changes into something else and we don’t follow it, you know it makes it impossible to really participate and I think with good faith, and it, it is deteriorating an already missing trust level.... [18].

Yeah it [the WFPAM Program] has got a lot, got loads of potential and I would hate to see a great process and again, I mentioned earlier about differentiating between a great process that is not being worked well from a process that needs to be changed, and I don't think we have a process that needs to be significantly changed. I think we need to improve our behaviour within the process and tune the process to work a little bit better. It is like having a Ferrari in the driveway. If you don't know how to drive, you are going to drive down the street and not get anywhere. You are going to stall it and fry the clutch and drive into a telephone pole so the driver is just as important as the car. If the participants can be viewed as the driver and the car is the process or the program, I think we have got a great car in the driveway and we are just learning to drive it. [12]

These comments suggest that in cases where the process is inadequately developed or understood, an effort should be made to revisit and clarify the process, as well as to commit to following the updated rules.

Another key theme that emerged from the interviews that does not relate directly to the process rules, but that is integral to the functioning of the process, is the lack of a comprehensive strategy. Each year CMER uses a prioritized version of the schedule L1 list to create an annual work plan. However, ten of 22 participants stated that the CMER work plan is not sufficient for guiding the efforts of the Adaptive Management program and that the program is lacking a comprehensive strategy. Members from four caucuses are included in this group. One participant described the issue by stating,

...we don't even have an overall strategy, I guess we have our Schedules L1, L2, and some critical questions, and some threshold resource protection numbers, and standards that we are seeking to meet, but we don't have any kind of timeline, gantt charted [timeline], description of these issues we are going to be working on in this time frame, with a solution, by this deadline and such so I have never seen a near term, mid term, and long term plan of where we are going. [18]

The key difference between the CMER work plan and the comprehensive strategy appears to be the level of engagement by the various caucuses and levels of the WFPAM Program.

While FF Policy approves the CMER work plan, it does not appear that FF Policy has been highly involved in the development of the work plan. One participant stated,

They [FF Policy] have never done a prioritization of the science work, just taken what CMER has given them, made some minor tweaks around the edges every once in a while and passed it on to the Board and saying that is good; let's do it. Well, that is not going to work, it hasn't worked and it is not going to work when we have less resources at our disposal which we will very soon. [15]

Another participant stated,

Once we do have a work plan there needs to be a cohesion among them. You should be able to, in my mind, you should be able to look at the Policy work plan, look at the AMPA's work plan for the year, look at CMER's work plan for the year and look at the Forest Practices Board's work plan for the year and there should be a large amount of overlap because [if] we don't have work plans we don't have cohesion. [18]

These comments suggest that while FF Policy has examined and approved the CMER work plan, due to capacity issues this examination has been superficial. FF Policy has not done any internal analysis to determine which issues are the highest priority to each caucus and negotiated a work list of studies they would like to see CMER examine. Federal funding for Forest and Fish is ending. The need for clearly defined and focused priorities will likely increase as federal funding decreases and ends, at which time resources and efforts should focus on agreed upon top priorities.

Seven of 22 participants raised another related issue regarding the lack of FF Policy engagement in CMER studies. These seven participants observed that in the past, while FF Policy had approved CMER studies, they did not undertake an in-depth examination of the methodologies of the studies or the expected outcomes. As a result, when it came time for the DFC negotiation, FF Policy raised concerns regarding the science and not all the groups approved of the study.

Therefore, several of these participants recommended that FF Policy engage in the approval of studies and the elements of the study such as methodology and acceptable levels of error before studies are conducted. Then, when it comes time to make a policy decision, FF Policy could focus on negotiating a rule change rather than questioning the science. One participant stated,

... the ideal way to approach it would be to have a scientific study come forth that everyone agreed to that says the current rule is bad the number

needs to whatever, and people need to have bought into that before hand but they don't do that, they wait till the study comes out, the information gets put on the table and then based on what it is they decide to support it or fight against it so we have a study that was done by CMER that says the numbers are too low, and we have the people sitting around the CMER table fighting over that recommendation. Well, is it good science? Is it bad science? Did they do the analysis right? Is the sample size right? You know, any scientific study you can pick apart if you approach it that way, rather than having consensus around the table before the study was ever done: "here is how the study is going to be done; we all agree with the methodology; here is the analysis that is going to be done; and we are going to support the studies conclusion", it is the last step. [4]

Another participant suggested that while this is a good idea, in practice groups were likely to run into the same obstacles because the fundamental issues lie not in the studies themselves but in the unwillingness for the groups to agree to something they see as a compromise.

On returning to the hypothesis that the WFPAM Program does not have clearly specified rules and regulations, it appears that this hypothesis was verified. The participants' comments illustrate that there is some confusion over the rules and that some of the process rules are out of date. In some cases this confusion can be attributed to a lack of capacity for participants who have little time to learn the rules and regulations. In other cases it appears process rules lack the ability to hold participants accountable. The comments from several participants also suggest there is a lack of an overall plan or strategy in the WFPAM Program. Based on these comments it appears that while the CMER work plan provides a list of tasks to be completed and that this is key for moving the adaptive management program forward, there are several components lacking from the CMER work plan which participants feel need to be addressed through the completion of a comprehensive strategy. This includes FF Policy's involvement in the identification of WFPAM Program research priorities and "buy in" to the study designs.<sup>14</sup> Because nearly half of the research participants commented on these issues, I felt that there was significant evidence to support this idea and I accepted the hypothesis.

---

<sup>14</sup> Near the end of the field research Policy recognized the need for a comprehensive strategy and a subcommittee was charged with the development of this strategy.

However, because only four of the six caucuses commented on this topic, the strength of the finding is considered moderate.

#### **Hypothesis Four: Facilitation and Negotiation Training**

The final line of inquiry examined the possibility that a lack of facilitation is negatively affecting collaboration, by testing the hypothesis that the lack of a facilitator is reducing social learning within the WFPAM Program. During the interviews, eight of 22 participants were asked if they felt a facilitator would be helpful to the WFPAM Program. Seven of these participants, as well as five additional participants who were not asked this question, stated that the lack of facilitation negatively affects the WFPAM Program or stated that they wished to have a facilitator involved in the process. Members from each of the six caucuses commented on this issue. Below are two examples of these comments.

I feel like our biggest problem is communication and I wish there was a facilitator that was talented enough that could help us. It is not like industry is out there to wipe out the resource and the rest of us are not out there to see how much we can get from industry either. I think that if we listened better and really understood each other better, we would be more on the same page. I keep hearing from certain people that they are getting screwed again from the rest of us, which irritates me because many of us really do want to help find solutions that work. Hearing these accusations only makes you want to quit trying. [16]

There is one thing that I keep pushing, is I think this group would make better progress if they have a facilitator. Somebody who was completely independent of the interest in the groups. Somebody who could just, cause I think they will get the issues going and everybody gets heated at the table and they are talking past each other and they are not hearing what the other one is saying and they are both [saying] this is my stand, take it or leave it type of thing and that is not where we need to go. We need to try to figure out how do we solve this, what needs to be done through adaptive management that would answer the questions that just have been put on the table. [5]

However, another participant had a different viewpoint of the issue and stated, “I’m not a big fan of facilitators, [they] burn up a lot of money and stand around.” [21] This comment reflected a dismissal of facilitation in general, not simply facilitation in the

WFPAM Program. While only one participant stated this viewpoint in an interview, based on observations of CMER and FF Policy meetings it appears that other CMER and FF Policy members share this opinion.

Why, when the literature highly recommends facilitation and 11 of 22 participants support the use of a facilitator, has facilitation not been used in the WFPAM Program?

There were various comments made on this topic. One participant stated,

We have had a couple of facilitators. We had one that was with us for a chunk of time, a couple years or so and then we have hired another one on a part time basis and with mixed success. I think the main, my view is the main reason it was mixed success is those people hired as facilitators weren't really professional facilitators. They kind of had that skill but they were really there because they were well known and had been around for a long time, people liked them, that kind of stuff, you know, had held senior leadership positions and those kind of things. [15]

One day, while attending a meeting, I observed a conversation in which a WFPAM program member stated that there is an unwillingness to take money away from the science and put it toward facilitation. This comment also ties in with the lack of funding that was explored in sub-hypothesis two. If participants perceive a funding shortage, they will likely reserve funding for the issues they see as most important. So although participants might see a facilitator as important, unless they consider it a key priority, funding may not be dedicated to it. Another participant stated that they were reluctant to hire a facilitator because facilitators do not understand the science and lead the process off track. Based on these comments, it appears that different participants hold different reservations and there is no simple reason to account for the lack of facilitation in the process.

In addition, the comments of several participants suggest the WFPAM Program faces fundamental challenges with the negotiation process. As described in Chapter 3, negotiation is a form of dispute resolution. The basic concept of dispute resolution is that parties who have been unable to reach an agreement lay their interests on the table and work creatively to build a solution where both parties will gain more than they would without an agreement. To do this parties must be open and honest about their positions, they must work to understand the other party's position, and they must actively search for options of mutual gain (Fisher et al. 1991). The Adaptive Management Guidelines reflect

these concepts (Washington DNR 2005b). However, three themes from the interviews tied directly to the failure of these principles to be consistently applied.

First, nine of 22 participants, from four of the six caucuses, stated that members of the WFPAM Program were not being open about their interests. The following two quotations illustrate these ideas.

But I want it to be based on putting all of the cards on the table and being upfront with everybody. People seem to beat around the bush and are so careful about what they say at the table. Just be upfront and honest. [16]

So I don't know how much has changed uh I don't know, I guess some people felt like the discussions they had back in the old days were honest and frank and people are more guarded now and maybe that is an indication of trust being lower. [10]

Based on these comments it appears that not all participants openly state their interests.

Next, eight of 22 participants, from five of the six caucuses, stated that members of the WFPAM Program are becoming entrenched in their positions and are unwilling to look for other solutions. The three quotations below provide examples of these comments.

You know we came, the way it was paraphrased by one of the earlier members was, we came into this process and you had a problem and that became my problem and now it's, the agendas are all out there at the table and they say I will give you this but there is no compromise, ... I think it is really interesting that we, we point it out to ourselves, nobody has left the table, so there is a desire to get some closure on these things and I think, but, what we constantly have to do is, you know, remind ourselves that we are here to work together and not to get specific agendas, you know that is maybe only pertinent to certain groups. [5]

The agreement was we just don't work on your own problems, you work on mine too and we have two caucuses, we have two caucuses at polar opposites of their views. The conservation caucus and the industry caucus and everyone else kind of caught in between. And those two caucuses over the past few years have taken some very impractical positions and the easiest way to define it is the timber industry says we have given you everything we are going to do and we are not going to give you one more damn tree, and the conservation caucus says we have agreed to some things we shouldn't have and we are not getting enough, we want more and we won't take one less damn tree and when they start there, rather

than saying well what is the problem you are trying to solve and how can I do that, it starts you down a bad road. [4]

I think we need to have caucuses make a much greater commitment of their people time and I think we need to have caucuses commit to not unnecessarily delay things to really own the problems together solve problems and make changes together and to not think so much about just what is in it for me. [12]

Based on these comments, it appears that several caucuses decided that they are unwilling to negotiate on certain issues. This breaks one of the key rules of negotiation.

The WFPAM Program contains a dispute resolution process. The purpose of this process is to provide participants with additional opportunities to reach an agreement when the group has failed to reach a consensus decision. FF Policy had not invoked dispute resolution at the time of this research. Therefore, while the FF Policy committee could not reach a consensus on a recommended action regarding DFC, they did not enter into dispute resolution. Three participants commented on why this may be case.

My view on why dispute resolution was never invoked by any of the caucuses was cause .... it was first out of the chute and nobody wanted to go to dispute resolution, into the dispute resolution process. [13]

I think that because there is a legal aspects to the decision of dispute resolution. I mean the governor hadn't signed the HCP and I don't know that industry, I think that industry wanted to have the, get this signed and I don't know they particularly wanted to be in a dispute resolutions before this agreement had been signed. [11]

The reason no one does this [invokes dispute resolution] is they know by dragging the process, these usually boil down to one party who wants something to change and one party who wants it to remain the same. One party who wants it to remain the same can make it remain the same simply by not cooperating, simply by dragging the process out, keep the status quo around, if they invoke dispute resolution or cause such a row it does go to dispute resolution then they have the possibility of losing and it is easier just to let it go. Everyone is afraid of taking that last step because it puts the decision in someone else's hands. [4]

These comments illustrate several possible explanations including fear of losing the ITP by entering into dispute resolution before the permit was issued, fear of appearing like the



process isn't working by immediately entering into dispute resolution, and trying to maintain the status quo by stalling the process.

While dispute resolution was not used in the past, it appears that some feel it would have been beneficial to invoke the dispute resolution process. One participant stated,

I think what also is apparent is that we sent consensus recommendations to the Board when there really wasn't true consensus around the issue because people were closed and I think next time around if a dispute arises I think people will be more ready to activate the dispute resolution mechanism that exists within Policy and not just sort of punt it to the Board. [12]

Based on this comment and observations of FF Policy meetings, it appears there will be a greater willingness to invoke dispute resolution in the future.

To conclude, I return to the hypothesis that the lack of a facilitator is reducing social learning in the process. While 11 of 22 participants interviewed felt that the process would benefit from the use of a facilitator, other participants are hesitant to hire a facilitator. These reservations appear to stem from lack of success with particular facilitators in the past, as well as from a lack or perceived lack of resources. However, other indicators, such as a lack of adherence to basic negotiation principles strongly suggest the need for a facilitator. As half of the research participants suggested that having a facilitator would benefit the WFPAM Program, and because observations revealed that the principles of alternative dispute resolution are not always upheld during meetings, I feel that these findings are significant and I accept the hypothesis that lack of a facilitator may be reducing social learning in the process. Because half of the participants, including members from each of the six caucuses suggested a facilitator, the findings are considered strong.

## **CHAPTER 6: WHERE ARE WE GOING? CONCLUSIONS AND RECOMMENDATIONS**

To summarize, the objectives of this research were threefold. The first objective was to identify whether social learning is occurring within the WFPAM Program. This objective was examined in Chapter 5 and it was concluded that there are likely barriers to social learning within the program. It was assumed that for social learning to occur the caucuses would have to maintain a basic level of trust and communication. However, the data suggested that there are low levels of both trust and communication. Nineteen of 22 research participants were questioned about trust in the process. Six of the participants felt trust was low in the program and the remaining 13 participants felt that trust varied from caucus to caucus, suggesting that there was a lack of trust between some caucuses. Thirteen research participants were questioned about the effectiveness of communication in the program. While one of these participants stated communication was effective, the remaining 12 participants noted a lack of communication in the program. This data suggests there are barriers to social learning in the WFPAM Program. FF Policy's inability to provide the Board with a DFC policy recommendation further supports the argument that social learning has stalled in contentious situations within the process.

Because analysis of the first research objective suggested a lack of social learning in the WFPAM Program, the second and third objectives were (respectively) to hypothesize about barriers to social learning and develop recommendations to overcome these barriers. The status of social learning in the WFPAM Program could not be ascertained until midway through the research. Therefore, hypotheses on barriers to social learning were generated after the bulk of the interviews were conducted. As a result, much of the data analysis was performed on research participant comments that were not always in direct response to the question identified in the hypothesis. While this form of analysis can provide useful information, it has limitations. Therefore, levels of confidence are stated with each finding. The remainder of this chapter will summarize

the findings of the analysis and offer recommendations on how current program participants might overcome social learning barriers by building upon past and existing social learning frameworks and utilizing collaborative 'best practices'. Potential future research opportunities are also identified.

Four hypotheses were generated in order to explore potential barriers to social learning in the WFPAM Program. The first hypothesis explores changing socio-economic and environmental conditions. Following the TFW Agreement caucus attitudes shifted from conflict to collaboration oriented. However, over the last 20 years changing conditions may make it more difficult for caucuses to collaborate. Therefore, I generated the hypothesis that social learning is more challenging due to internal and external factors which have changed since the TFW Agreement. Several sub-hypotheses were generated to provide insight into this initial hypothesis.

First, I generated the sub-hypothesis that there is less externally-driven incentive for stakeholders to collaborate in the WFPAM Program than there was prior to the TFW Agreement. Examination of the TFW Agreement revealed that litigation avoidance provided a strong incentive for caucuses to collaborate and facilitated the TFW Agreement. The evidence supporting this hypothesis was weak due to lack of data and the hypothesis could neither be accepted nor rejected. Two participants from the FF generation stated that fear of the Services revoking the ITP permit provides incentive for caucuses to work together effectively in the adaptive management program. However, two other participants from the TFW generation stated that they did not feel the Services would withdraw the permit. Based on the small sample size the research was not able to determine if concern over losing the ITP provides an effective incentive for stakeholder groups to work together or if there are incentives to collaborate apart of the ITP. However, as one participant stated, it is difficult to compare the environment then and the environment today because of the variety of socio-economic and environmental changes that have taken place. Several other participants supported this statement with comments about changing dynamics within caucuses, splintering of caucuses, and changes in the economic climate. Therefore the nature of the relationships between stakeholders may be altered today and the same incentives to collaborate may not longer apply.

Due to the weakness of these findings, future research on this topic is recommended. A useful future research direction could trace the impetuses of the TFW negotiation and see if these forces continue to bring caucuses to consensus and what (if anything) these forces have been replaced with. Future research on how the ITP has affected the program is also recommended. Is the ITP providing an incentive for groups to collaborate? Alternatively, could the issuance of the ITP be stalling social learning because those working in the forest industry feel their interests are protected under the ITP and therefore their incentives to collaborate are reduced?

The second sub-hypothesis states that there is less commitment to the WFPAM Program today than there was following the TFW Agreement because caucuses did not reach a consensus-based agreement during the FF negotiation. Five participants from three caucuses mentioned that caucuses feel that they lost during the FF negotiation. In addition, nine participants from three caucuses mentioned they felt there was a lack of commitment from all the caucuses in the program. This suggests that because caucuses feel as if they were cheated during the negotiation, they are using the WFPAM Program as an opportunity to gain back what they feel they lost. However, this does not represent a true commitment to adaptive management and this is what may be reflected in the other nine participants' comments. Because the sample size for this analysis was small and because only 3 caucuses commented on this issue, the strength of the finding is moderate. Future research is recommended on this topic. The findings suggest that a recommitment to process is required. Because the progress can be stalled by one actor in a consensus based program, commitment from all caucuses will be required to truly recommit to the process.<sup>15</sup>

In addition, a lack of time and funding commitment were identified as part of this analysis. Fifteen participants from all the caucuses identified a lack of time dedicated to the process and sixteen participants from all the caucuses identified a lack of funding dedicated to the process. This strongly suggests that there are insufficient resources;

---

<sup>15</sup> At the time of this research a TFW Reinvigoration effort was being discussed to open dialog between caucuses, determine caucuses' commitment to the process, and to discuss a potential re-commitment to the process.

human and financial, dedicated to the program and that the appropriate resources should be allocated. However, this will likely prove challenging within the current economic climate.

Sub-hypothesis three tested the possibility that the WFPAM Program is lacking leadership. The literature review identified leadership as an important factor in the success of the TFW negotiations. Six research participants were questioned on the effectiveness of leadership in the program today. Each of these participants, as well as three additional participants, stated that there is a lack of leadership in the program today. Members of five of the six caucuses were questioned and or commented on this issue. Because only five of the six caucuses were questioned, the strength of this finding is moderate. Three actions are recommended based on the literature review and findings: (1) re-engaging caucus leaders in the WFPAM Program; (2) receiving commitment from caucus leaders to uphold the collaborative principles of the WFPAM Program; (3) providing the resources necessary to carry out the program, including staff time. However, for this strategy to be effective, it requires all caucus leaders to commit to the WFPAM Program. Furthermore, in the economic downturn the commitment of the necessary funding may be challenging.

Currently, many of the caucus leads are not on the FF Policy committee, although some caucus leads are members of the Board. However, the majority of the negotiations on policy recommendations occur at the FF Policy level. Representatives on the FF Policy committee do not always have the same ability that the caucus leads have to speak for their caucus or muster caucus support, and this limits their ability to negotiate. One potential option that was suggested by a participant is to restructure the WFPAM Program to resemble the TFW Organization and to reinstate the Administrative Committee. The Administrative committee could take the role of the current FF Policy committee and could handle the day to day operations and the more basic policy negotiations. The new FF Policy committee would consist of caucus leads and would focus on taking on the challenging and contentious topics. Because their time is limited, this committee could meet a few times a year to address and negotiate contentious issues such as DFC.

The fourth sub-hypothesis tested the possibility that a lack of mentoring in the WFPAM Program is reducing social learning. During the TFW negotiation a shift in values occurred and attitudes shifted from litigious to collaborative. If these values were not passed to subsequent generations this could account for the lack of social learning in the program today. Fifteen of the 22 participants were asked if they had a mentor. Twelve responded no. A member of each caucus is represented in this group. The remaining three participants stated they did have a mentor. Two of these respondents were mentored by a member of the FF generation. Because knowledge was being passed from a member of the FF generation to another member of the same generation, it is possible that there was a loss of knowledge between the TFW and FF generation. The hypothesis was accepted because over half of the participants were not mentored. Because of the diversity of the sample size and the diversity of caucuses represented the strength of the finding is strong.

There are several members from the TFW generation involved in the process today who could share information on the historical collaborative context of the program and its associated values. The findings suggest that training or mentoring from these participants would be of value to the program. Due to retirement ages, the time to capitalize on the institutional knowledge of these participants is limited and if it is not taken advantage of it may be lost. In addition, a mentoring program should be instituted into the WFPAM Program. The goal of the mentoring program would be to foster a sense of shared values between caucuses and a belief in the value of collaboration. One participant suggested that this program be inter-caucus. Inter-caucus mentoring could serve two functions: (1) to build social capital and (2) to provide training.

In sum, these four sub-hypotheses suggest that there have been significant internal and external changes between the caucuses over the last twenty years. These changes suggest increasing complexity associated with forest management in Washington due to variety of socio-economic and environmental factors. This suggests that there may be more challenges to social learning today than in the past. However, without further data this hypothesis can neither be rejected nor accepted. Further research on this topic is recommended.

While the first hypothesis and its four sub-hypotheses explored new external and internal factors which may currently be impeding social learning, the final three hypotheses examined the effectiveness of protocols which have been established to guide the WFPAM Program. The fifth hypothesis tested the idea that the role of science is not clearly defined in the WFPAM Program. This hypothesis was generated purely as a result of participant comments. The program guidance, including the Adaptive Management Program Guidelines and the HCP, identify a science/policy barrier between CMER and FF Policy. However, ten participants commented on policy agendas entering into CMER. Four of the six caucuses are represented in this group. In addition, from participants' comments I observed varying opinions on how the science would be incorporated into policy. Therefore, the findings suggest that there are conflicting viewpoints on the role of science. Based on these findings it is recommended that the various levels of the WFPAM Program assess discrepancies on how science studies will be translated into policies and clarify this process. Because only 4 of the 6 caucuses commented on the topic, the strength of the finding is considered moderate. Further investigation on this topic is recommended in future research.

Clear process guidance is a factor identified in successful efforts within the collaborative planning literature. Hypothesis three tested the possibility that the WFPAM Program does not have effective process guidance. Eight participants mentioned a lack of clear process guidance, two participants noted the need to ensure the program is not sidetracked by process, and five participants stated the process guidance was effective. Members from five of the six caucuses commented on this issue. In addition, ten participants noted that many participants are not as familiar with the rules as they could be; nine participants said that the WFPAM Program are not held accountable by the rules; and five participants mentioned a need to up-date outdated rules. In addition, ten participants identified a need for a comprehensive strategy. Because there were varying opinions on the effectiveness of the rules, only five of the six caucuses' members commented on this issue, and factors such as a lack of knowledge of process rules can confound findings on the effectiveness of process guidance, the strength of these findings is moderate. The findings suggest that this topic warrants further exploration in future research.

The findings for hypothesis three suggested there was a lack of understanding of the program rules, a lack of accountability to the rules, and a need to update outdated rules. Furthermore, the program was lacking a comprehensive strategy to guide the process. Therefore, several recommendations are made. First, training on the rules is suggested for all levels of the WFPAM Program committees.<sup>16</sup> Second, it is recommended co-chairs be familiarized with the rules and that they enforce these rules at the various WFPAM Program committee meetings. Next, it is suggested that out-dated rules be updated through negotiation. Finally, the findings suggest that a comprehensive strategy would be a useful tool for guiding the WFPAM Program. The development of this strategy should encompass all the levels of the WFPAM Program and all levels should agree on the research goals and methods identified in this strategy.

Finally, the fourth hypothesis tested the possibility that the lack of a facilitator is hindering social learning in the WFPAM Program. Eleven of 22 participants suggested a facilitator would benefit the program and one suggested it would not. Reservations about employing a facilitator appeared to arise from lack of success with facilitators in the past and lack of funding. A lack of adherence to basic negotiation principles also suggests the need for a facilitator. As half of the research participants mentioned that having a facilitator would benefit the WFPAM Program, and because observations revealed that the principles of alternative dispute resolution are not always upheld during meetings, I felt that these findings were significant and I accepted the hypothesis that lack of a facilitator may be reducing social learning in the process. Because half of the participants, including members from each of the six caucuses, suggested a facilitator, the findings are considered strong. Two recommendations stem from these findings. (1) A skilled facilitator experienced in scientific based negotiation would likely assist the WFPAM Program participants in finding mutually satisfactory solutions to disputes. (2) In situations where a dispute cannot be resolved, it is suggested the internal dispute resolution should be invoked.

---

<sup>16</sup> Following the fieldwork for this research, training for CMER and Policy on the WFPAM Program rules was carried out, and follow-up interviews suggested that this training was beneficial (Personal communication, 2 members of the WFPAM Program, [22], September 23, 2009 and [3], October 12, 2009).



In conclusion, the WFPAM Program is the latest iteration of a collaborative forest management effort in Washington which has been ongoing for twenty years. As such it provides a unique opportunity to examine the effectiveness of long term collaborative process. Based on the WFPAM Program case study can collaborative process remain effective over time? This research suggests that there are barriers to social learning in the program today. While the program faces challenges and participants expressed frustration regarding these challenges, each of the 22 research participants appeared to have a desire to see the WFPAM Program continue. One participant stated

I think it [WFPAM Program] is the best alternative available. Even with all the challenges, I would much rather be doing this than dealing with court cases all the time. I enjoy doing that work too, but the thing that people have to remember is that as long as we are in this collaborative environment you have some impact on what the outcome is going to be. As soon as you file a court case, or whatever it is going to be, the judge decides and you have no idea and very little control over what that outcome will be. [9]

Due to the complexity of issues facing the WFPAM Program these challenges can likely not be over come by addressing one issue. A combination of efforts will likely be required to address these challenges. However, with commitment from the caucuses to further examine and address these issues, it is possible that caucuses can refine the current process and continue to work together for another 20 years in a way which allows them to effectively meet their needs, resolve conflict, and sustainably manage Washington's forest resources.

## APPENDICES

### Appendix A: Letter of Introduction

#### SIMON FRASER UNIVERSITY

SCHOOL OF RESOURCE AND  
ENVIRONMENTAL MANAGEMENT  
FACULTY OF APPLIED SCIENCES

<http://www.rem.sfu.ca>



BURNABY, BRITISH COLUMBIA  
CANADA V5A 1S6

Phone: (604) 291-4659

Fax: (604) 291-4968

Kira Furman  
1500 Lincoln St. Apt. 16  
Bellingham, WA 98229

#### About the Adaptive Management/Social Learning Study

I am a graduate student at Simon Fraser University's School of Resource and Environmental Management, working under the supervision of Dr. Evelyn Pinkerton, who has specialized for the last 20 years in the study of co-management. For my thesis I will be examining social learning or how a diverse group of stakeholders develops a common framework for understanding and basis for joint action in the Washington Forest Practices Adaptive Management Program. I hope to examine process learning (how decisions are made) and how factors such as fluctuating levels of trust may impact policy decisions. This research is being funded through the Social Sciences and Humanities Research Council of Canada. The goal of the research is to shed light on the mechanisms of trust and social learning which occur through adaptive management and contribute to our understanding of adaptive management, collaborative planning, co-management, and social learning.

I would very much value your insight into these issues and would like to conduct an interview with you. The proposal for this research has been submitted to the Washington Forest Practices Division for approval and has been approved. The other ethical procedures required by my university are to inform you of the following. Your participation is entirely voluntary and you may withdraw from the study at any point. Interviews generally last between 45 minutes and an hour, but may be ended any time you wish. The identities of all participants are kept confidential. Upon completion, the research results (my thesis) will be posted on the Simon Fraser University's School of Resource and Environmental Management's website at <http://www.rem.sfu.ca/pubs.htm>. If you request it, I will inform you when my thesis is posted.

I can be reached for any questions, or if you think of further information I should have at (208) 559-8152 and at kfurman@sfu.ca or Dr. Pinkerton at (604) 291-4912 and at epinkert@sfu.ca. I do not anticipate any risks with the study, but if you have any concerns or complaints feel free to contact Dr. Hal Weinberg, the director of the Office of Research Ethics, at hal\_weinberg@sfu.ca and at (778) 782-3447. Please keep a copy of this letter for your personal records.

Thank you very much for your time and contribution to the study.

Sincerely,

Kira Furman  
Masters candidate

## **Appendix B: Sample Interview Framework**

### **Interviewee Information**

Interviewee name and current title \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

Other contact \_\_\_\_\_

Preferred means of contact \_\_\_\_\_

Willing to review draft? (Y/N)

Date and Time \_\_\_\_\_

Place \_\_\_\_\_

### **Checklist**

- \_\_\_ Go over letter of introduction
  - \_\_\_ Goal of research
  - \_\_\_ Identity will remain confidential
  - \_\_\_ Length of interview
  - \_\_\_ Contact info
  - \_\_\_ Research results will be posted on web

\_\_\_ Permission to record

\_\_\_ Any questions for me before the interview?

### **Introduction Questions**

How did you become involved in the Forest and Fish process?

When did you become involved in the Forest and Fish process?

Have you been involved in any of the SAGs or working groups?

### **Mentorship Questions**

One thing that I am really interested in doing through this research is being able to chart the time frames of participation in the process. `Could you tell me where to look or could you tell me who the participants were for your agency in CMER/Policy since TFW began in 1987?

When you became a CMER/Policy member did you have a mentor or were you given training on the Adaptive Management process and process rules?

If mentor

What do you feel were the most valuable lessons learned from your mentor?

Do other participants have mentors?

If training

What areas did the training cover, for example TFW history, rules, negotiation skills?

If no training or mentor

How did you become familiar with the process and its rules?

Do you believe it would be helpful to have a mentor or training?

### **Adaptive Management Questions**

Based on your experiences in the program what does adaptive management mean to you?

How would you define it?

What do you see as the strengths and weaknesses of adaptive management based on your experience with Forest and Fish/TFW?

### **Consensus Questions**

I understand that one of the rules for CMER/Policy is that decisions are reached through consensus. I can imagine that this can be very challenging. In your experience what have been the real advantages to this type of decision making and what have been the challenges?

I would assume that because everyone has to be in agreement for a decision to move forward that pressure is put on groups that are not in agreement, is this true?

If true, what form does this pressure take?

Are disagreements expressed as positions as interests?

What generally is at the root of disagreements? For example is it disagreement on

scientific facts, lack of knowledge or familiarity with other disciplines, political beliefs, positions or other factors?

What is the most positive example you can think of where a disagreement was resolved?

A consensus decision was not reached on DFC, what do you feel was the barrier to reaching a consensus on this issue?

### **Trust Questions**

In the literature there are several features of relationships that have been assumed to facilitate agreements and decisions. One of these features is trust. Do you agree? Generally, how trusting are the relationship between members of the different caucuses?

Could you map the ebb and flow of trust over the last two decades based both on your experience in CMER/Policy and on what you have heard from others? So for example when you first became involved in the process how would you rate the highest level of trust? With 1 being the lowest and 5 being the highest? And how would you rate the level of trust now? With 1 being the lowest and 5 being the highest?

What factors do you believe contributed to the high or low points?

In areas where trust is low, is there an effort being made to build trust?

What do you believe is the highest level of trust possible in this process and has it been reached at any point past or present?

What do you believe could be done to strengthen trust?

How do you feel that the DFC issue has affected trust?

What other factors besides trust have facilitated or hindered agreement?

### **Leadership Questions (Process Question)**

Another characteristic of the collaborative process which is discussed in the literature is leadership. Do you see leadership playing a key role in this process?

What are important aspects of leadership?

On a scale of 1-5, with 5 being the most effective how would you say the CMER/Policy co-chairs are at enforcing process rules?

Do they exercise leadership in breaking impasses and building trust in a way that is helpful, on a scale of 1-5, 5 being the most effective?

What principles do they invoke or what tactics do they use to make members work together effectively?

How would you rate these on a scale of 1-5, 5 being the most effective?

Do you feel they are neutral?

Why or why not?

(If not) Would a more independent and neutral facilitator improve the processes?

(CMER/Policy co-chairs) What is your understanding of the co-chair role?

Were you trained in some way to meet these expectations of this role?

What practices do you use to build consensus or get the group to work together effectively?

How would you rate the effectiveness of these techniques on a scale of 1 to 5, 5 being the most effective?

What are the challenges of this role?

To me it seems that working in this process is very challenging and time consuming. Are there incentives for excelling in the AM program or even for showing up to the meetings regularly? (Examples: personal motivation such as curiosity or desire to help, to rewards within their agency, to reputation more broadly)

### **Time/Resource Questions**

Can you tell me about how resources such as time and funding impact the process?

Are you resourced?

What difference does this make to you in the process?

Are there realistic time frames to complete projects, review reports, and make decisions in CMER and Policy?

## **Communication Questions**

To me it seems that another factor that would affect how groups work together is the quality or effectiveness of communication. Can you describe to me communication within CMER or the Policy group?

How effective is communication between different levels of the adaptive management program? For instance between the CMER and the Policy group?

Does Policy provide clear research goals to CMER?

Does CMER research provide the research Policy is looking for?

## **Clear Ground Rules Questions (Process Question)**

Another factor that has been discussed in the literature is having a framework or process in which learning can occur. It seems to me that the AM manual, the CMER protocol and standards manual, and ground rules all establish this kind of framework. Do you feel these establish an effective framework for the process?

On a scale of 1-5, with one being less informed and 5 being more informed, how familiar do you believe most members are with the AM program rules such as the TFW/FFR ground rules, the Board Manual, and the CMER Protocol and Standards Manual?

If not understood: What are the barriers to understanding?

If understood: Are the rules providing the necessary framework to guide the process? If not followed what are the challenges?

## **Monitoring Questions**

Is there a review process or is that what is being created with the AM Strategy and Prioritization project?

If so is it effective?

If not what would be the critical elements to include in this process?

Apart from the yearly CMER work plan is there a process set up to evaluate how the AM is performing?

If so can you describe what this process and based on your experience what are the most important aspects?

If not what would be the key elements included in this process?



### **DFC Questions**

In your opinion what have been the key lessons learned from DFC?

### **Summary Questions**

If they were to start as process similar to this in Canada, what advice would you give them?

Am I missing any topics that you feel are important?

Who do you think I should talk to next?

## REFERENCES

- Adkins, L.** 2002. Reflexivity and the Politics of Qualitative Research. Pages: 332-348 in T. May editor. *Qualitative Research in Action*. Sage Publications, Thousand Oaks, California, USA.
- Anderson, E.M., and A.L. Shannon.** 1988. Towards a Conceptualization of Mentoring. *Journal of Teach Education*. 39(1): 38-42.
- Arnstein, S.R.** 1969. A ladder of citizen participation. *Journal of the American Planning Association*. 35(4): 216-224.
- Avery, T.E.** 1975. *Natural resource measurements*. Second edition. McGraw-Hill Book Company, New York, New York, USA.
- Bandura, A.** 1977. *Social learning theory*. Prentice Hall, Englewood Cliffs, New Jersey, USA.
- Bazely, P.** 2007. *Qualitative data analysis with NVivo*. Sage Publications, Los Angeles, California, USA.
- Call, R.** 2005. *Collaborative processes: lessons learned from the Timber Fish Wildlife, Chelan, and Forest and Fish Agreements*. Thesis. University of Washington, Seattle, Washington, USA.
- Carpenter, S.** 1999. Choosing appropriate consensus building techniques and strategies. Pages 61-97 in L. Susskind, S. McKernan, J. Thomas-Larmer, editors. *The consensus building handbook: a comprehensive guide to reaching agreements*. Sage Publications, Thousand Oaks, California, USA.
- Cederholm, C.J., and L.M. Reid.** 1987. Impacts of forest management on Coho salmon (*Oncorhynchus kisutch*) populations of the Clearwater River, Washington: a project summary. Pages 373-398 in E.O. Salo and T.W. Cundy, editors. *Streamside management: forestry and fisheries interactions*. Institute of Forest Resources, University Of Washington, Seattle.
- Charmaz, K.** 2006. *Constructing grounded theory: a practical guide through qualitative analysis*. Sage Publications, London, The United Kingdom.
- Cohen, F.** 1986. *Treaties on trial: the continuing controversy over Northwest Indian fishing rights*. University of Washington Press, Seattle, Washington, USA.

**Cooperative Evaluation, Monitoring, and Research Committee.** 2005a. *February 22, 2005 Meeting Minutes*. [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_cmer\\_minutes\\_20050222.pdf](http://www.dnr.wa.gov/Publications/bc_cmer_minutes_20050222.pdf).

**Cooperative Evaluation, Monitoring, and Research Committee.** 2005b. *March 22, 2005 Meeting Minutes*. [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_cmer\\_minutes\\_20050322.pdf](http://www.dnr.wa.gov/Publications/bc_cmer_minutes_20050322.pdf)

**Currie, J.** 1989. *An analysis of program integration and development*. Timber Fish and Wildlife Research Reports **TFW-000-89-007**.

**Department of Fisheries and Oceans.** 2000. *Effects of sediment on fish and their habitat*. DFO Pacific Region Habitat Status Report **2000/01**.

**DeWalt, K.M., and B.R. DeWalt.** 2002. *Participant observation: a guide for fieldworkers*. Altamira Press, Walnut Creek, California, USA.

**Dietz, T., E. Ostrom, and P.C. Stern.** 2003. The struggle to govern the commons. *Science*. **302**: 1907-1912.

**Dietz, T., N. Dolšak, E. Ostrom, and P. Stern.** 2002. The drama of the commons. Pages 1-3 in E. Ostrom, T. Dietz, N. Dolšak, P.C. Stern, S. Stonich, and U. Weber, editors. *The drama of the commons*. National Academy Press, Washington, D.C, USA.

**Dyball, R., S. Beavis, and S. Kaufman.** 2005. Complex adaptive systems: constructing mental models. Pages 41-63 in M. Keen, V.A. Brown, and R. Dyball editors. *Social learning in environmental management: towards a sustainable future*. Earthscan, London, The United Kingdom.

**Dzurik, A.A.** 1996. *Water resource planning*. Rowman & Littlefield Publishers, Inc., Lanham, Maryland, USA.

**Edwards, A.R.** 2005. *The sustainability revolution: portrait of a paradigm shift*. New Society Publishers, Gabriola Island, British Columbia, Canada.

**Fisher, R., W. Ury, and B. Patton.** 1991. *Getting to yes: negotiating agreement without giving in*. Penguin Books, New York, New York, USA.

**Forest and Fish Policy Committee.** 2007. *Forest and Fish Policy Meeting Handouts: "TFW Reinvigoration" Discussion Update*.

**Frame, T.M., T. Gunton, and J.C. Day.** 2004. The role of collaborative planning in environmental management: an evaluation of land and resource management planning in British Columbia. *Journal of Environmental Planning and Management*. **47**(4): 57-80.

**Garner, B.A., editor.** 1999. *Black's law dictionary*. Seventh Edition. West Group, St. Paul, Minnesota, USA.

**Gomi, T., R.D. Moore, and M.A. Hassan.** 2005. Suspended sediment dynamics in small forest streams in the Pacific Northwest. *Journal of the American Water Resources Association*. **41**(4): 877-898.

**Gunton, T. I., and J.C. Day.** 2003. Theory and practice of collaborative planning in resource management. *Environments*. **32**(2), pp. 31–46.

**Gunton, T., and S. Flynn.** 1996. Resolving environmental conflicts: the role of mediation and negotiation. *Environments* **21**(3): 12-16.

**Hardin, G.** 1968. Tragedy of the commons. *Science* **162**(3859): 1243-1248.

**Helms, J.A., editor.** 1998. *Dictionary of forestry*. Society of American Foresters, Bethesda, Maryland, USA.

**Holling, C.S.** 1995. What barriers? What bridges? Pages 3-34 in L.H. Gunderson, C.S. Holling, and S.S. Light editors. *Barriers and bridges to the renewal of ecosystems and institutions*. Columbia University Press, New York, New York, USA.

**Holling, C.S., and L.H. Gunderson.** 2002. Resilience and Adaptive Cycles. Pages 25-62 in L.H. Gunderson and C.S. Holling editors. *Panarchy: understanding transformation in human and natural systems*. Island Press, Washington D.C., USA.

**Holling, C.S., L.H. Gunderson, and G.D. Peterson.** 2002. Sustainability and panarchies. Pages 63-103 in L.H. Gunderson and C.S. Holling editors. *Panarchy: understanding transformation in human and natural systems*. Island Press, Washington D.C., USA.

**Innes, J.E., and D.E. Booher.** 1999. Consensus building and complex adaptive system: a framework for evaluating collaborative planning. *APA Journal*. **65**(4): 412-423.

**Jentoft, S., and T. Kristoffersen.** 1989. Fishermen's co-management: the case of the loften fishery. *Human Organization*. **48**(4): 355-365.

**Kepkay, M.** 2003. *Complexity and adaptive management in Washington State forest policy, 1987-2001*. Thesis. Simon Fraser University, Burnaby, British Columbia, Canada.

**Keen, M., V.A. Brown, and R. Dyball, editors.** 2005a. *Social learning in environmental management: towards a sustainable future*. Earthscan, London, The United Kingdom.

**Keen, M., V.A. Brown, and R. Dyball.** 2005b. Social learning: a new approach to environmental management. Pages 2-22 in M. Keen, V.A. Brown, and R. Dyball editors. *Social learning in environmental management: towards a sustainable future*. Earthscan, London, The United Kingdom.

**Kreutzweiser, D.P., and S.S. Capell.** 2001. Fine sediment deposition in streams after selective forest harvesting without riparian buffers. *Canadian Journal of Forest Resources*. **31**: 2134-2142.

**Leach, W.D., 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.

**Lee, K.N.** 1993. *Compass and gyroscope integrating science and politics for the Environment*. Island Press, Washington D.C., USA.

**Mangin, René-Marc.** 1989. *A multi-disciplinary system-based analysis of the Timber/Fish/Wildlife environmental policy negotiation*. Dissertation. Washington State University, Pullman, Washington, USA.

**Margerum, R.** 2002. Collaborative planning: building consensus and building a distinct model for practices. *Journal of Planning Education and Research*, **21**: 237-253.

**McConnell, S.** 2007. *Conclusions from the DFC FPA “package of reports” and limitations and context to this work: a synthesis document*.

**Newcombe, C.P., and D.D. MacDonald.** 1991. Effects of suspended sediments on aquatic ecosystems. *North American Journal of Fisheries Management*. **11**: 72-82.

**National Oceanographic and Atmospheric Association’s National Marine Fisheries Service, and the United States Fish and Wildlife Service.** 2006. *Final environmental impact statement for the proposed issuance of multiple species Incidental Take Permits or 4(d) rules for the Washington State Forest Practices Habitat Conservation Plan*. [online] URL: [http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp\\_hcp\\_feis.aspx](http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp_hcp_feis.aspx).

**Pinkerton, E.** 2003. Toward Specificity in Complexity: Understanding Co-Management from a Social Science Perspective. Pages 61-76 in D.C. Wilson, J.R. Nielson, and P. Degnebol editors. *The Fisheries Co-management Experience Accomplishments Challenges and Prospects*. Fish and Fisheries Series **26**. Kluwer Academic Publishers, Norwell, Massachusetts, USA.

**Pinkerton, E.** 1992. Translating legal rights into management practice: overcoming barriers to the exercise of co-management. *Human Organization* **51**(4): 330-341.

- Pinkerton, E.** 1989. Introduction: attaining better fisheries management through co-management-prospects, problems, and propositions. Pages 3-35 in E. Pinkerton, editor. *Cooperative management of local fisheries*.
- Pinkerton, E., and M. Kepkay.** 2010. Creating conservation through strategic frame-shifting: an integrated account demonstrating anthropology's contribution to the study of complex cooperation. *Human Ecology*, under revision.
- Pinkerton, E., and M. Weinstein.** 1995. *Fisheries that work: sustainability through community-based management*. The David Suzuki Foundation, Vancouver, British Columbia, Canada.
- Pleus, A., and H. Rowton.** 2005. *Cooperative Monitoring, Evaluation, and Research Committee protocol and standards manual*. State of Washington Forest Practices Board's Adaptive Management Program.
- Rotter, J.B.** 1982. *The development and applications of social learning theory: selected papers*. Praeger, New York, New York, USA.
- Rubin, H., and I. Rubin.** 1995. *Qualitative interviewing: the art of hearing data*. Sage Publications, Thousand Oaks, California, USA.
- Schlager, E., and E. Ostrom.** 1993. *Property-rights regimes and coastal fisheries: an empirical analysis*. Pages 13-41 in T.L. Anderson, R.T. Simmons editors. *The political economy of customs and culture: informal solutions to the commons problem*. Rowman & Littlefield Publishers, Inc, Lanham, Maryland, USA.
- Schuett-Hames, D., R. Conrand, and A. Roorbach.** 2005. *Validation of the western Washington riparian desired future condition (DFC) performance targets in the Washington State Forest Practice Rules with data from mature, unmanaged, conifer-dominated riparian stands*. **Cooperative Monitoring Evaluation and Research 05-507**.
- Schusler, T.M., D.J. Decker, and M.J. Pfeffer.** 2003. Social learning for collaborative natural resource management. *Society of Natural Resources*. **15**: 309-326.
- Selin, S., and D. Chavez.** 1995. Developing a collaborative model for environmental planning and management. *Environmental Management*. **19**(2): 189-195.
- Stankey, G.H., R.N. Clark, and B. T. Bormann.** 2005. Adaptive management of natural resources: theory, concepts, and management institutions. General Technical Report PNW-GTR-554, United States Department of Agriculture, Forest Service, Pacific Northwest Research Station.

- Washington Department of Natural Resources Forest Practices Division.** 2007. *Forest practices illustrated: a simplified guide to forest practice rules in Washington State.* [online] URL: [http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp\\_fpi.aspx](http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_fpi.aspx).
- Washington Department of Natural Resources.** 2005a. *Final forest practices habitat conservation plan.* [online] URL: [http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp\\_hcp.aspx](http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp_hcp.aspx).
- Washington Department of Natural Resources.** 2005b. Forest Practices Board Manual Section 22: Guidelines for the Adaptive Management Program.
- Washington Forest Practices Board.** 2005. *September 14, 2005 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20050914.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20050914.pdf).
- Washington Forest Practices Board.** 2008a. *February 22, 2008 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20080222.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20080222.pdf).
- Washington Forest Practices Board.** 2008b. *May 21, 2008 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20080521.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20080521.pdf).
- Washington Forest Practices Board.** 2008c. *August 13, 2008 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20080813.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20080813.pdf).
- Washington Forest Practices Board.** 2009a. *May 20, 2009 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20090520.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20090520.pdf).
- Washington Forest Practices Board.** 2009b. *August 12, 2009 Meeting Minutes.* [online] URL: [http://www.dnr.wa.gov/Publications/bc\\_fp\\_minutes\\_20090812.pdf](http://www.dnr.wa.gov/Publications/bc_fp_minutes_20090812.pdf).
- Webster, C.R., C.J. Huckins, and J.M. Shields.** 2008. Spatial distribution of riparian zone coarse woody debris in a managed northern temperate watershed. *The American Midland Naturalist.* **159**: 225-237.
- Wilson, J.A., and N.S. Elman.** 1990. Organizational benefits of mentoring. *Academy of Management Executive.* **4**(4): 88-94.
- Wing, M., and A. Skaugset.** 2002. Relationships of channel characteristics, land ownership, and land use patterns to large woody debris in western Oregon. *Canadian Journal of Fisheries and Aquatic Science.* **59**: 796-807.
- Woodhill, J., and N.G. Röling.** 1998. The second wing of the eagle: the human dimensions in learning our way to more sustainable futures. Pages 46-69 in N.G. Röling and M.A.E. Wagemakers editors. *Facilitating sustainable agriculture: participatory learning and adaptive management in times of environmental uncertainty.* Cambridge University Press, Cambridge, The United Kingdom.

**Wondolleck, J. M., and S.L. Yaffee.** 2000. *Making collaboration work: lessons from innovation in natural resource management*. Island Press, Washington D.C., USA.

**United Nations Conference on Environment and Development.** 1992. *Agenda 21*. [online] URL: <http://www.unep.org/Documents.Multilingual/Default.Print.asp?DocumentID=52&ArticleID=49&l=en>.

**United States.** 1973. Endangered Species Act of the United States (ESA). PL 93-205. [online] URL: [http://www.nmfs.noaa.gov/pr/pdfs/laws/esa\\_section3.pdf](http://www.nmfs.noaa.gov/pr/pdfs/laws/esa_section3.pdf).

**United States Court of Appeals for the Ninth Circuit.** No date. *Map of the Ninth Circuit*. [online] URL: [http://www.ca9.uscourts.gov/content/view.php?pk\\_id=0000000135](http://www.ca9.uscourts.gov/content/view.php?pk_id=0000000135).

**United States Fish and Wildlife Service.** 2009. *Habitat Conservation Plans Under the Endangered Species Act*. [online] URL: <http://www.fws.gov/endangered/factsheets/hcp.pdf>.