

AN ABSTRACT OF THE THESIS OF

Gordon D. Cumming, III for the degree of Master of Arts in Interdisciplinary Studies in Political Science, Sociology, and Philosophy presented on October 20, 2003.

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Abstract approved: 
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In 1995, Oregon introduced the Oregon Plan for Salmon and Watersheds (formerly the Oregon Coho Salmon Recovery Initiative; OCRSI), a statewide cooperative effort between government and citizens. The Oregon Plan promotes voluntary and locally determined salmonid and watershed restoration initiatives. Watershed councils - groups comprised of citizens, federal and state agencies, local government, industry, advocacy groups, and local business - use cooperation, collaboration, and consensus to develop solutions unique to their salmon and watershed issues.

Watershed councils bear much of the responsibility for improving Oregon salmon populations and watershed health. Because salmon and watershed rehabilitation takes place in a complex decision-making environment, watershed councils need to be effective in identifying, developing, implementing, and monitoring multiple rehabilitation projects, at times simultaneously. Watershed council success, in large part, depends on councils having the right human and nonhuman resources available to accomplish salmon and watershed rehabilitation goals.

A recent study of 15 coastal Oregon watershed councils revealed interesting dynamics associated with watershed council structure and process differentiated by the physical size of the watershed, watershed landowner dynamics, and watershed population. Observations, interviews, surveys and content analysis reveal that the physical size of a watershed, which is related to landownership, land use, and urban versus rural population distribution dynamics, also has direct

impacts on how the watershed council functions. Perhaps, very few watershed council members are aware of the potential limitations or advantages these factors present for individual watershed councils in relationship to salmon and watershed rehabilitation efforts. The authors also found significant differences between large and small watersheds on select factors including member affiliation, membership rules, decision-making authority, member relationships, and watershed council process. These factors show markedly different watershed council characteristics; this may result in equally different approaches to restoration and rehabilitation.

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UNDERSTANDING THE DECISION-MAKING CAPACITY OF
OREGON COASTAL WATERSHED COUNCILS

by
Gordon D. Cumming, III

A THESIS

submitted to

Oregon State University

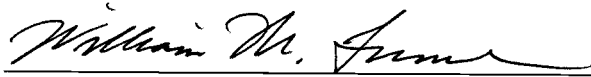
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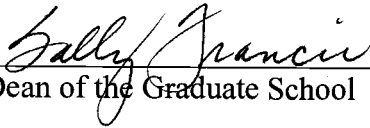
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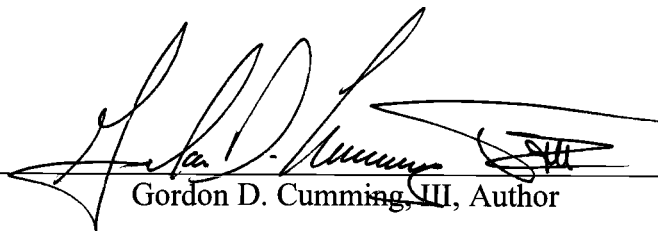


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UNDERSTANDING THE DECISION-MAKING CAPACITY OF OREGON COASTAL WATERSHED COUNCILS

CHAPTER 1: INTRODUCTION

Among Oregon's challenges in the twenty first century is managing its natural resources to ensure long-term sustainability while concomitantly planning for increased demand of those resources. These management complexities are occurring at a time when communities that have traditionally relied on resource extraction for economic stability and cultural identity are facing severe declines or legal limitations on their ability to utilize these resources.

A principal example of this interplay surrounds wild salmon, one of the Pacific Northwest's (PNW) 'icon' species and watershed health. Progressively over the last century, resource managers, industry professionals, politicians, municipalities, and PNW citizens have watched wild salmon populations steadily decline with no apparent end in sight, in contrast to the huge increases in hatchery salmon numbers (Sommarstrom 1997; Nichols 1997b; Lichatowich 1999) (Appendix B). These progressive declines led the National Marine Fishers Service (NMFS) to consider various evolutionary significant units (ESU) of salmon for federal protection under the Endangered Species Act (ESA). Between 1991 and 1997 many California and Oregon salmon ESU's were granted federal ESA protection (National Marine Fisheries Service 2003) (Appendix B).

In 1995, Oregon Governor John Kitzhaber began creating the Oregon Coastal Salmon Restoration Initiative (OCSRI), which in 1997 was implemented as the Oregon Plan for Salmon and Watersheds (Nichols 1997b). The Oregon Plan represented Governor Kitzhaber's vision of a citizen campaign for salmonid and watershed restoration. Forestalling future ESA action by the federal government along Oregon's coast is the tacit intent of the Oregon Plan. Amidst concern that continued listings would unravel his efforts Governor Kitzhaber, in 1999, issued an executive order

initiated and successfully transitioned the Oregon Plan from a governor's board to a state institution, the Oregon Watershed Enhancement Board (OWEB). OWEB is the state agency granted legislative responsibility for implementing the Oregon Plan.

The Oregon Plan came to represent a distinctive salmon and watershed recovery perspective, uniquely different from traditional federal and state efforts. Watershed councils - locally organized citizen groups that develop rehabilitation solutions unique to their salmon and watershed issues - are the instrument for implementing this exceptional effort. Accordingly, Oregon's citizens, private and professional, are central to the Oregon Plan's efforts to foster local action to rehabilitate salmonid and watersheds to sustainable levels in order to provide ESA listed species the best possible chances of recovery throughout the PNW (Legislative Counsel Committee 1997; National Oceanic and Atmospheric Administration 2000). To facilitate this goal, the Oregon Plan promotes volunteerism, collaboration, and cooperation among all interested stakeholders (e.g., state, and federal agencies, natural resource industry, concerned businesses, non-governmental organizations (NGO), and citizens (Nichols 1997a). By introducing voluntary, sustained multi-party, multi-disciplinary efforts, the Oregon Plan increases the already complex decision-making of salmonid and watershed rehabilitation efforts to new, unknown levels.

The increased complexity will have lasting impact for salmon and humans (Sommarstrom 1997: 23). Under the plan, volunteer groups composed of citizens, natural resources industry, advocacy groups, federal, state, and local governments and local business members have to agree upon salmon and watershed recovery strategies, rehabilitation standards, the types of projects to implement, intended goals, desired outcomes, monitoring strategies as well as fiscal accountability. Despite this complexity, the Oregon Plan's unconventional grass roots approach offers an opportunity to move beyond traditional federally mandated and managed recovery efforts. The Oregon Plan puts forth a genuine opportunity to build bridges between historically antagonistic stakeholder groups such as environmental groups, regulatory agencies and natural resource

industries, scientists and politicians to achieve a common goal; increased salmon populations, healthy watersheds and vibrant communities (Yaffee 1998).

While the Oregon Plan's innovative approach to salmon and watershed rehabilitation is unique in comparison to previous efforts, it relies on successful implementation of volunteer watershed council activities (Nichols 1997b). To date, we know very little about the capability of watershed councils to assess, implement, and monitor projects, or make watershed-scale changes that will lead to improvements in wild salmon and watershed conditions. This makes Oregon's reliance on the voluntary watershed councils, whose effectiveness is yet unclear, a bold provisional effort for salmonid and watershed recovery efforts and resource management in general.

The Oregon Watershed Enhancement Board (OWEB), the state agency responsible for implementing the Oregon Plan, supports watershed councils with a variety of tools such as funding, rehabilitation and recovery direction, infrastructure support, project guidance, interagency communication, information, and other tools if possible. The result is an immense reliance on the promise of watershed councils' ability to navigate the recovery and rehabilitation of salmon and watersheds.

1.1 RESEARCH PROBLEM

While previous studies have evaluated watershed council effectiveness, little is known about councils ability to make well informed decisions as voluntary groups that implement projects (Jones T., J. Gordon & BRSF 1998b; Huntington & Sommarstrom 1999a). Despite the lack of attention, it is very valuable to understand the capacity of watershed councils to make complex decisions that shape salmon and watershed recovery. This is important considering the biological and social impacts of continued salmon decline and degraded habitat.

The preponderance of watershed council research currently focuses on the ability of watershed councils to implement ecologically sound and appropriate projects as a measure of their effectiveness. In this sense, 'effective outcome' is defined as implementing technically correct,

socially equitable, culturally acceptable and economically feasible restoration action plans (Collins A. R., S. Hunter & S. Selin 1998; Jones et al 1998b; Born & Genskow 1999; Huntington & Sommarstrom 1999b; Wright 2000). For example in a recent Pacific Rivers Council-Trout Unlimited (PRC-TU) sponsored report, Huntington and Sommarstrom (1999) characterized several limiting factors of watershed council effectiveness. However, the PRC-TU report did not research the capacity of watershed councils to make complex ecological and social decisions as a function of watershed council effectiveness. A separate study sponsored by the Buffalo River Stewardship Foundation reviewed general watershed recovery by examining efforts in select watershed councils nationwide (Jones et al 1998b). The following section discusses the results of this research.

A review of extant small group decision-making literature and watershed council research revealed its concentration in five fields: (1) social psychology (e.g., game theory); (e.g., Orbell & Dawes 1993); (2) political science (e.g., collective action, and cooperation); (e.g., Yaffee 1998; Ostrom 1998; Cheng 1999) (3) classical decision-making theory (e.g., small group decision-making, problem solving effectiveness, procedural functionality); (e.g., Poole 1981; Gouran 1982: 1983, 1986, 1992, 1996; Hirokawa 1982a: 1982b, 1983, 1985a, 1985, 1986, 1992; Poole 1983a: 1983b; Poole & Roth 1989a: 1989b); (4) naturalistic decision-making (e.g., studying real world groups in action) (e.g., Orasanu & Salas 1993; Orasanu & Connolly 1993; Zsombok & Klein 1997); and (5) business management which examines the effect of organizational structure on work groups (Goodman 1986; Senge 1990; Swezey & Salas 1992). While these five areas represent a broad range of research related to decision-making, none specifically focuses on the aptitude of voluntary groups involving historically antagonistic participants to make meaningful rehabilitation decisions.

1.2 RESEARCH QUESTIONS

By combining available watershed council and small group research, as well as informant interviews, five categories for understanding watershed council decision-making capacity emerged: (1) council structure, (2) power concentrations, (3) exclusivity, (4) information, and (5)

volunteerism. These five categories broadly fall under the umbrella of *decision-making dynamics*. These dynamics refer to complex social and cultural relationships occurring in watershed councils at any given time. The reciprocal nature of these five categories also plays an important role in watershed council decision-making.

Over the course of this research, these initial five categories evolved into three research questions. The first category focused on understanding the organizational structure of watershed councils. As the research progressed, it became clear that watershed councils create and function within distinct organizational structures suited to their strengths and weakness. These structures do not necessarily reflect the perception that councils were opaque and fully utilizing true consensus decision-making. The second category focused on the actual watershed council decision-making operations in use. A key ingredient of the Oregon Plan is the utilization of consensus as their decision-making tool. However, initial field research revealed that differences in decision-making procedures occur in watershed councils. The last research question remained largely unchanged, and continued to reveal that constraints to voluntary participation and consensus-based decision-making do exist. The following three research questions were the focus of this research:

1. How do the organizational structures of watershed councils affect their decision-making capacity?
2. What decision-making operations do watershed councils use?
3. What are the constraints to watershed council decision-making?

As a whole, these three questions represent the central mechanisms that contribute to watershed council capacity: structure, operations, culture, and norms. In examining these three questions, this research contributes by filling current gaps in our knowledge of the capacity of Oregon watershed councils to make efficacious decisions and has potential implications for watershed councils elsewhere.

This research's major findings center on identifying two distinctly different organizational structures, 'informal,' and 'formal,' occurring in Oregon's coastal watershed councils. These

structures clearly distinguish that informal councils typically utilize an open non-structured format to operate the council's daily business. While formal councils utilize traditional hierarchical organizational structures to oversee formal council's daily business

CHAPTER 2: LITERATURE REVIEW

2.1 EFFECTIVE WATERSHED COUNCILS

As mentioned, little research evaluating the decision-making effectiveness of Oregon watershed councils is currently available. In one instance, watershed council members describe being annoyed at the lack of communication between the Oregon Department of Forestry (ODF) and the National Marine Fisheries Service (NMFS) regarding how to apply the provisions of the Oregon Forest Practices Act (OFPA) (Knight 1998). In a 1999 study, Huntington and Sommarstrom examined the ability of select watershed councils in Oregon, Washington, Idaho and Northern California to continually implement habitat restoration projects (Huntington & Sommarstrom 1999a).

Beyond this limited research, researchers studying watershed council effectiveness from the perspective of collective group action list three potential benefits:

1. Councils act as institutions that can enhance the coordination of public and private actions affecting watersheds;
2. [Councils are] local organizations that promote public education and awareness of watershed issues and;
3. [Councils provide] mechanisms for local citizen input into watershed management issues.
(Collins et al 1998: 9)

In order for councils to be successful, researchers at Oregon State University have suggested that shared and measurable goals are important to effective watershed councils (Oregon State University Extension Service 1998). A separate national survey identified broad diverse representation of interests on watershed councils as important (Jones T., J. Gordon & BRSF 1998a). A representative mix might include federal, state, and county agencies; perhaps a water board member; local technical experts; business representatives; landowners and landowner associations; concerned citizens and others (EPAb 1996; Jones T., J. Gordon & BRSF 1998c). Researchers

further refined watershed council participants into four general categories: (1) government agencies, (2) affected parties, (3) special interest groups and (4) community members (Watershed Planning Implementation Project Management Committee (PMC) 1997). In many situations, watershed council members (e.g., stakeholders) may be in more than one category and 'represent' multiple interests (Marx 1999).

Communication among stakeholders is also important to the internal group dynamics of watershed councils (Sommarstrom 1997). Research indicates that communication may perform functions such as delineation, articulation and clarification of watershed council goals (Watershed Planning Implementation Project Management Committee (PMC) 1997). This same research reports that communication may include the roles and responsibilities of the watershed actors (Watershed Planning Implementation Project Management Committee (PMC) 1997). According to a recent study, increased communication led to increased community involvement in the watershed council process (Marx 1999).

Strong facilitation has also been identified as key to bringing groups together into cohesive structures (Jones et al 1998c; EPA 1999: 1996a, 1996b). Effective facilitation involves maintaining a neutral position, being knowledgeable, and involving all relevant parties in collaborative efforts and maintaining task focus (Broome & Kever 1989: 113; Chilberg 1989: 58-59; EPA 1996; Jones et al 1998a). Strong facilitation becomes critical as watershed council tasks become more complex. To adequately process the increased decision complexity, a facilitator may use the previously mentioned tools to enhance group dynamics and also tools including cultivating the media, building support through local public events, recruiting natural constituents, and cultivating alliances with political leaders (Jones et al 1998a). For instance, a Tennessee Valley Authority (TVA) study of watershed councils found that the more inclusive (i.e., recruitment and alliance cultivation) a group is, the more effective it is (Collins et al 1998). The TVA study also found a positive correlation between the number of watershed council partners and watershed activities. The TVA study

concluded by stating that inclusiveness in terms of number of members may result in additional finances, and watershed council activities (Collins et al 1998).

Salmon, and watershed restoration, requires continuous decision-making in relation to changes in the watershed council and the watershed due to project implementation. Viewed this way, decisions made in a watershed council setting “are elements of a larger endeavor...with each decision providing a small step in the appropriate direction” (Beach & Lipshitz 1993: 24-25). This depicts watershed councils as complex social organizations that create unique organizational decision-making structures that fulfill their goals (Berger & Luckmann 1967). It follows that from initial project planning through project implementation, “decisions are not determined solely by the relative attractiveness of their potential outcomes, they are determined by how those potential outcomes fit into a larger scheme, (i.e., achieving goals) of things” (Beach & Lipshitz 1993: 25). Compliance with this larger scheme, and the groups’ desire to balance evaluating and constructing actions with organizational values are the chief criterion groups use to make decisions, rather than choosing between alternatives (Beach & Lipshitz 1993).

Overall, this non-experimental evidence suggest that the successful operation of local governance structures like watershed councils, depends on broad balanced representation, open communication, strong facilitation, and the ability to balance the groups’ bigger picture and immediate decision-making needs. The next section examines experimental research on small group dynamics that generally supported these conclusions.

When viewing watershed council structures as dynamic decision-making processes in a social environment, human assets become important factors in watershed council decision-making. In a review of the most widely cited literature involving watershed restoration programs worldwide, researchers identify a list of seven critical assets. These assets reflect individual and social characteristics rather than physical and economic characteristics. The assets, in order of importance include: (1) leadership; (2) vision; (3) trust; (4) social networks; (5) capital investments (non-human); (6) power; and (7) local and technical knowledge (Smith & Gilden 2000). In addition to

these seven assets, other researchers have found that having a cultural context is important for achieving watershed rehabilitation success (Preister & Kent 1997: 45). Cultural context refers to “the good will, stewardship values, and participation of citizens...[that creates] an integration between community and scientific concerns, and develop[s] incentives that favor stewardship behavior...in short [communities] must work through the culture to succeed” (Preister & Kent 1997: 29). Furthermore in a 1997 study, Preister and Kent include “social networking, word-of-mouth communication, available gathering places, local knowledge, mutual respect, sensitivity to emerging issues and the human geographic boundaries within which people bond to their land and their community” as important cultural factors associated with successful group communication (Preister & Kent 1997: 45). Without these factors or some combination of these factors, watershed council efforts may not come to fruition.

The complex interaction between organizational structure, internal and external environmental factors make compartmentalization of any one factor difficult when examining watershed council decision-making processes. While identifying these factors is important, ranking their importance is of little value to assessing overall watershed council effectiveness since it is clear that a collaborative and cooperative approach utilizing as many or of these factors is key to watershed council success. It was also discovered that in order for watershed councils to achieve a ‘best possible outcome if something is done’ capacity, it was found that they need to utilize information based on current conditions (Huntington & Sommarstrom 1999b).

By bringing these characteristics together, it may be possible to utilize creative organizational structures that enable a “clear vision of the desired goal” (e.g., implementing the Oregon Plan) that is “truly shared by the members of the organization” (Costanza 2000: 2). These factors suggest it may be necessary to move beyond traditional information perspectives pertaining to wild salmon and watershed recovery due to their linear and causal nature, as well as assumptions that the world is understandable in linear terms. To facilitate implementing alternative visions, watershed councils need to acknowledge complexity of wild salmon and watershed rehabilitation

and their inability to fully understand this complexity, and shift toward structuring watershed interactions as holistic endeavors that “make sure the future does not look like the past” (Beach & Lipshitz 1993: 26).

From this perspective, a watershed council’s organizational structure represents its decision-making structure and process. This structure and process take place under the rubric of the group’s actual and intended state of affairs. This leads to viewing watershed council structures as dynamic processes involving human and cultural factors such as open dialogue, clearly defined and shared goals, clarification of issues, agreed upon direction of actions, and modification of any of these factors over time via causal feedback loops. This seems to indicate that processes for watershed council decision-making are not prescriptive, normative, or linear. Watershed council decision-making is a highly fluid process evolving over time via negotiated interaction in the context of continually changing watershed conditions. Appropriate structural dynamics allow watershed councils to constantly examine and re-examine their decision-making process, actions, and decision results in relation to their overall goal, improving salmon and watershed health via specific projects.

2.2 SMALL GROUP EFFECTIVENESS

A large body of literature from several disciplines examines the effectiveness and dynamics of small groups. Much of this small group research derives from business and business management, particularly focusing on the processes of team work in a business environment and the effects of organizational structure on work groups (e.g., Goodman 1986; Senge 1990; Swezey & Salas 1992). Regardless of the field, research consistently identified a number of group and organizational-level factors that contribute to group effectiveness. These factors include: (1) job design, (2) interdependence, (3) organizational context, (4) processes, (5) norms, (6) composition (i.e., structure), (7) communication, (8) support, (9) participation, (10) goal-setting, (11) trust, and (12) performance (Hyatt & Ruddy 1997). One example outside the business environment discusses

the attributes of successful partnerships and echoes the findings of the non-experimental research described above. Moote (1995) described attributes such as broad membership, local knowledge, effective communication, sharing a common mission, making decisions collaboratively, and pooling resources. Other factors associated with small group success are high levels of commitment to the group, the presence of a leader or several leaders (preferably local leaders), good communication, effective ground rules for the organization, processes which determine how decisions are made, structured meetings, and well-kept records (Moote 1995). According to this same research, conflicts due to bureaucratic barriers, legal barriers, and a lack of adequate funds represent constraints to successful partnerships (Moote 1995).

Other information pertaining to group efforts comes from reports describing experiences with or lessons learned by resource managers and agency personnel endeavoring to include multiple stakeholders in the decision processes (Cortner, H. J., M. G. Wallace, S. Burke & M. A. Moote 1998: 159). Many of these efforts, including watershed councils, are "transboundary in nature, [i.e., inter-municipal, interstate or international] ... there is rarely a single competent institution with the legal jurisdiction over . . . problems of regional dimensions" (Cortner et al 1998: 162). This suggests that credibility and legitimacy for local groups, like watershed councils, arises through the inclusion of at least one competent government agency as well as representatives of local industry, business, and community members (EPAb 1996; Cortner et al 1998).

Researchers also found that group effectiveness is influenced by the amount of training a group receives, its support from umbrella organizations, and the level of communication and cooperation among members influences group effectiveness (Hyatt & Ruddy 1997). Other small group researchers findings echo the findings of Collins and Hunter's (1998) research identifying environmental factors such as financial and technical support from an umbrella organizations as crucial to group effectiveness (Hyatt & Ruddy 1997; Cohen & Bailey 1997).

The above literature also reveals that group structure and decision-making processes appear to influence group decision-making capacity; the two are interlinked facets of group capacity, and

represent the central mechanisms small groups use to determine the scope of activity a small group undertakes. This study concentrates on these two factors. Although they were not the focus of this research, socio-psychological characteristics such as trust, goal setting, commitment to the group, attitudes and norms, are also important for group decision-making capacity (Hyatt & Ruddy 1997).

Knowing the characteristics of productive group decision-making processes and group structure are important, but knowing what type of interaction occurs between members is also important. Understanding these interactions makes it possible to examine group characteristics, and interpersonal group characteristics. Two studies in particular examine group phenomena occurrences regardless of group structure. In one study, researchers developed a ten category multi-stage model of decision-making focusing on the influence of barriers to group problem solving. While this research did not perform a functional test of that research, it did utilize their decision-making coding categories. These ten categories in order of most important to least important in terms of barriers to group problem solving are: (1) methodologies, (2) cultural diversity, (3) planning shortfalls, (4) resource constraints, (5) group composition, (6) organizational culture, (7) communications barriers, (8) climate concerns, (9) attitude problems, and (10) process failures (Broome & Fulbright 1995). These categories represent a spectrum of interaction phenomena that may indicate what members of decision-making groups find more or less valuable in a group decision-making process. For example, the number one barrier, 'methodologies' (e.g., a lack of strong procedural guidelines) is perceived to create considerable negative influence in all the decision-making phenomena that follow it (Broome & Fulbright 1995). While process deficiencies, such as "failure to reach consensus," or a "tendency to focus on solutions before defining the problem," were perceived by the research participants to place a less significant barrier on the overall decision-making process in comparison to methodology inadequacies since process failures was placed lowest out of the ten (Broome & Fulbright 1995: 30). These ten categories only apply to internal group process problem solving and do not include external influences. In the case of watershed councils, both intra and extra council forces influence their decision-making. While these

categories focus on discovering negative influences, each factor perceptually has a positive corollary influence that may increase group decision-making capacity.

The second study outlined cooperative behaviors, such as awareness, communication, coordination, and collaboration, that “seek to overcome the inherent fragmentation in our society between multiple agencies, levels of government, public and private sectors, diverse interest groups, and different disciplines and value structures” (Yaffee 1998: 299). According to Yaffee, inherently fragmented decision-making structures make “it difficult for groups of people to bridge the perceptual and values-based differences that make them unique” (Yaffee 1998: 300). This research also states that “cooperation is necessary but problematic” in creating bridges between these groups (Yaffee 1998: 300). A taxonomy of cooperative behaviors depicts “cooperative” as representing “ranges of behaviors...and forces that promote” cooperation (Yaffee 1998: 300-304). The two central components of this cooperative model are the *collective objective* or center, and the *individual groups that contribute to the cooperative effort*, or periphery (Yaffee 1998: 300; Costanza 2000: 2). Both are subject to centrifugal forces that lead group members away from cooperative behavior, and centripetal forces that encourage cooperative behavior (Yaffee 1998). Utilizing cooperative behaviors associated with individuals and groups may make it possible to develop “bridging arrangements such as “management partnerships, collaborative problem solving, joint research and fact-finding, public-private partnerships, interagency memorandums of understanding, volunteer arrangements, and citizen councils” that bridge the fragmentation between group differences (Yaffee 1998: 301).

Combining the factors identified as important in these two studies provides a view of internal and external factors that affect a group’s cooperative decision-making efforts. This may be important since participants in natural resource policy and decision-making at the local level understand that divergent worldviews or conflicting values may discourage cooperative behaviors. This is certainly the case among Oregon’s coastal watershed councils. However, many, if not all of Oregon’s coastal watershed council participants realize the uniqueness of local hegemony of

recovery efforts verses compliance with federally mandated efforts. If local control is lost, salmon recovery may revert to traditional top down recovery programs. According to one researcher, a preferred model may be a combination of government and locally sponsored efforts (Born & Genskow 1999). In this scenario, local individuals undertake cooperative action gaining the benefits of local control and the legitimacy of government endorsement mentioned previously by Jones and Gordon (1999). Overall, the benefits of collective action seems to outweigh the costs of the individual (Collins et al 1998: 8).

Groups of people come together for a variety of reasons; generally, their goals are not limited to decision-making; the following are some of the reasons researchers have identified:

1. Reinforcing social practices, such as sharing information with group members.
2. Socializing - relating to group members and external groups, and educating new members.
3. Defining roles and status of group members - administrative work, and physical activities the group must perform.
4. Meeting rituals, such as reading minutes.
(Poole & Hirokawa 1996: 10)

Generally, our understanding of small group effectiveness derives from the business milieu and natural resource industry professionals working in multi-stakeholder environments. It is clear that an assortment of group level organizational characteristics is required for successful small group functionality. For watershed councils, the transboundary nature of their work makes organizational characteristics even more critical to small group success. To improve the ability small group effectiveness, inclusiveness of a broad spectrum of interested parties is also essential. Surrounding this rubric, group structure and decision-making processes play central roles in understanding how these characteristics affect group member interaction in terms of barriers to decision-making capacity. With overcoming barriers so important, cooperation within groups and between groups is essential to small group effectiveness.

2.3 DECISION MAKING PROCESSES

Classical and naturalistic decision-making represent two theories for evaluating group decision-making. The following is a brief review of classical decision-making research, its findings, and its shortcomings for assessing decision-making capacity in coastal watershed councils. The section also introduces naturalistic decision-making, its findings, and its relevance to studying watershed council decision-making. The review investigates the foundations of decision-making research and how both approaches help understand the complex environment of watershed council decision-making.

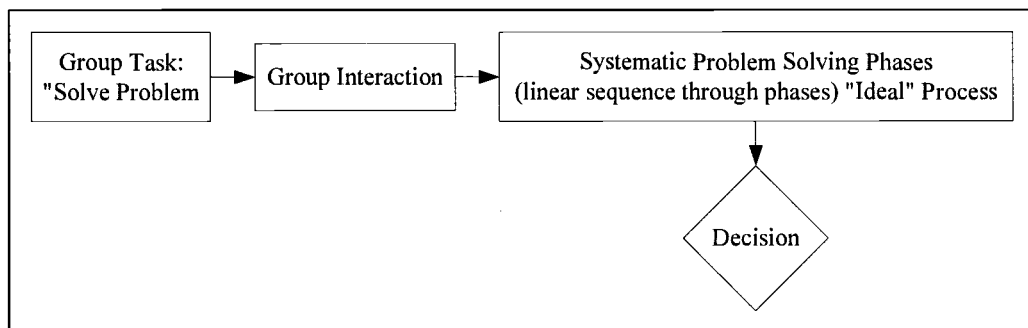
2.3.1. Classical Decision-Making Research

Many early classical decision-making models were developed in the post World War II years, and variations of these early models are still being refined today (Frey 1996). Early researchers, and classical theorists, initially focused their evaluations on groups in hierarchical command-and-control settings. In these environments, an individual manager or exclusive managerial staff was responsible for decision-making after assembling what was thought to be all available and relevant information (Orasanu & Connolly 1993). These classical theorists took their observations and information provided to them by managers in these settings as accurate descriptions of successful decision-making. They then codified that information into models describing how quality decisions occur. Today, these models are generally “characterized as axiomatic [i.e., self evident, or referring to established principles], unitary [i.e., specific known phases that must be achieved], normative, and prescriptive in nature” (Poole 1981; Poole 1983a; Beach & Lipshitz 1993: 21; Frey 1994; Mayer 1998: 553). The models proved useful in early research for understanding the processes of decision-making in hierarchical organizations, which researchers assumed were relatively simple decision-making environments (Broome & Chen 1992: 218).

Over time, two classical schools emerged. Central to both was the understanding that group interaction affected group process and decision-making quality (Mintzberg, H., D. Raisinighani & A. Theoret 1976; Scheidel & Crowell 1979; Poole 1981; Segal 1982; Hirokawa 1983; Poole 1983a). Hirokawa and Pace citing Hackman and Morris's 1975 study make the point that: "there is substantial agreement among researchers and observers of task oriented groups that something important happens in the group interaction that can affect performance outcomes...[but] there is little agreement about just what that 'something' is" (Hirokawa & Pace 1983: 365). For example, researchers examined group process interaction in terms of how "effective and ineffective groups evaluated alternative courses of action" to arrive at a final decision, but what was not clear was how group interaction had directed the group to their final decision (Hirokawa & Pace 1983: 370).

The first school, termed functional theory, conceived the decision-making process as systematic. As such, it posited an *a priori* set of decision-making phases (Figure 2-1).

FIGURE 2-1: Classical School Single Path Systematic Decision-Making Model



These models posit that groups will arrive at high quality decisions when they approach decision-making in a highly structured or systematic fashion (Poole 1981; Hirokawa 1982a; Hirokawa 1982b; Hirokawa & Pace 1983; Poole & Roth 1989b; Hirokawa & Rost 1992; Schultz, B., S. Ketrow & D. Urban 1995). One of the earliest classical unitary models still in use today is

John Dewey's "Reflexive Thinking Format," which consisted of the following six steps (Hirokawa 1985: 209):

1. Begin by identifying the limits and specific nature of the problem.
2. Next, identify the cause(s) and consequence(s) of the problem.
3. Next, identify the qualities or characteristics of an acceptable solution to the problem.
4. Next, identify all possible alternative solutions to the problem.
5. Next, evaluate each alternative against the qualities of an acceptable solution.
6. Finally, select the best alternative.

Dewey's early model established that group process and decision-making in general was an ordered undertaking. Dewey's model seems to indicate that accomplishing each step in the model is necessary in order to move to the next step in the decision-making process. Dewey's phases allude to a knowable decision-making process by the decision-maker(s), in that all necessary information will be available to make the highest quality decision. Over time, other decision-making researchers have utilized Dewey's model and theory to continue building decision-making research parameters and models.

Beginning in the 1950's, multiple decision-making and group process researchers introduced a number of these staged models. These 'unitary sequence' models consisted of a set of required stages in the decision-making process (Bales & Strodtbeck 1951). In the early 1980's, one researcher, synthesized the early works of Tuckman (1965), Fisher (1970), Mabry (1975), and Mintzberg (1976) into the following decision-making phases shown in (Poole 1981).

1. Orientation: Where the group attempts to identify and share information about a problem or sub-problem.
2. Conflict: Group members disagree over what the correct approach to a problem or sub-problem is.
3. Coalescence: Group members attempt too "peacefully negotiate agreement on one of several alternatives."
4. Development: The group decides on a single solution and elaborates details regarding the solution and how to implement the solution.
5. Integration: The group reinforces its internal cohesion. The group displaced socioemotional tension through joking and elaboration. These actions seem to reestablish member solidarity.

Researchers continue to refine these and other early models. Unfortunately, no one model outlines all the necessary phases required for quality decision-making. The problem, according to one researcher, is that the phases will likely “vary from situation to situation and are affected by a number of variables...(including) the type of question a group is discussing, the risk or consequences associated with a decision, knowledge and the possibilities of acquiring relevant information, and the importance of the issue and so on” (Hirokawa 1985: 205). Hirokawa attempted to deal with these problems by creating a set of general phases common to group decision-making including:

1. The group must understand thoroughly and accurately the problem presented to it.
2. The group must marshal a range of realistic and acceptable alternatives.
3. The group must assess thoroughly and accurately the positive consequences associated with each alternative choice.
4. The group must assess thoroughly and accurately the negative consequences associated with each alternative choice.

While the models show similarities in the types of necessary steps, Hirokawa’s final model does not vary significantly from Dewey’s (1910) or Poole’s (1981) models (Hirokawa 1985: 205).

These classical decision-making models attempt to identify necessary steps groups must go through to make high quality decisions. Slight differences between models exist, primarily resulting from combining, eliminating, and augmenting new steps into existing models without much progress in identifying explicit requirements than those initially identified by Dewey in 1910.

FIGURE 2-2: Classical Decision-Making Model Evaluation

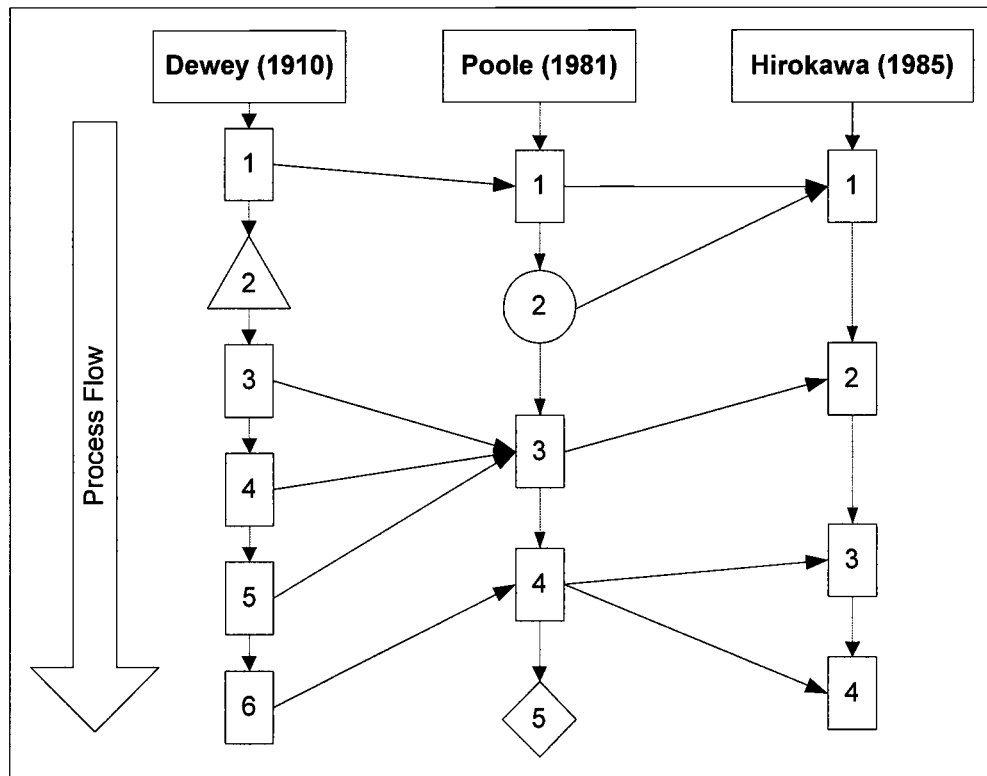
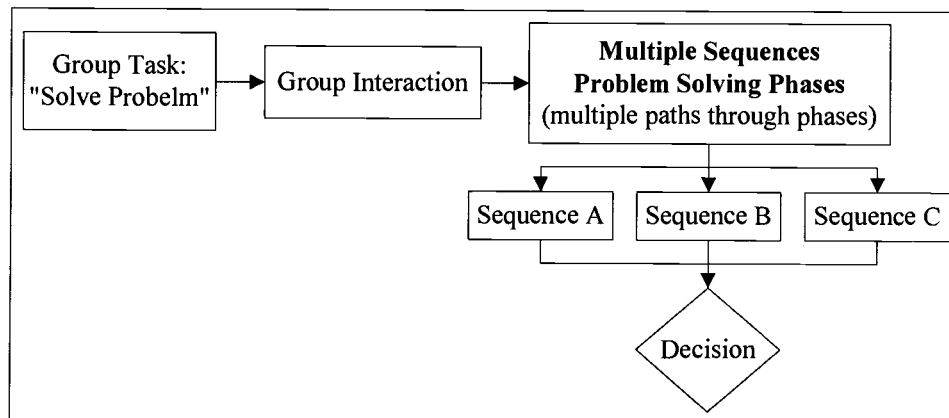


Figure 2-2 depicts the evolution from Dewey's (1910) model culminating in Hirokawa's (1985) model. As figure 2-2 illustrates, Poole's and Hirokawa's models consolidate or eliminate steps in Dewey's 1910 model. For example, Dewey's step two, "identifying the cause(s) and consequence(s) of the problem" does not appear in either Poole's or Hirokawa's subsequent models (Hirokawa 1985: 309-310). Poole seems to consolidate Dewey's third, fourth, and fifth steps into his third step "coalescence" where the group "peacefully negotiates agreement on one of several options" (Poole 1981: 4). Hirokawa continues the model refinement and combines Poole's first and second step, "orientation", and "conflict" respectively, into his first step, "thoroughly and accurately understanding the problem" (Poole 1981: 4; Hirokawa 1985: 205). However, Hirokawa expands Poole's fourth step "development" into step three, "assessing the accuracy the positive consequences with each alternative," and step four, "assessing the accuracy the negative

consequences with each alternative” (Poole 1981: 4; Hirokawa 1985: 205). As for Poole’s final step “integration,” Hirokawa (1985) does not address it in his model (Poole 1981: 4). However, as is stated by a number of decision-making researchers, conclusively identifying a single set of phases adequately capturing and describing decision-making processes is very difficult.

The second school of classical decision-making still accepts that there are critical phases in decision-making. However, these researchers suggest that more than one path through the phases exist (Figure 2-3). These paths consist of organized actions combined with periods of disorganization to arrive at high quality decisions (Poole 1981; Poole 1983a; Poole 1983b; Poole & Roth 1989a; Poole & Roth 1989b).

FIGURE 2-3: Classical School Systematic Multiple Sequence Model



An early difficulty for classical decision theorists was understanding “which of a number of multiple sequence models is appropriate...ranging from complex idiographic models, which require novel descriptions for each case, to simple, yet flexible formulations, which employ the same basic set of phases in varying sequences” for high quality decision-making to occur (Poole 1981: 19-20). This difficulty is hampered by not understanding “how the group integrates or is influenced by conditioning variables – such as environmental task, composition, and interaction factors – and explanation of how the group is affected by these factors in generating a decision path”

(Poole 1981: 20). Accordingly, while groups may desire to use phases or systematic sequences to structure decision-making, other factors such as conflict, information inadequacies, and task difficulty interfere with this desire. From these observations researchers concluded that “pattern relationships” between interaction types explained decision development and problem solving.

To adequately explain these differences, researchers developed a number of multiple sequence patterns to explain how groups structure their decision-making development to reach high quality decisions (e.g., Poole 1983a). To understand “pattern relationships” Poole created a “Multiple Sequence Descriptive System” (MSDS) to code group process and interaction data. Poole coded his MSDS data into one of four phases that reflect classical decision theory: (1) orientation, (2) conflict, (3) development, and (4) integration (Poole 1983a: 223).

The early classical school describes the required sequences of steps for good decision-making while the latter school of researchers posits there are multiple paths to go through those steps. Regardless of school, by describing the phases *a priori* that groups must pass through to reach a high quality decision, classical research models are prescriptive in nature (Poole 1981; Poole 1983a; Beach & Lipshitz 1993: 21; Pavitt 1994; Frey 1994: 533). One difficulty with classical decision theory is its continued reliance on refining models using laboratory experiments and retrospective analysis. In these refinements, college students unfamiliar with decision-making theory, inexperienced with group decision-making process or decision-making techniques are common study subjects for laboratory research and model refinement.

In laboratory experiments, classical researchers focused on two specific activities: the decision event and the speech act. Decision events occur “when the decision-maker (generally a single individual) surveys a known and fixed set of alternatives, weighs the likely consequences of choosing each, and makes a choice...this is all done in terms of a set of goals, purposes, or values that are stable over time and that the decision-maker knows quite clearly” (Orasanu & Connolly 1993: 5). Scenarios and models using this description assume the decision-maker has ample time, resources, and the ability to weigh multiple alternatives and make a fully informed decision. The

second component, speech acts, is the individual components of a decision event. Speech acts are classified as contributing to or detracting from the group's current task (Gouran & Hirokawa 1983). In order to contribute to decision-making, classical theory suggests that all speech acts must propel speech events (e.g., a watershed council discussing a project) towards a successful conclusion (e.g., a decision with a favorable outcome) to be considered as representative of the group's ability to make quality decisions. To determine group productivity, researchers sum a group's classified speech acts, assuming that a group's problem solving and decision-making are additive functions; a positive sum equates to favorable decision ability, the opposite results in a negative ability.

However, group problem solving and decision-making capacities involve more complicated social process evolving over time that encompass supplementary components beyond classified productive speech acts. This classical approach, analyzing and classifying speech acts and speech events, reduces group decision-making capacity and effectiveness to the lowest common denominator. This framework has been criticized for its inability to address group decision-making in less hierarchical organizations and understand speech acts as more than positive or negative aspects of a group's decision-making ability (Drucker 1988).

Marshal Scott Poole, a prominent decision-making researcher focusing on multiple sequence models, used laboratory and retrospective research to refine and develop much of today's knowledge on this subject. His research in this area generally questioned the comprehensiveness of decision sequences in describing the complexity of decision-making. As with other classical research, Poole's initial experiments utilized student groups inexperienced with decision-making processes as research subjects. Poole's subsequent research in this area was retrospective, using earlier data to refine multiple sequence model conclusions that decision-making may consist of "three tracks of group activity (task process, relational process, and topical focus), interrupted at irregular intervals by breakpoints, and serving to accumulate a structure of components for task accomplishment" (Poole 1983b: 340) Accordingly, "the greater the task difficulty, the more a group

will depart from the traditional (unitary) sequence, the more recycling and breakpoints there will be, and the more disorganized the group will be” in reaching a final decision (Poole & Roth 1989a).

As with the sequential models described earlier, Pooles’s experiments fail to take into account how decision-making occurs in the real world, and they marginalize hard-earned experiential knowledge by people with group process and decision-making skills relevant to a particular decision-making situation. This accumulated experiential knowledge is important in terms of watershed council decision-making, which can involve large-scale complex problems that may require multiple decisions over time based on emerging situations to make quality decisions. Accordingly, large-scale problems “require different approaches to group work than small scale problems. Whereas dealing with small-scale problems generally involve effectively using available knowledge from a single discipline, large-scale problems are ‘horizontal’ in nature, cutting across several content areas and requiring knowledge from experts in different backgrounds” (Broome & Chen 1992: 220). Coordinating this vast knowledge over time will likely not conform to traditional decision-making models.

The models developed by classicists in the 1950’s became the foundations of decision-making research for the next thirty years. These early models were useful in identifying the potential components and processes of decision-making in organizational structures that were assumed to have relatively simple decision-making environments (Broome & Chen 1992: 218). A major shortcoming was that classical researchers studied decision-making out of context, by focusing on how decision-making occurs in artificial circumstances, instead of how decision-makers actually make decisions. This led to models that do not adequately capture the complexity and nature of actual decision-making. This focus did not capture how decision makers use preexisting knowledge and experience in real time decision-making situations. Classicists also studied context sensitive decision-making situations out of context by utilizing participants that are untrained in group processes and decision-making techniques (Frey 1994; Orasanu & Connolly 1993). Over time, this led classical researchers to do two things: (1) too draw conclusions about how decision-

making should be in the real world, while relying on laboratory experiments, and (2) continue to refine prescriptive models out of context. These methodological factors may lead classical researchers to inappropriately determine the most productive and effective manner to reach high quality decisions. Unfortunately, these models have not advanced significantly since their early days making them difficult to use in today's complex decision-making arenas, as will be clear in what follows.

2.3.2. Naturalistic Decision Making

Some decision-making and group process researchers began to realize that classical decision-making theory had little in common with real-world decision-making. As a result, these researchers created a new analysis method termed naturalistic decision-making (NDM). NDM is a relatively new analytic method, coming into its own in 1989 when a group of researchers gathered to discuss alternative methods of evaluating decision-making (Zsombok & Klein 1997: 4). NDM focuses on "how experienced people, working as individuals or groups in dynamic, uncertain, and often fast-paced environments, identify and assess their situation, make decisions and take actions whose consequences are meaningful to them and to the larger organization in which they operate" (Zsombok & Klein 1997: 5, quoting Orasanu & Connolly, 1993). Examining decision-making in this context represented a significant departure from established classical decision-making theory.

Naturalistic decision-making attempts to look at decision-making in real-world situations, its basic theories are extrapolations of real world events, and it recognizes that real-world decisions rarely follow orderly processes. Naturalistic decision-making describes decisions as "intertwined with task accomplishment, context-specific, fluid, flexible and in some respects, procedure-free" (i.e., lacking prescribed rules as suggested in more classical views of decision-making) (Zsombok & Klein 1997: 100). Decision-making analysis from this perspective is descriptive and not prescriptive as is the case with classical decision analysis. This alternative makes it possible for researchers to assess whether decision-making is "consistent and effective when judged against the

pragmatic performance criteria that are actually governing work, and that very often are different from the criteria considered in research,” continuing that decision-making is not the “resolution of separate conflicts, but a continuous control of the state of affairs in a dynamic environment” (Rasmussen 1995: 158).

Through research examining people making decisions meaningful to them, and who have relevant knowledge or expertise about the decisions, naturalistic researchers developed eleven “contextual factors” to help clarify the naturalistic decision-making landscape (Orasanu & Salas 1993: 328; Orasanu & Connolly 1993: 7-10; Lipshitz 1993; Rasmussen 1995) including:

1. Ill-structured problems;
2. Uncertain dynamic environments;
3. Shifting, ill-defined, or competing goals;
4. Embedded action/feedback loops;
5. Times stress;
6. High stakes;
7. Multiple players;
8. Organizational goals and norms;
9. Connected to action;
10. Activity through time, dependent on continuous updating of tacit knowledge;
11. Continuous control of the task.

The recognition of critical contextual factors does not stand alone, however, as the foundation of naturalistic decision-making. Naturalistic decision-making theory is also distinct from classical theory due to its study of experienced decision-makers throughout the decision process. Naturalistic decision-making's goal is to understand how people make decisions in complex, context-rich environments rather than looking at single decision events or speech acts of inexperienced decision makers in artificial settings.

This research has led to the emergence and refinement of NDM models (Lipshitz 1993). In NDM, the team or group is the most important aspect of the research. Team or group decision-making is the process used by interdependent individuals to make decisions to achieve common goals. In a group decision-making environment, more than one information source likely exists, and combining multiple task perspectives is necessary to reach a decision. This all occurs in an

environment where group members are “ostensibly working toward the same goal, [but where] participants may have differing agendas, motives, perceptions, and opinions that must be melded into the shared product” (Orasanu & Salas 1993: 328). Orasanu & Salas (1993) go on to identify characteristics of team decision-making in a naturalistic environment:

Decision-making is part of a larger task performed by the group in a meaningful environment. The group exists to perform a common task. (This requires critical team features such as multiple, interdependent participants for successful accomplishment).

Participants possess knowledge and skills relevant to the task and the decision.

Task conditions may change dynamically, decision time may be limited, workload may be high, and information ambiguous.

Shared mental models represent one way naturalistic decision-making researchers analyze decisions (Orasanu & Salas 1993). Shared mental models are a tool team members use to organize shared knowledge either in a large group, or a small group of knowledgeable people (Orasanu & Salas 1993). For example, key components for group decision-making might include “shared situation models” that are capable of being applied in new or different situations, “task relevant talk” that contributes to increased decision-making performance, and labels that identify information and knowledge which group members may have (Orasanu & Salas 1993: 331-332). Orasanu and Salas (1993) referencing Orasanu (1990) suggest that by utilizing the resources of the whole group, creation of a shared mental model develops the group’s context in which to make more informed decisions. Common themes found in these naturalistic models include:

1. “Diversity of forms” used to analyze real world decisions;
2. Reliance on situation assessment as a key aspect of decision-making;
3. Utilizing mental imagery of expert decision-makers to more fully understand the decision-making landscape;
4. Each decision landscape being unique and context dependent;
5. Acknowledging decision-making as a dynamic process;
6. Using a description-based prescription of developing informed decision-making tool.

(Lipshitz 1993: 131-134)

Because naturalistic decision-making is useful in understanding organizational level decision-making as well as and single decision-maker situations, it is an appropriate approach to examine watershed councils. Council members at the general council, board, or committee level must share an understanding of the council's goals. When members share an understanding of the decision-making process (e.g., consensus, watershed council operations) and council groups communicate within that common framework, the council's ability to focus on the task and not the framework may increase.

CHAPTER 3: RESEARCH SETTING

3.1 GEOGRAPHIC SETTING

This research took place in two places: (1) along the Oregon coast between Clatsop County in the North, and Coos County in the south, a distance of almost 250 miles, and (2) in the Willamette Valley in the Mary's River watershed in the Southwest portion of the Valley, and the Mohawk watershed in the South central portion of the Valley. Each research area provided opportunities to observe unique aspects of Oregon's watershed councils.

Below is a brief description of the coastal and non-coastal research areas. Coastal was defined according to the Oregon Coastal Management Program (Oregon Department of Land Conservation and Development 2001) (Map 3-1).

MAP 3-1: Oregon Coastal Zone



This zone extends westward from the crest of the Oregon Coast Mountain range to the Pacific Ocean. This research considered all watershed councils in this zone ‘coastal,’ whether physically on the coast or further inland.

Geographically, the Oregon coast is a rich temperate rain forest and marine bioregion that developed over the millennia following the last ice age (Ecotrust, Pacific GIS & Conservation International 1995). Oregon’s coastal rainforest is home to “some of the most productive timberlands and coastal fisheries on earth. They also shelter resource-dependent communities faced with rising unemployment and uncertainty” (Ecotrust et al 1995: 5). A number of characteristics identify coastal temperate rainforests including a proximity to oceans with a coastal plain varying in width from less than a mile to tens of miles inland; the presence of coastal mountains such as the Oregon Coast mountain range, which vary in elevation from 2,000 to 5,500 feet; deep coastal valleys; heavy rainfall varying annually between 65 and 90 inches, with occasional severe flooding; and high winds that can exceed hurricane force (Weigand & Alaback 90; Ecotrust et al 1995; Oregon Climate Service 2002a).

Accessing the coast from the populated Willamette Valley is limited to major highways crossing the Coast Range (e.g., Highways 30, 26, 6, 18, 20, 34, 126, 38, and 42). Secondary roads and innumerable forest roads also provide routes through the Coast Range Mountains to the coast. Once on the coast, most travel requires traveling Highway 101 – a two lane heavily trafficked highway along the coast, and countless secondary roads. In many ways, these “limited access” corridors, and the Oregon Coast Range isolate the region’s watersheds from the rest of the state.

These geographical features isolate coastal watershed councils, and in some cases watershed council participants from each other. For example, MidCoast sub-basin groups such as the Siletz and Alsea are essentially accessible only by one route that crosses the coast range, or a precarious combination of secondary and dirt roads. This is also the case for other councils not

directly on the coast including the Nestucca-Nescowin and the Siuslaw. In many of these watersheds, numerous council members live a long distance from small population centers. Councils located on the coast itself are generally located in a major population center and accessible by Highway 101 and city surface streets. Whether this 'isolation' affects coastal watershed council decision-making capacity is unclear.

Two watershed councils included in this research are located in the Willamette Valley (Map 3-2). The climate conditions in the Willamette Valley mimic Mediterranean climates although Oregon has a wetter and cooler winter (Oregon Climate Service 2002b). This moderate climate makes the Willamette Valley a livable location and thus is home to the majority of Oregonians and its largest population centers (e.g., Portland, Salem, and Eugene-Springfield). Beyond these population centers are numerous small communities surrounded by a diverse agriculture industry. Being located in a relatively heavily populated region of the state, the Mary's River and Mohawk watershed councils are accessible by U.S. Interstate 5, U.S. Highway 34 and other local roads.

MAP 3-2: Non-Coastal Watershed Councils

3.2 POPULATION AND LAND USE

Various watershed council documents, maps created through the Coastal Landscape Analysis Modeling Study (CLAMS), the Oregon Coastal Management Program, and Portland State University's Center for Population Research all provided data used in this research. Oregon's coastal zone has several population centers, with many smaller communities dispersed across the landscape. The majority of the coastal population resides in these population centers (e.g., Astoria, Tillamook, Newport, Toledo, Florence, Coos Bay/North Bend, and Coquille), with the remainder of the population residing in surrounding communities (Table 3-1).

TABLE 3-1: Population; Select Oregon Coastal Communities

City	Population
Coos Bay	15,470
Newport	9,960
Astoria	9,814
North Bend	9,370
Florence	7,460
Lincoln City	7,420
Seaside	5,950
Reedsport	4,370
Tillamook	4,340
Coquille	4,190
Toledo	3,540
Bandon	2,880
Myrtle Point	2,460
Waldport	2,060
Cannon Beach	1,600
Lakeside	1,370
Depoe Bay	1,190
Bay City	1,160
Garibaldi	900
Powers	730
Yachats	630
Manzinita	580
Wheeler	400
Nehalem	200

(Oregon Department of Land Conservation and Development 2001; Population Research Center & Qian 2001)

As table 3-1 shows, coastal urban center populations range widely, from 200 to 15,470 residents in the urban centers. The coastal zone contains four complete counties, Clatsop, Tillamook, Lincoln, and Coos. The population for these four counties total just under 200,000 residents (Population Research Center & Qian 2001). The zone also contains small portions of Lane and Douglas counties. The major coastal population centers for these latter two counties are Florence and Reedsport (Table 3-1). Non-coastal communities include Philomath, Corvallis, and Marcola. Limited population information delineated by watershed excludes rural residents in these non-coastal population estimates.

Map 3-3 illustrates land ownership for all watersheds included in this research along the Oregon coast, and for one inland watershed council, the Mary's River. Three landownership classes

dominate land classifications along the coast: private industrial, federal and state. Other landownership classes include private non-industrial and a small amount of agriculture (Coastal Landscape Analysis Modeling Study (CLAMS) 2002). According to their own assessment, landownership in the Mohawk watershed (not shown on Map 3-3), is largely dominated by private industrial forestry and federal land; agriculture is a noteworthy landowner in the lower watershed; minor land owners include rural development and ODF (Huntington 2000).

MAP 3-3: Coastal Land Ownership



(Coastal Landscape Analysis Modeling Study (CLAMS) 2002)

CHAPTER 4: RESEARCH DESIGN

This chapter encompasses two sections: (1) research objectives and goals, and (2) research approach, and methodology. The objective and goals detail the intended outcomes and the milestones necessary to achieve the research goals. The research approach and methodology delineate the foundational assumptions underlying research design, and the multiple methods used to collect and analyze the data.

4.1 OBJECTIVE AND GOALS

The primary objective of this research is to understand and assess the decision-making capacity of Oregon's Coastal watershed councils. Oregon's reliance on watershed councils to restore watersheds and salmon suggests the need to investigate watershed council activities in achieving desired watershed conditions. Measuring the 'effectiveness' of watershed councils on the simple criteria of 'more salmon in the stream' or 'more projects implemented' begs several questions and does little to help us understand how watershed councils operate. In fact, current research tells very little about what characterizes an effective watershed council. The challenge is to use what we know about small group decision-making to guide the research in identifying watershed council specific indicators of decision-making capacity. Understanding the internal dynamics of watershed councils is important in terms of their ability to translate decision-making into actions that improve watershed conditions. In the future these watershed council-specific indicators may help watershed councils assess their ability to make effective decisions, and reach their goals. To do this we have identified three necessary milestones:

1. Identify key group process and decision-making variables from extant research, and use these to evaluate observed watershed council decision-making;
2. Develop a protocol for measuring key decision-making variables in watershed councils and similar groups;
3. Deliver information about the protocol and results to interested parties.

4.2 RESEARCH APPROACH

4.2.1. Case Studies

A number of reasons led to choosing the case study approach. Case studies provide the researcher “a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon within its real life context using multiple sources of evidence” (Robson 1993: 51). Accordingly, case studies are an appropriate research method in a number of situations such as:

1. Policy, political science, and public administration research;
 2. Community psychology and sociology;
 3. Organizational and management studies;
 4. City and regional planning research;
 5. The conduct of a large proportion of dissertations and theses in social sciences.
- (Yin 1994: xiii, 1)

This research meets many of these criteria. It is evaluating state and federal policies that rely on watershed councils as a tool in developing and maintaining salmon and watershed health. It involves community sociology, by attempting to understand the effectiveness of the decision-making capacity of voluntary groups. Meeting these criteria is important as we strive to understand watershed councils as organizations and their decision-making capacity.

There are a number of considerations to take into account in case studies. Generally, case studies are appropriate for investigating ‘how’ research questions, such as ‘how effective are watershed councils?’ Case studies are also useful when the researcher has little control over behavioral events, and the research focuses on contemporary events (Robson 1993; Yin 1994: 4). Not being locked to any particular data collection tool, case studies can exploit a variety of quantitative and qualitative evidence such as direct observations, document analysis, artifacts, and interviews to explore the links in real-life situations (Robson 1993; Yin 1994: 14). These research tools allow the researcher to focus on understanding complex contemporary social phenomena which is important when the boundary between phenomena and real-life context are not clearly

evident (Yin 1994: 13). Case studies also allow the researcher to “retain the holistic and meaningful characteristics of real-life events – such as organizational and managerial processes” when conducting research (Yin 1994: 3). These characteristics facilitate the researcher’s ability to develop a richly textured mosaic describing real-world events by concentrating on the specific case being examined (Robson 1993: 149). The overall task for qualitative researchers using case studies is to coordinate their findings so they converge into a meaningful story (Frey 1994: 559; Yin 1994: 13).

For all the benefits of case studies, some shortcomings do exist. One concern is that case studies are not sufficiently precise in their conclusions. This may be true if the researcher limits data collection to only one source, such as a survey or observations. By including multiple data collection methods, it is possible to overcome this shortcoming (Yin 1994: xii, 9-11). Some researchers argue that case studies provide little basis for scientific generalization, due to their focus on a limited number of examples (Yin 1994: 10). To counter, many case study researchers indicate that the point of case studies is to expand theoretical generalization, not to generalize to a larger population. Still others complain that case studies are not rigorous enough, by allowing bias to enter into the research (Yin 1994: 10). To avoid this shortcoming, researchers “must work hard to report all evidence fairly” in order to provide a full account of actual occurrences (Yin 1994: 10).

The benefit of using the case study approach to organize this research is the ability to use existing theoretical foundations (e.g., naturalistic decision-making, and naturalistic inquiry) to examine a particular phenomenon using multiple methodological procedures (e.g., survey, interview, document analysis, and participant observation) to paint a mosaic of events occurring in complex contemporary social phenomena within real-life contexts.

4.2.2. Naturalistic Decision-Making and Naturalistic Inquiry

Using naturalistic decision-making models as a foundation for understanding watershed council decision-making owing to its focus on how decision-making in a non-laboratory setting, this

research examined how a sample of Oregon watershed councils make decisions. This research used multiple methods to examine each watershed council to ensure that the context surrounding group structure, group processes, and decision-making was clear. This strategy provided the researcher with a means to capture the complexity of group decision-making within the context of the watershed council.

Principles of naturalistic inquiry also guided this research by providing an ethical foundation for interacting with the research community. Naturalistic inquiry situated the researcher as an active participant in the watershed council meetings. As a research tool, naturalistic inquiry reflects five principles: (1) realities are multiple, constructed, and holistic; (2) knower and known are interactive and inseparable; (3) working hypotheses are time and context dependent; (4) distinguishing causes from effects is impossible; and (5) inquiry is value bound (Lincoln & Guba 1985).

In social science, the relationship between researcher and research participants is vital to conducting accurate naturalistic decision-making studies. It is important to keep three tenets in mind. First, it is important to view the relationship between the researcher and research community as a partnership:

“...in which each party makes a contribution to the other. In other words, the relationship is based on an exchange of resources.” This leads “researchers to move from a position of exclusive concern for theory building and knowledge development to a position that includes a commitment to promoting community development and well-being. In other words, researchers must maintain a stance of giving as well as taking from the field setting.”
(Frey 1994: 564-565, citing Miller et al. 1984)

Second, research must be viewed as social action that is “a practical means of assessing community needs and choosing the most effective available course of action” (Frey 1994: 565, citing Miller et al. 1984). Naturalistic inquiry can provide the researcher and community beneficial

tools such as understanding the social world, bringing real-world value to naturalistic decision-making analysis, as well as advancing naturalistic decision-making as a valid research tool.

Third, naturalistic decision-making and naturalistic inquiry create a “sustained interaction between researchers and research participants” (Frey 1994: 565). The central benefit of this interaction is to:

“Facilitate a relationship between researchers and research participants that maximizes the validity of data gathered. Collecting data for long periods provides opportunities for continual data analysis and comparison to refine constructs and to ensure the match between scientific categories and participant reality.”

(Frey 1994, citing Goetz & LeCompte 1984)

Combining naturalistic decision-making and naturalistic inquiry is to provide observation tools developed by decision-making researchers with ethical standards and principles of conduct that protect and benefit both the researcher and the research community.

4.3 METHODS, DATA COLLECTION AND ANALYSIS

This research utilizes multiple strategies including participant observations, semi-structured and informal interviews, surveys, and document analysis. The use of multiple methods allows triangulating sources in order to validate the results across methods.

4.3.1. Unit of Analysis

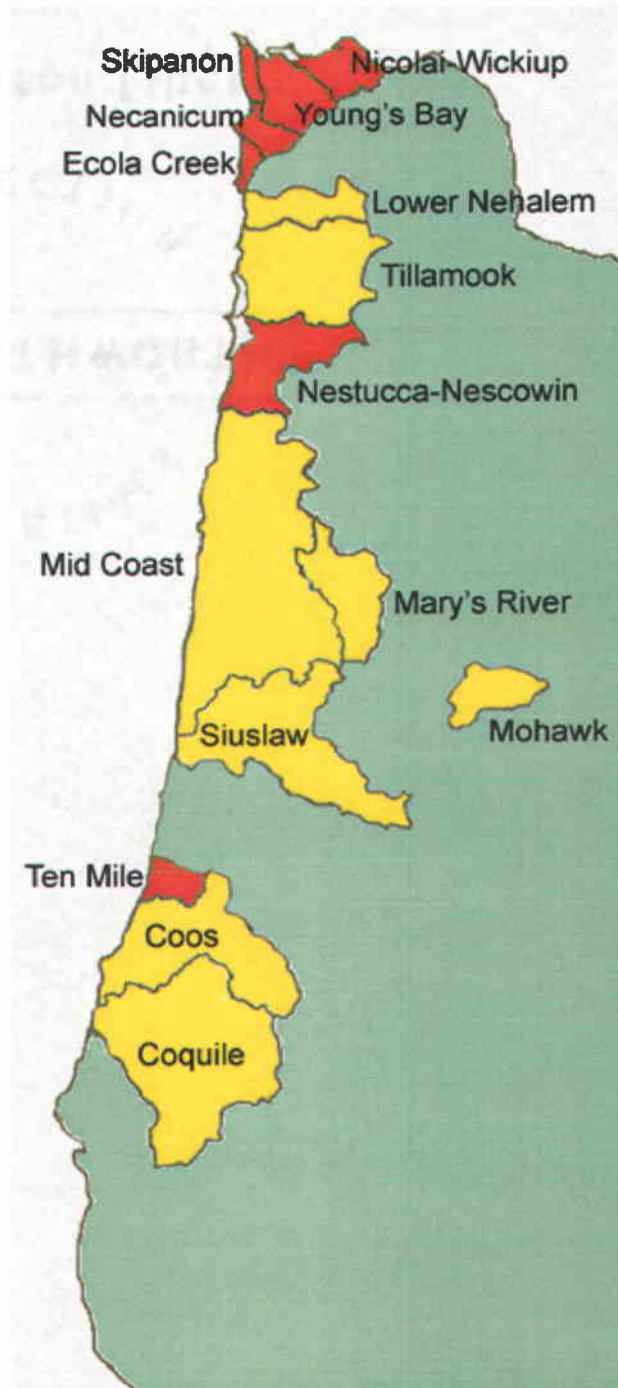
The units of analysis for this research are watershed councils. The goal was to understand a watershed council’s organizational structure as a decision-making process. This research attempts to understand group-level dynamics and their interaction, as well as how the two influence watershed council decision-making. The qualitative and supporting quantitative data collected allowed the research to understand decision-making as it occurs in Oregon’s Coastal watershed councils and the two non-coastal watershed councils included in this study. Since this study did not include other types of voluntary groups focused on environmental issues, no direct generalization beyond Oregon’s watershed councils in terms of decision-making capacity is possible. However,

this research does provide a general approach for examining similar types of groups regardless of physical location or activity involved in natural systems rehabilitation.

4.3.2. Sample of Watershed Councils

This study examined a purposive sample of OWEB recognized watershed councils currently operating and located in the Oregon Coastal Management Zone (OCMZ). Two non-coastal watershed councils located in the Willamette Valley were also included in this study for comparison. Three criteria determined which watershed councils to select for this study: (1) located in the OCMZ, (2) functioning as a watershed council during the field observations portion of this research, and (3) not previously studied in terms of its decision-making capacity. Map 4-1 illustrates the fifteen watershed councils meeting the criteria:

MAP 4-1: Watershed Councils Included in Research



Along the north coast, all watershed councils that are part of the North Coast Watershed Association (NCWA) (formerly the Clatsop County Coordinating Council), the Nicolai-Wickiup, Young's River, Skipanon, Necanicum, and Ecola Creek watershed councils were included in this research.

Along the mid coast, the Mid Coast Watersheds Council, its Technical Committee, and three of its Basin Planning Teams (Salmon-Drift, Siletz, and Alsea Basin) were included. Other mid coastal councils included the Lower-Nehalem, Tillamook Bay, Nestucca-Neskowin, and Siuslaw Watershed Councils. The study excluded the Netarts Watershed Council because they were not functioning or meeting at the time of this research (Mundell 2000). The study also excluded the Sandlake Watershed Council due to difficulty contacting the council coordinator or council members.

Along the south coast, this research included the Ten Mile Basin Partnership, the Coos, and the Coquille Watershed Associations. Inactivity during field observations excluded all remaining south coast watershed councils (Hoogesteger 2000). The Umqua River Watershed Council was not included in the study because of its general focus on non-coastal issues during the research. This research excluded all other coastal watershed councils. For a complete listing of excluded councils, see table 6-1.

Proximity to Corvallis, and/or previous contact with the coordinator and council determined the selection of the two non-coastal watershed councils. The Mary's River Watershed Council is located in Philomath, only a ten-minute drive from Corvallis, making data collection less problematic during the fieldwork phase of the research. In the case of the Mohawk Watershed Partnership, a previous scoping project established contact with the coordinator and the council. This made gaining access to these councils to conduct further research less difficult.

TABLE 4-1: Non-Selected Coastal Watershed Councils

1. Upper Nehalem	8. Netarts
2. Sandlake	9. Sub-Group Coquille
3. Port Orford	10. Floras Creek
4. Elk/Sixes River	11. South Coast Creek
5. Lower Rogue	12. Euchre Creek
6. Pistol River/Hunter Creek	13. Chetco River
7. Winchuk River	

4.4 DATA COLLECTION AND ANALYSIS

4.4.1. Observations

Prolonged engagement contributed to learning the culture of the watershed councils and allowed the researcher to build trust within the community in order to fully develop and understand the data gathered (Lindlof 1995). Persistent observation was valuable in recognizing critical elements in the world of watershed council decision-making processes (Robson 1993: 191, 404). As a research method, participant observation played an exploratory role and a supportive role in this research. As an exploratory tool, observations helped construct the survey; as a supportive tool, observations validated the survey, interviews, and document analyses. While some researchers suggest extended stays in the research area, the geographical size of the research area and the limited time period for field study did not allow for this (Lincoln & Guba 1985; Robson 1993: 404; Lindlof 1995: 20). The watershed council coordinator was the initial point of contact for each watershed council included in this research. As such, this research relied on the coordinator to gain access to watershed councils to collect all qualitative and quantitative data.

A grant from Oregon Sea Grant supported fieldwork and data collection for this research, which took place from March 2000 - January. During that time, travel occurred North and South along the Oregon coast to attend meetings, interview council participants, administer a purposive survey, and gather pertinent watershed council documents. A detailed description of each data collection method follows. These data yielded qualitative and quantitative information key to understanding the structural, social, and the political environment within watershed councils. These

data also provided insight into the diversity of watershed council members, leadership styles in use, watershed uses, land ownership dynamics, time councils have been in existence, and current watershed conditions.

During the field study phase, at least two general meetings were attended for each watershed council that met the three selection criteria for inclusion in the research. Attendance at additional general watershed council meetings occurred if opportunities allowed. Other council meeting attendance included Technical Teams, Administrative, Steering, or Action Planning Committees as opportunities allowed. In one case, attending multiple meetings was not possible. Due to a last minute meeting cancellation of the Young's River Watershed Council, it was possible to attend only one meeting. During the observational phase of this research, it was not possible to attend meetings for two councils during the research. One, the Mohawk watershed councils regularly scheduled meeting conflicted with other coastal watershed council meetings, and since the primary focus was on coastal watershed councils, it was determined to prioritize attending coastal watershed council meetings when meeting times conflicted. In the second instance, the Necanicum Watershed Council, meeting cancellations and changes in meeting dates resulted in no observation opportunities. However, the Mohawk, and Necanicum councils did participate in the survey. This researcher also conducted interviews with the watershed council coordinator of both councils. Table 4-2 shows the number of meetings attended for each watershed council:

TABLE 4-2: Watershed Council Meeting Attendance

Watershed Council	Meetings Attended
Ecola Creek	3
Skipanon	2
Necanicum	0
Nicolai-Wickiup	2
Nestucca-Neskowin	2
Young's River	1
Lower Nehalem	2
Mary's River	2
Coquille	2
Tillamook Bay	2
Siuslaw	3
Ten Mile Lakes	2
Coos Bay	2
Mid Coast	5
Mohawk River	0

At all meetings, all watershed council members and attendees knew of the researchers' presence and reason for attending watershed council meetings. At two council meetings, one in Ecola Creek, and another in Tillamook Bay, the researcher participated in council discussion or activity. For all other council meetings, participation was limited to observations only. In all council meetings attended, the researcher could and did ask questions regarding discussion topics. All meeting attendees had this opportunity extended to them. In no instances did the researcher participate in the formal decision making of the councils.

A two-step process helped analyze meeting and interview observational data. First, established models provided guides to code observational data into distinct categories. Second, sorted and coded data were split into the two cases. Once sorted, coded data were compared across coding factors.

Two models were used to code these data: Broome and Fulbright's (1998) and Yaffee's (1998) models. Both of these models created coding taxonomies relevant to group decision-making in general and natural resource group decision-making specifically. The coding matrix used was a combination of the two models. Broome & Fulbright's (1998) model provided ten of the twelve major coding categories (numbered 1-10 in Table 4-3), and Yaffee's (1998) model provided the

remaining two coding categories (numbered 11- 12 in Table 4-3). Yaffee's (1998) model also provided a code for what he calls centrifugal (making cooperation less likely) and centripetal (making cooperation more likely) forces. Ultimately, all data were assigned a coding category, and designated centrifugal or centripetal in nature.

TABLE 4-3: Data Coding Categories

Coding Categories	
1. Methodology	7. Communication barriers
2. Cultural issues	8. Climate concerns
3. Planning	9. Member attitude
4. Resource constraints	10. Process
5. Group composition	11. External Factors
6. Organizational culture forces	12. Information

See Appendix A: for the complete Qualitative Coding Matrix

4.4.2. Interviewing

Face-to-face interviews provided a “flexible and adaptable way of finding things out” by asking direct questions and observing behavior (Robson 1993: 229). Interviews in this research had three purposes: (1) to gather information from key watershed council informants, preferably from the coordinator or person in a similar position; (2) to provide information for developing the survey; and (3) to validate other data gathered. The interviews helped describe council members’ perceptions of how their watershed council functioned.

Questions explored during interviews investigated perceptions of watershed council characteristics that seem to contribute to effective decision-making. Respondents were asked to consider the impact that group dynamics had on their decision-making process, the usefulness of information types, and if the physical condition of the watershed had an effect on the watershed council’s decision-making ability.

Eleven formal interviews were conducted of council coordinators and key watershed council staff during the fieldwork phase of this research. These interviewees were chosen because

of their knowledge of their respective councils and watersheds, and their perspective pertaining to the inner workings of their councils.

Informal interviews were conducted with council members and participants of the following groups when the opportunity provided itself: (1) government agencies, (2) natural resource industry members, (3) special interest groups and (4) community members. These interviews and conversations took place before or following meetings, and sometimes by phone. These interviews were conducted to clarify points made by individuals, or to gain the perspective of the member's group. Between one and three informal interviews were conducted at each meeting for a total between twenty and thirty-five.

4.4.3. Document Analysis

Document analysis is "a research technique for making replicable and valid inferences from data to their context" which has the "virtue of stressing the relationship between content and context" (Robson 1993: 272, citing Krippendorff 1980). The context includes a document's purpose as well as its social, institutional, and cultural aspects (Robson 1993). This unobtrusive method affords a distinct perspective in that documents are generally produced for a purpose other than the current research, but the documents may illuminate information related to the research phenomena (Robson 1993: 272). A combination of documents was used for this purpose. Meeting minutes provided a chronology of events over time for the watershed council. Documents such as Assessments, Action Plans, various studies, and by-laws provided a range of information including demographic information, watershed conditions, proposed actions, council structure, process, and decision-making. These documents were examined for pertinent information as needed.

This information was useful in developing a richly textured picture when combined with other information. Documents were particularly useful in comparing described organizational structure and decision-making tools versus observed organizational structure and decision-making tools.

4.4.4. Survey

A survey of regular watershed council meeting attendees was used to gather a snap shot of the “characteristics, behaviors and opinions of a particular population” about how these members perceive their watershed councils (Salant & Dillman 1994: 2). Surveys represent a descriptive method for gathering a large amount of data from a “geographically dispersed group of people from a representative sample of a large group” (Sullivan 1992: 118-119). The survey gathered data in five areas of interest that emerged during observations: (1) volunteerism, (2) power/inclusion/exclusion, (3) watershed council structure, (4) information use, and (5) values and perceptions.

The survey was introduced after the field observations were complete. A purposive sampling strategy was chosen for a number of reasons. Individual watershed council policy on distributing membership contact lists varied greatly. Some councils did not distribute mailing lists, while others would only do so for members who had given permission to have their contact information released while some councils provided information readily. Others councils only provided contact information for individuals expressing interest in completing a survey. Second, many watershed councils kept an accumulated address list of any individual who had ever attended a meeting and provided their mailing address. This produced ‘member lists’ for some councils with hundreds of people. However, meeting observations and conversations with council coordinators revealed that generally the same people regularly attend watershed council meetings. This group composed the core of watershed council participants. Their number ranged between three and forty, depending on watershed council size. The survey targeted this core participant group of approximately 115 - 225 participants.

To administer the survey, council coordinators were solicited to distribute the survey at a pre-determined meeting. Three council coordinators (Tillamook, Alsea, and Mary’s River) requested that the researcher distribute and administrator the survey in person. To determine the number of surveys to provide each coordinator with for distribution, I averaged the number of

meeting attendees during my fieldwork and relied on information provided by council coordinators. At the pre-determined meeting, each coordinator distributed surveys to meeting attendees and returned any undistributed surveys to me in a separate self-addressed stamped envelope (SASE); the number returned was subtracted from the number sent, and the result was my 'N' for each watershed council. All survey participation was voluntary, and each participant had two options to complete the survey: (1) survey respondents could complete the survey at the meeting, and the coordinator would then collect all completed surveys and return them in a separate SASE provided, or (2) the respondents could complete the survey at a later time and return it in the provided SASE.

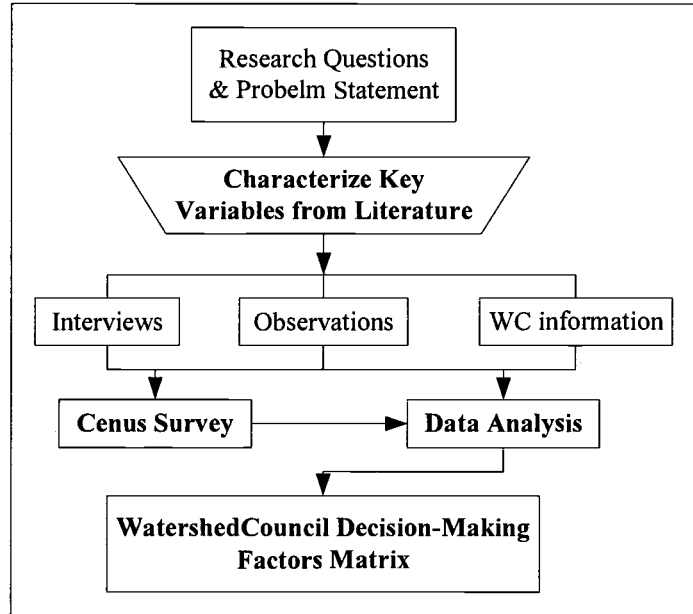
Surveys were distributed during at least two consecutive meetings, and at three meetings for councils with low initial response rates. All re-testing utilized the above methods with the following additional directions: "If you have attended a meeting in the previous two months, and have not completed a survey, please do so at this time."

The survey data was entered into SPSS[®] for analysis. The analysis resulted in two findings: (1) understanding watershed council demographics, and (2) analysis of closed and open-ended survey questions for informal and formal watershed councils.

4.4.5. Triangulation

Triangulation is an analysis tool for coordinating multiple information sources, different methods, and different investigators used to examine a phenomena (Robson 1993: 404; Guba & Lincoln 1994). The benefit of approaching the phenomena from multiple perspectives is to build internal validity and strengthen research conclusions. This research triangulated methods (participant observation, interviews, survey, and document analysis) and information sources (documents, interviews, and observations).

Combined, all the strategies of inquiry used in this research created a complex litmus test for examining and developing a picture of how organizational structure becomes a decision-making process. Figure 4-1 displays the data collection process:

FIGURE 4-1: Data Collection Flow Chart

Through reflexive thinking, writing, comparing collected information, and personal communication with watershed council members, these multiple methods, and sources utilized provide an excellent check for accuracy of the conclusions drawn.

CHAPTER 5: RESULTS AND DISCUSSION

The results present facts describing the ability of watershed councils to make decisions. The initial intent of this research was to compare each factor group across the fifteen watershed councils as individual case studies to identify similarities and differences affecting how watershed councils approach and make decisions. During data collection and analysis, associations began emerging between watershed size, land ownership dynamics, and population dynamics. The associations between these variables led to creating two case studies instead of the initial fifteen. Table 5-1 describes how the individual councils are divided into two distinct groups representing informal and formal cases.

TABLE 5-1: Case Study by Structure

Case 1: Informal (I)	Case 2: Formal (F)
1. Nicolai-Wickiup Watershed Council	1. Lower Nehalem Watershed Council
2. Young's Bay Watershed Council	2. Tillamook Bay Watershed Council
3. Skipanon Watershed Council	3. Mid Coasts Watershed Council
4. Necanicum Watershed Council	4. Siuslaw Watershed Council
5. Ecola Creek Watershed Council	5. Coos Watershed Association
6. Nestucca-Neskowin Watershed Council	6. Coquille Watershed Association
7. Ten Mile Basin Partnership	7. Mary's River Watershed Council
	8. Mohawk River Watershed Partnership

The results are presented in three sections: (1) organizational structure, (2) watershed council operations, and (3) watershed council culture. The first section, organizational structure, examines factors such as watershed size, landownership dynamics, and venue that affect how watershed councils organize. This section also includes watershed council demographic data for council members completing the survey. The second section, which describes council operations, consists of two parts: part one describes generally accepted manners of conducting business within the two case studies, and part two describes council decision-making characteristics, such as membership guidelines, decision-making authority, and method of decision-making. The third and final section, which discusses council culture, consists of two parts: the first examines council

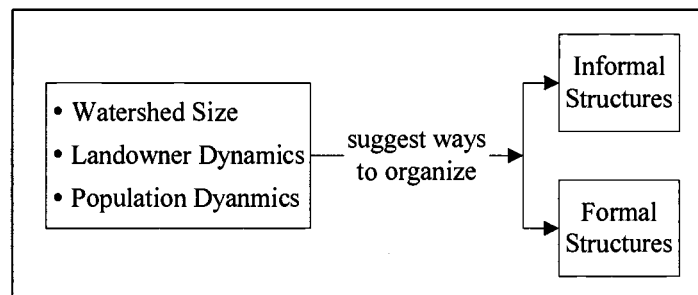
members' general environmental worldviews, while the second discusses organizational norms, and describes members' participation in their watershed council. The norms discussed include relationships (i.e., associations, connections, and concerns), members' perceptions of how representative their councils are, reasons for participating, and frequency of participation.

5.1 ORGANIZATIONAL STRUCTURE

The organizational structure of a watershed council seems related to three factors: (1) watershed size, (2) landowner dynamics, and (3) population within the watershed. The following section describes the relationships between these three factors and how those relationships create different types of organizational structure. Understanding organizational structure is not just about explaining these factors in informal and formal watershed councils, but also exploring how these factors lead to differently organized councils. These different organizational structures function as decision-making groups for analyzing information from watershed council documents, and personal communications with council members.

The general claim put forward, as figure 4-1 illustrates, is that physical watershed size, landownership and population dynamics suggest ways watershed councils organize themselves.

FIGURE 5-1: Structure Factor Relationships



In this study, watershed size ranged from 14,000 acres in the Ecola Creek watershed to almost one million in the Mid Coast watershed. Watershed size appears to possibly be correlated with both landowner and population dynamics. Physical landscape data revealed a considerable

range in landownership (Table 5-2), but all small watersheds have one significant landowner class, (e.g., industrial forestry) while there is most often a diversity of landowners in large watersheds. Population also ranges widely in the coastal watersheds from about 1,600 in Ecola Creek watershed to almost 26,000 in the Mid Coast. Many watershed councils are only able to estimate the number of people living in the watershed by using numbers from population centers. For example, the Ecola Creek watershed council could only report the population of Cannon Beach as an estimate of the entire watershed population. If an accurate watershed population was not available, major population centers were used to estimate the population (Table 5-2).

As a group, these three factors seem to influence watershed council participation. Figures presented in table 5-2 reflect attendance by council members and visitors to informal and formal watershed council meetings. Meetings of watershed councils in small watersheds with small populations typically consisted of three to fifteen participants. Participation in watershed councils meetings in large watersheds typically ranged from fifteen to fifty. Ultimately, what we found is that watershed councils in small watersheds with small populations drew relatively small numbers of participants and conducted their meetings in relatively informal ways. Councils in large watersheds with large populations conversely drew relatively large numbers of participants and conducted their meetings through much more formal means. The following sections explore the relationship between these factors in detail.

TABLE 5-2: Watershed Council Structure Factors

Council	Acres	Land Use Percent	Land Ownership	Population (Estimate)	Meeting Attendance (Approx.)	Source
Informal						
Ecola Creek	14,080	88 7 5	Industrial Forest ODF City of Cannon Beach, Other	1,600	3 -10	(Parker & Ecola Creek Watershed Council 2001)
Skipanon	17,920	35 20 19 14 12 5 2 1 0.5	Non-Industrial Forest Wetland Industrial Forest Grassland Shoreline Developed Water State Forest Agriculture	4,230	4 - 9	(E & S Environmental Chemistry & Skipanon Watershed Council 2000)
Ten Mile Basin Partnership	62,777	34 24 17 10 6 4 3 2	ODF Private Industrial Parks (private & public) Private Non-Industrial Rural Res./Urban Growth Boundary Small wood lot Unclassified Unknown forested	1,370	10-15	(Mader 2002)

Continued

Nicolai-Wickiup	73,216	47 27 18 4 2 1 .77	Industrial Forest State Forest Non-industrial Forest Agriculture Wetland Grassland Developed, water, & shoreline	1,906	8	(E & S Environmental Chemistry & Nicolai-Wickiup Watershed Council 2000)
Necanicum	83,568	74 8 3.5 2.5 1.8 1.5 7.6 .66	Private Industrial Private Non-Industrial Urban Rural Residential ODF State Parks Undeveloped Wetland/Agriculture	6,935	12	(E & S Environmental Chemistry 2002)
Young's Bay	117,760	67 16 9 4 2 2 1 0.10	Industrial Forest Non-Industrial Forest State Forest Agriculture Grassland Wetland Developed Water	4,907	8	(E & S Environmental Chemistry & Young's Bay Watershed Council 2000)
Nestucca-Neskowin	217,085	44 18 17 16 4 0.01	USFS Industrial Forest BLM Ag., Rural Residents, Small Woodlots ODF USFW	3,500	5-8	(Barczak 1998)

Continued

Formal						
Mohawk River	114,922	61 24 1.2 13 0.5 0.3 0.2 0.1	Industrial Forest Public Forest Small acreage farms Grazing/vacant land Residential buildup Woodlots Recreation lands Orchards/Vineyards/Croplands	4,000	No meetings attended	(Huntington 2000; Thompson 2002)
Lower Nehalem	192,000	51 38 9 1.7 .3	State of Oregon (ODF) Private Industrial Private Non-industrial Agriculture Urban	3,405	15-25	(Ferdun, G., G. Ferdun, S. Mendenhall & M. Peyton 2000; Ferdun 2002)
Mary's River	198,400	55 27 5 5 4 4	Private Non-Industrial Private Industrial USFS State BLM Miscellaneous	5,550	15-30	(Ecosystems Northwest 1999)
Coos	358,400*	40 30 15 15	Industrial Tree Farms Private Industrial/Non - Industrial Forest BLM ODF	24,840	18-25	(Souder 2002)

Continued

Tillamook	338,040	63 20 10 5 2 .25	ODF Private Industrial Private Non-Industrial BLM Miscellaneous Public USFS	7,690	15-25	(Gaffney 2002)
Siuslaw	504,000	31 26 25 10 5 3	Private Industrial BLM USFS Private Non-Industrial State Other, public	7,460	30+	(Ecotrust & Siuslaw Watershed Council 2002)
Coquille	660,762	37 29 23 10 1	Industrial Forest Non-Industrial Forest BLM USFS Other	16,801	20	(Ecotrust & Coquille Watershed Council 1996)
Mid Coast	928,000	40 29 17 11 3 0.06	Private Industrial USFS Private Non-Industrial BLM State Miscellaneous	25,630	15-30	(Garono & Brophy 2001)

5.1.1. Informal Councils

Watershed council documents and personal communications illustrate that informal councils are typically located in geographically small watersheds, dominated by a single landowner, have relatively small populations concentrated in and around one urban area, and contain a few other small rural communities. Within the informal case study group, watershed councils fit into two categories, those well beneath 100,000 acres, (e.g., Ecola, Skipanon, Ten Mile Lakes, Nicolai-Wickiup), averaging 44,147 acres, and those over 100,000 acres (e.g., Young's River, and Nestucca-Neskowin), averaging 167,423 acres. As a case study group, informal councils average 79,369 acres. Table 5-2 also shows that while informal councils as a group record multiple landowner types, a single landowner type (e.g., industrial, state, or non-industrial forestry) typically dominates each watershed.

Populations in informal watersheds vary from 1,600 to just below 6,000. Populations and non-dominant landowners in these watersheds (i.e., those less than 10% of watershed land) are concentrated adjacent to the population centers. Also noticeable in informal councils is the durability of member relationships. This durability seems to result from members frequently participating in other community activities together (e.g., city government meetings and civic functions). Maintaining relationships with landowners and residents is important for informal watershed council to implement projects. These project participants also represent limited opportunities for informal councils to expand their membership. Limitations exist due to the small number of rural residents and landowners to implement projects not already related to a watershed council.

The combined effect of these factors (small watershed size, a single dominate landowner, small watershed population, and small watershed councils) correlated with an unceremonious structure in informal watershed councils. Observed meetings were open and extemporaneous. Council members or visitors introduced issues for discussion and decision-making directly to the

watershed council. Pending discussion councils may make decisions at that meeting or a subsequent meeting depending on the length of discussion. Informal councils occasionally form ad-hoc committees if further research is required. Using the feed back loop, these committees report their findings to the general watershed council at a future meeting for continued discussion and decision-making. For informal councils this extemporaneous process does not seem to hinder smooth operations flow.

5.1.2. Formal Councils

As table 5-2 displays, formal councils are typically located in large watersheds. Formal watersheds fit into two groups, those under 500,000 acres (i.e., Mohawk, Lower Nehalem, Mary's River, Coos, and Tillamook), averaging 240,366 acres, and those over 500,000 acres (i.e., Siuslaw, Coquille, and Mid Coast) averaging 697,587 acres. As a group, formal councils average 411,824 acres. Formal watershed councils record multiple landowners in numbers far exceeding those found in informal watersheds. A single land ownership may still dominate a formal watershed (e.g., forestry), but the assortment of large and small landowners increases (e.g., federal, state, private industrial, grazing, and non-industrial agriculture), as well as the amount of land owned by each landowner classification.

Populations in formal watersheds are noticeably larger and have a broader range than those in informal watersheds. Their populations range from just over 3,400 in the Lower Nehalem to approximately 26,000 residents in the Mid Coast. In formal watershed councils, the population typically resides in multiple urban centers throughout the watershed and in small rural communities, distributed throughout the watershed.

In formal councils, the larger pool of landowners and residents, (including a larger consortium of rural residents) represent several potential sites for watershed improvement projects. To implement projects formal councils must make contact with individual landowners and residents, as well as maintain relationships with these landowners over time. By having contact or

participating with the council, these landowners and residents become stakeholders in the watershed council experience. This contact may help explain why rural residents and landowners participate in the watershed council. These factors seemingly translate into larger watershed councils.

To manage larger size, members of formal councils create a recognized structure that includes executive boards, administrative boards, officers, permanent committees, procedural rules, and full time staff members to organize council efforts. Within this structure, watershed council attendees introduced requests to the primary decision-making group or committee. Frequently these requests are delegated to a committee for further research. After researching an issue, committees present their findings and recommendations to a primary decision-making group for final decision-making. This process of introduction, delegation, and recommendation, seems to require an orchestrated process to ensure sustained smooth operations.

These physical (i.e., watershed size, and land ownership) and human factors (i.e., population dynamics, and watershed council size) combine to create distinctly different watershed council structures in Oregon's Coastal watershed councils (Table 5-3).

TABLE 5-3: Structure Delineation Variables

Factors	Watershed Size	
	Small	Large
Land Ownership	Single Dominate ownership	Dominate, but large with multiple ownerships
Population	Small, concentrated in urban areas	Large, dispersed throughout watershed
Watershed Council Size	Small	Large
Product	Informal Watershed Council Structure	Formal Watershed council Structure

In short, informal councils appeared in watersheds of small size, little landowner diversity, and small populations concentrated in limited urban centers. The councils themselves tended to be small, have durable relationships among members, extemporaneous meeting processes, open membership, and utilization of ad-hoc committees. Formal councils emerged in large watersheds,

with larger populations, several large landowners, and numerous landowner types. These councils typically have larger membership, emerging relationships among council members who have not necessarily worked together before, controlled meeting procedures and rely heavily on standing committees.

5.1.3. Case Study Demographics

Demographic information is presented according to the two case studies: informal and formal. With an overall survey response rate of 42%, the survey results do not speak to the greater watershed council population, but only those participating in the survey (Table 5-4).

TABLE 5-4: Survey Response Rate

Structure	Frequency N = 95
Informal	32%
Formal	63

In many cases, observations and survey results complement each other. There are also instances where observational and survey data are contradictory.

Surprisingly, there appears to be very little difference demographically among informal and formal council participants. Informal council members have slightly higher average age than do formal council members (53 ± 13 , 51 ± 13 , respectively). It should be noted that Oregon's median age of 36 is considerably lower than the median age for both the informal and formal councils (U.S. Census Bureau 2001).

Gender distribution is very one-sided for informal and formal watershed councils. Males represent 65% of informal and 63% of formal watershed council participants. This distribution represents a significant disparity in relation to Oregon's demography which is 49.6% for males (U.S. Census Bureau 2001). However, no statistically significant difference exists between informal and formal watershed councils in terms of gender.

Surveyed watershed council members reported being well educated (Table 5-5). The majority of informal and formal watershed council members report holding a bachelor's degree or some graduate school 53%, and 43% respectively, or a graduate or professional degree, 30% and 38% respectively. These results match observations of high attendance by professionals from agencies, natural resource industry members, and university scientists participating in both informal and formal watershed council meetings.

TABLE 5-5: Level of Education

Highest level of education	Informal N=30	Formal N=56
High school non diploma, high school graduate, or GED	4%	5%
Associate's degree or some college	13	14
Bachelor's degree or some Graduate school or Professional degree	83	81

The last three demographic categories refer to length of time participants have resided in the watershed, the length of active membership in their council, and their regularity in attending watershed council meetings (Table 5-6).

TABLE 5-6: Residency, Active & Meeting Attendance

	Informal	Formal
A. Years lived in watershed *(p-value < 0.240)	N=26	N=57
Mean	25 (± 20)	25 (± 24)
*Median	21	12
B. Years active in your council (p-value = NS)	N=29	N=60
Mean	3 (± 1.4)	3 (± 1.2)
C. Regularly attend council meetings (p-value < 0.174)	N=32	N=62
Weekly	9%	4%
Monthly	78	92
Quarterly	9	3
Semi-Annually	3	0

Surveyed informal council members reported a mean residency of 25 years (± 20) with a median residency of 21 years, while formal councils had a mean residency of twenty-three years (± 24) and a median residency of only twelve years (Table 5-6-A). This indicates that informal

councils may have a somewhat more permanent community base than formal councils, possibly leading to a greater ability to capitalize on familiar social networking to benefit the watershed council.

Survey information revealed that both informal and formal council members report mean active participation periods of 3 years (± 1 year) (Table 5-6-B). Interviews with council coordinators corroborated this finding of relatively short active participation periods. Interviews also revealed that generally, watershed councils are young community groups formed when Governor Kitzhaber introduced the Oregon Plan in 1995 (e.g., Lower Nehalem and Coquille). However, some watershed councils evolved from existing community groups and are somewhat older. For example, the Ecola Creek council's roots are as a citizen watchdog organization, which evolved into the watershed council with the introduction of the Oregon Plan.

Meeting attendance is an important factor in a watershed council decision-making ability. The majority of watershed councils hold monthly meetings of their general council, or primary decision-making group, as well as standing and ad-hoc committees. The majority of informal (78%) and formal (92%) members attend the monthly meetings only (Table 5-6-C). This information suggests relatively high levels of participation by those actively participating in their watershed councils.

This information provides an interesting picture of watershed council demographics. However, this research did not examine the relationships between these demographic factors and decision-making capacity.

5.2 WATERSHED COUNCIL OPERATIONS

Group operations refer to the generally accepted manner of conducting business in a watershed council setting. The two structures, informal and formal reflect differences in-group operations including the processes council members use to identify and discuss issues, develop strategies, and evaluate situation alternatives surrounding an issue. Group operations also endorse

the most appropriate course of action. In short, group operations aid the decision-making process (Broome & Fulbright 1995: 38).

Meeting observations, interviews, and open-ended survey questions asking members to describe the internal operations of their watershed councils provided the information for this discussion of group operations. These data revealed contrasting operating procedures in informal and formal councils. Informal council operations include:

1. Limited use of meeting procedures such as Robert's Rules of Order (Robert III, H. M., J. William, D. Honemann & J. Thomas 2000);
2. Extempore decision-making characteristics exhibiting no observable rigid hierarchy or recognizable chain of command;
3. Decision-making rules that combine consensus and occasionally voting; and
4. Information needs that focus on general watershed conditions from an assortment of external sources.

Collectively these characteristics, described in detail below, illustrate council operations not defined by prescribed rules, but developed and maintained via long-term relationships among council members.

Conversely, a review of formal council documents and meeting observations reveals a more rigid set of group operations. For example, some formal council by-laws specify consensus as the guide for conducting business. Contrarily, observations generally show that Robert's Rules and civil participation are the norm for conducting meetings in all formal councils (Robert III et al 2000; MidCoast Watersheds Council 2002). For example, it is common for formal council members to make motions to discuss issues and put proposals forward to identify issues, strategies, and discuss situation improvements. Other characteristics of formal councils include orderly decision-making processes that primarily rely on voting, the use of technical information to target specific projects in the watershed, and prepared meeting agendas. These characteristics, discussed in detail below, describe watershed councils defined by rules and procedures to which all parties are expected to adhere.

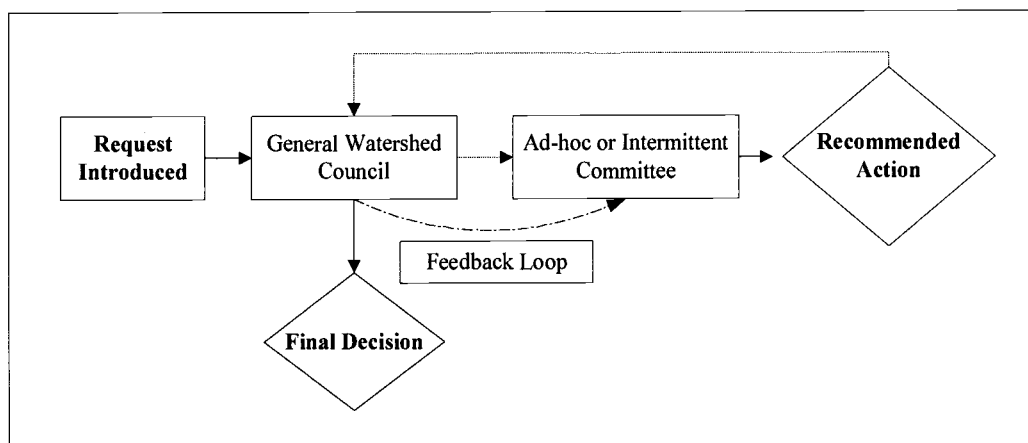
In order to maintain the confidentiality of the watershed councils and participants in the discussion of findings each watershed council has been assigned an arbitrary number along with a designation of informal and formal structure (e.g., I1, F3).

5.2.1. Operational Procedures

This section explores operational procedures, decision-making characteristics, and council culture as factors contributing to the decision-making capacities of informal and formal watershed councils.

Figure 5-2 illustrates the decision-making process for informal watershed councils. Decision making typically follows a simple path, which reflects the lack of complexity in operations and structure.

FIGURE 5-2: Informal Council Decision Process



Requests to informal councils come directly to the general watershed council since they rarely have active standing committees. When council members or visitors introduce requests to the general watershed council, two processes may result (Figure 5-2). One, the general watershed council may discuss an issue and make a decision. Alternatively, the issue can be passed to an ad-hoc or intermittently meeting committee to research the issue further and make a future recommendation to the general watershed council for final decision-making. At that point, the

watershed council can make their final decision; or if necessary, they might request that the committee provide additional information (feedback loop in Figure 5-2) and supply additional information to the watershed council.

When asked in the survey to describe their group operations, the majority of informal council members reported open, extemporaneous group operations. Opportunities to observe informal council decision-making to corroborate reported descriptions of group operations were limited. However, informal council meeting observations reveal the use of round table (i.e., ‘a group gathered together for a informal discussion or conference’) discussion format for making decisions (Neufeldt & Guralink 1988: 1170, [r-t]). Observations of three informal (I1, I2, I5) councils however, revealed that they rarely referred issues to other council bodies such as non-regular executive committees, boards, or committees and did make decisions as a group after discussion.

In general, their extemporaneous nature made informal watershed councils more accessible to individual members or other interested parties. For example, one council I4 participant reported that members or visitors could present requests for such things as a letter of support, organizational help, grant writing, or project definition directly to the watershed council. A discussion of such items may occur at the current meeting, or at subsequent meetings. If decisions require supplementary resources, informal councils may rely on intermittent or ad-hoc committees to process these additional needs, or ask the requestor to provide any additional information.

Because informal watershed council membership is small, committees generally constitute a majority of the council. Intermittent committees assume responsibility for the issue and report their findings or recommendations back to council members for decision-making. Being ad-hoc or intermittent, these committees cease meeting upon completing their task, often to form another committee dedicated to a new issue. The following descriptions from the survey about four different council operations corroborate:

A project is brought before the council. Council as a whole decides whether to go ahead with project and request grant money. The council makes all decisions. (13)

Usually individuals/groups interested in a project or problem -- introduce it -- and ask for a specific decision -- i.e. letter of support, organizational help, grant writing, project definition. Everyone discusses it, usually all points of view are honored and usually consensus is reached. (14)

Project introduced, informally discussed, and consensus reached among council members. (15)

Typically, a project or request might be aired at the general watershed council meeting and voted on by the watershed council members at the meeting or next meeting if more info (information) is necessary. Some watershed councils may have an executive board that may have to vote on a decision rather than just the general watershed council. (16)

These responses describe informal meeting operations. They also describe the round table format, in which council members extemporaneously discuss issues and business brought before the council. These descriptions do not describe formal procedures, standing committees, or reference prepared agendas. What is described is an unrehearsed process in which everyone discusses it, and the council as a whole decides to go ahead or consensus is reached among council members.

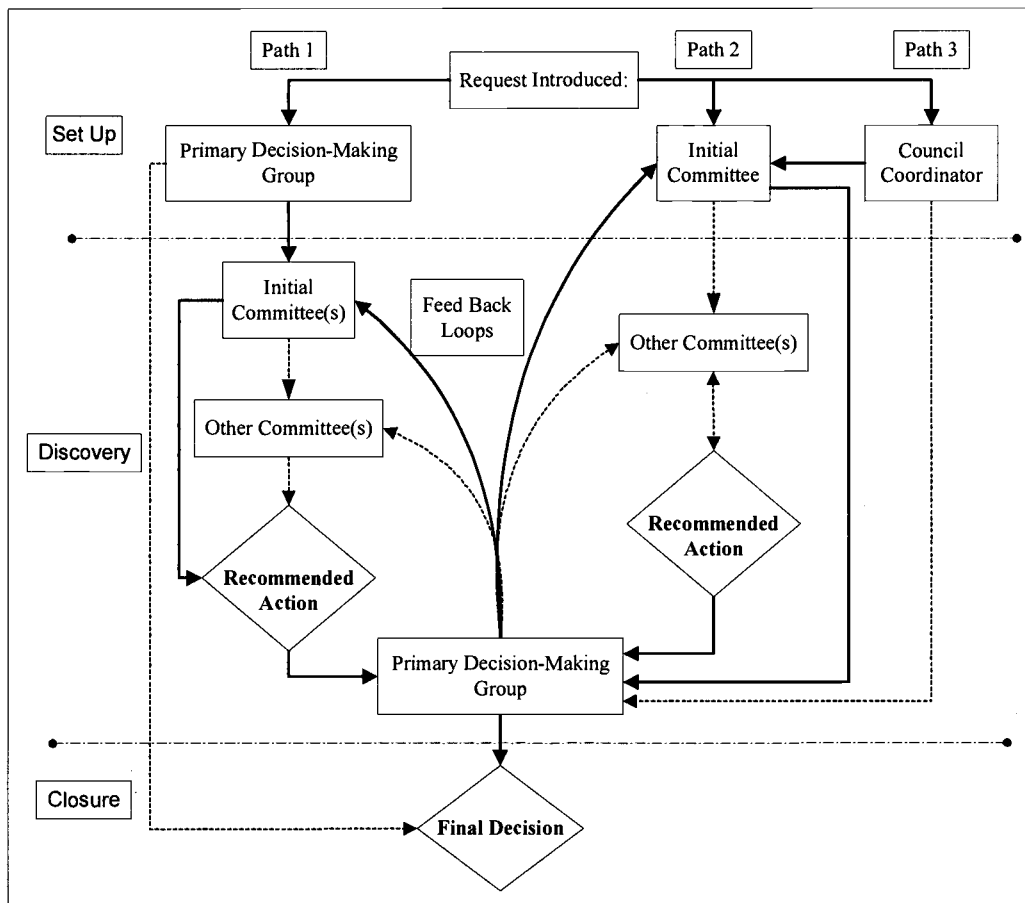
While most respondents in informal councils report less rigid group operations, 70% of members of two informal councils reported more systematic group operations. One respondent, in describing their council's operations, stated that first an issue goes to a "steering committee, [then is placed on the] general meeting agenda [where the issue is open for], discussion [followed by] decision or action [then develop an appropriate] plan (Council I1). The second council had a process where issues are "proposed directly to [the] technical team, which makes [a] recommendation to [the] watershed council board. Boards [members] decide whether or not to refer [the] project to [the] grant team (Council I7).

These two group operations descriptions differ considerably from other informal descriptions as well as observations of council meetings. For example, in an interview, council I1's coordinator pointed out that anyone could raise an issue, that the whole council would then address

the issue, and if necessary, a request for additional information could be made before making a decision. This comment contradicts the reported descriptions of the group operations by not specifically mentioning steering committees or a Technical Team to review council issues as described above. Survey respondents from Council I7 also reported formal group operations. At the time of this research, council I7 was in the process of creating delegation strategies and electing a new board to make decisions and present those decisions to the general council. However, the members that currently made up the Board in council I7 were the watershed council in its entirety. In short, the two groups, board and council, were the same. The hierarchy they reported and discussion of a board overseeing the general council did not exist at that time. One possible speculation may be that these operations describe what may have happened in the past, or what they were working towards in the future. Nevertheless, they did not reflect what I observed occurring during this research.

Formal watershed councils provided ample opportunities to observe operational procedures in action. In all formal watershed councils, individuals or groups made proposals to either the primary decision-making group or an appropriate committee. The primary decision-making group differed among formal watershed councils but was rarely the general membership of the council. Instead the primary decision-making group was often a board or executive committee made up of elected members from the general council or individuals chosen to represent specific interests, (e.g., industrial timber, federal and state land managers, local government, small woodland owners, tribal, port, ranching and agriculture) and the watershed council coordinator.

FIGURE 5-3: Formal Council Decision Process



As shown in figure 5-3, all proposals in formal watershed councils moved through a three-step process: set up, discovery, and closure. In the set up, primary decision-making group members ask general questions inquiring whether the project meets the goals of the watershed council or is it appropriate for this watershed council. The discovery process, begins if either of these above questions is answered with a yes. Requests, or proposals presented to the primary decision-making group are typically passed to a committee (e.g. Technical Team, Administrative, and Steering) for further research.

Requests or proposals introduced to a committee typically remain with that committee for further discovery. Discovery may include additional research, cost determinations, or issue framing.

Any additional discovery is organized and presented as a recommendation to the primary decision-making group. The discovery process is ongoing between committees and the primary decision-making group to enhance decision-making capacity (i.e., feedback loop). The third step, closure, occurs when the primary decision-making group moves to a final decision based on committee recommendations, or independent of committee input. Survey excerpts describe how formal council members express the three-step process:

Either agency or individual brings proposals in one page form to [the] Technical Team. They either flesh it out or suggest changes to the presenter. Once Technical Team endorses the project as to benefits, logistics, scientific soundness, it goes to executive committee. They review Technical Team's analysis, consider the budget, politics, priorities, etc. The general membership [Leadership Board] hears about planned projects via committee reports at the general meetings. Since it takes 2-5 months for a project to reach the written/ ready to submit stage, there has been ample time for a member to object to all or a portion of a project. So when it reaches executive committee those concerns, if any, have been ironed out and executive committee can approve for submittal to OWEB. If executive committee feels some concerns have not been adequately addressed, they can bump it back for further changes or to the general members for approval or not. (F5)

Projects are usually introduced through the Technical Team committee, but can be introduced at the general meeting, the exec board. Since projects require technical review before executive board approves them they tend to start with the Technical Team. The general council [Leadership Board] could overrule the exec board under our consensus operation, but that has not happened. (F5)

Anyone can make a request. It is discussed in council [Board], referred to appropriate committee for recommendation if needed then voted on at next council board meeting. (F7)

Referred to committee, back to membership [general watershed council], passed by consensus. (F8)

These survey excerpts describe the multiple paths that decision-making can follow in formal watershed councils with complex operational procedures (Figure 5-3). Path 1 occurs when individuals or groups introduce requests to the primary decision-making group. Two possibilities exist when the primary decision-making group receives the information first. In most occurrences, the primary decision-making group passes the request to a committee for discovery. Based on its

findings, the initial committee makes a recommendation to the primary decision-making group for further action. However if the initial committee determines that other committees need to evaluate the issue, they pass the issue on to the appropriate committees for input and/or recommendations. The primary decision-making group considers the recommendation from committees involved in order to make a final decision. However, if the primary decision-making group requests additional information, they may return the issue to any necessary committees for further discovery. Alternatively, the primary decision-making group can maintain control of the issue, subsequently discuss the issue, and make a decision at that meeting or a future meeting if more discussion is necessary.

An example illustrating Path 1 involved the development of council F2's year 2000 action plan. The general watershed council, the primary decision-making group, developed the project scope then transferred the project to the ad-hoc Action Plan Steering Committee (APSC) to create the action plan. The APSC then formed issue specific working group's (e.g., fish and fish habitat, water quality, and estuary) to research and develop action items related to their portion of the action plan. Each working group framed and reported their results back to the APSC. At subsequent meetings of the general watershed council, the APSC presented their findings to the general watershed council for approval. At one particular meeting, the watershed council members re-familiarized themselves with each action item and prioritized each activity within its own action group. The catalogued prioritized results created the councils year 2000 action plan.

Figure 5-3 also describes feedback loops that the primary decision-making group or general watershed council utilizes if it disagrees with a committee recommendation or requests answers to additional questions. One example of how the feedback loop operates in Path 1 occurred when council F4 was developing a maintenance strategy for their riparian projects. From opportunistic interviews with F4 council members and from meeting observations it was clear that the council was unable to reach consensus on a weed control strategy in areas where the council implemented riparian projects. In an attempt to assist the primary decision-making group reach an acceptable

outcome, council staff, as directed by the primary decision-making group, formed an ad-hoc committee to gather information on riparian management and present that information to the primary decision-making group. The additional information was intended to assist the council's direction for riparian management. In this situation, herbicide use as a weed control tool divided the council into two groups, those in favor, and those opposed to herbicide use. The common ground between the two groups was preserving the council's investment in riparian projects. The anti-herbicide group held the opinion that herbicide use preserved the council's riparian zone projects to the detriment of salmon and watershed health. To that end, the anti-herbicide group stated that they will not ever endorse [the use of] herbicides. Conversely, the pro-herbicide group supported herbicide use because it advanced the council's overarching goal of a healthy watershed by providing viable riparian zones with adequate vegetation, stating that we either make the projects work, or we'll go out of business. The pro-herbicides group statement insinuated that the current costs of maintaining riparian projects would consume all the council's monetary resources, forcing the council to cease operating.

During my research, this council was unable to resolve differing worldviews regarding herbicide use through the procedures designed to make decisions (i.e., primary decision-making group, committees, and feedback loops). The council's ultimate solution was to vote in order to determine the level of consensus and reasons for or against herbicide use. Voting determined that consensus was not possible among those with decision-making authority. As a result, the council tabled herbicide use as a riparian maintenance tool until further information was available. Because of this decision, the council focused on other riparian management methods that could meet their immediate needs.

The second path for decision-making in formal watershed councils is initialized when groups or individuals introduce issues directly to a committee. Once a proposal enters the council decision process through Path 2, three possibilities exist. The most common occurs when the initial committee researches the issue and then makes a recommendation to the primary decision-making

group for final decision-making. Alternatively, the initial committee may deem themselves the inappropriate committee and pass the issue on to the appropriate committee necessary review. The third option occurs when the initial committee passes the issue directly to the primary decision-making group without making a recommendation for discussion and decision-making. When an issue reaches the primary decision-making group for final decision-making, they can make a decision or they can return the issue to a committee for further discovery to support final decision-making.

An example of Path 2 took place at a F7 council Technical Team meeting. Generally, technical team committees determine if projects are appropriate for the council (i.e., setup), and whether proposed activities should move forward to the next stage of information gathering (i.e., discovery). In this particular example, a state agency biologist proposed that the watershed council collaborate on a fish ladder modification project that would separate wild and hatchery salmon. Generally, Technical Team questions require supporting information about a project such as technical merit, costs, probability for success, and if necessary, additional funding sources beyond the watershed council. These setup questions allow the Technical Team to determine if the project corresponds with the watershed council's overall goals. In this council, as with all formal councils, all projects must pass through the Technical Team to move on as a recommendation to the primary decision-making group for additional processing and final decision-making. These paths display a complicated process involving multiple committees, feedback loops, and the primary decision-making group to ensure an issue is thoroughly researched before reaching a final decision.

The third path, reported in interviews by two formal council coordinators, describes a somewhat different set up process. Council F5's coordinator described a process in which projects are given to the coordinator who then subjectively evaluates them for thoroughness, the feasibility of the council to participate in them, and their funding potential (i.e., set up). If the submitted project meets the coordinator's criteria, they pass it to the appropriate committee, typically the Technical Team, but occasionally the primary decision-making group to begin discovery. While

similar, council F4's coordinator stated that when a project comes to the council coordinator's attention, the coordinator, not the primary decision-making group, gathers as much available information as possible and then hands that information over to the project committee, which drafts a 'white paper' noting various technical aspects of the project. Finally, the project committee uses the white paper to frame a recommendation to the executive council for final decision-making.

While informal and formal councils have decision processes that include set up, discovery, and closure, informal councils handle requests in a straightforward fashion utilizing the general watershed council or ad hoc committees as appropriate to collect needed information. This simplified process makes decision-making occur rather quickly. Conversely, formal councils have complex procedures utilizing multiple paths (i.e., standing committees and council coordinators) to process requests. This process often results in lengthy waits between requests and final decision-making in formal councils.

5.2.2. Decision Making Characteristics

OWEB materials and watershed councils typically describe councils as consensus based decision-making units. However, survey reports and observations from this research suggest that watershed councils use a multitude of decision-making strategies. Important characteristics of these strategies include (1) membership rules, (2) decision-making authority, and (3) decision-making rules. I will discuss each component in some detail below. Information sources included surveys, interviews, content analysis of watershed council documents, and watershed council observations.

This research revealed distinctly different characteristics of decision-making strategies for informal and formal watershed councils. Characteristics for informal council decision strategies include open or unrestrictive requirements for council membership, and decision-making authority by a broad range of watershed council participants, and mixed procedures for decision-making (consensus and voting of various types). Collectively these characteristics allowed the watershed council as a whole to be the decision-making group.

Conversely, formal councils had prescribed rules granting levels of council participation, policies delineating the decision-making authority for each level of council participation, and a strong reliance on voting as the primary decision-making tool. Collectively, these characteristics created pre-defined decision processes limiting the authority of any single group of decision makers.

5.2.3. Membership

Perception by outsiders of the watershed council process is that watershed councils are volunteer groups that rely on the participation of various interests throughout the watershed to conduct restoration projects. The approach taken by informal and formal councils to define membership is quite different. Survey information presented in table 5-7 reflects those differences. The results show a convincing difference (p-value < 0.01) between how informal and formal councils identify members.

TABLE 5-7: Membership Determination

Question # 12 Membership determination*	Informal N=25	Formal N=62
a. Every one who attends the meeting is a member	76%	18%
b. Must attend a certain number of meetings	8	23
c. Anyone who pays dues	0	25
d. Approved by existing WC	4	18
e. Chosen to represent certain interests/areas	0	14
f. Other	12	2

* p-value < 0.01

As table 5-7 shows, 76% of informal councils members reported that anyone who attends a council meeting is considered a member. This result strongly reflects membership rules in available by-laws that indicate all participants as council members. Below are excerpts from informal council by-laws attesting to this:

One must attend the two or three immediately previous council meetings to become a voting member of the watershed council. (I1)

Any individual, landowner, or organization supporting the goals and objective of the watershed council may be a member. A voting member is one who attends

meetings or participates in watershed projects and is a watershed landowner or their designated representative, or resides in the watershed. (I3)

The council membership may include interested citizens, private landowners, and representatives from federal, state, and local agencies or organizations. Each agency, organization, or entity will appoint its own representative to the council. (I7)

While the by-laws include requirements for voting rights (e.g., residency, or attendance), they were not overly strict. Council I1 requires participants to attend two or three meetings before attaining voting privileges. Council I1's by-laws did not mention a residency or landownership requirement. For example, council I3 required one of three options: (1) that the individual own land in the watershed, (2) represent someone who does, or (3) reside in the watershed.

Participants in all observed informal council meetings were residents or landowners in that respective watershed. At all the informal council meetings I attended, only one council discussed the possibility of non-watershed residents or landowners participating in their council. Even on this one occasion, attendee's at all informal council meetings were residents or landowners. Therefore, opportunities to observe how informal councils would have handled membership of non-watershed residents did not exist. Exceptions to this rule included non-landowning or non-resident participants such as extension service agents, National Resource Conservations Service (NRCS), Soil & Water Conservation District (SWCD), and state or federal agency representatives who attended meetings. These participants contributed to council decision-making through discussion, providing information or suggesting a direction that may be in the best interest of the watershed council's goals.

All interested watershed residents are eligible for membership in formal watershed councils although they typically have more stringent requirements for membership than do informal councils. As described in table 5-7, the most common ways to gain general membership in formal councils is through paying dues (25%) or attending a certain number of meetings (23%). Formal council by-laws support these survey findings.

TABLE 5-8: Formal Council Membership Criteria

Group 1: Membership Criteria	
Council F1	
General membership	An ever-changing partnership of interested people from the Mohawk watershed, including related community, business and government groups, who meet to work toward the purpose, mission and goals as defined by these by-laws.
Executive Committee	Consists exclusively of board members...minimum of 5.
Various Committees	Open to all
Board	Board members are elected at the annual meeting by the voting members
Council F4	
Active Membership:	Any individual or organization supporting the purpose and mission of the Watershed Association, and pays dues as established by the Executive Council, shall be a member of the Watershed Association.
Officers	Shall be elected by the Executive Council
Various Committees	Open to all
Executive Council:	Shall have no more than 30 members...elected by the members of the Watershed Association... who collectively represent the types of interests, livelihoods, or land ownership found in the watershed.
Council F6	
Watershed Association:	Any individual or organization supporting the purpose of the Watershed Association, and paying dues as established by the Executive Council, may be a member of the Watershed Association.
Officers	Shall be selected by consensus of the Executive Council
Various Committees	Open to all
Board of Directors (Executive Council)	Executive Council members shall collectively represent the types of water-dependent livelihoods, land uses, or other 'at large' interests in the watershed to be appointed.
Council F7	
Membership	Council is composed of all interested citizens, and is advised by the Technical Team. Members may pay a \$5.00 annual postage fee if they would like to receive monthly mailing.
Various Committees	Open to all
Technical Team	(Open) membership appointed by Board from the general membership
Board	Board members of the council and their alternates shall be nominated to serve by the interest groups they represent. They shall serve until asked to be removed by that interest group or a maximum of five years.

Continued

Group 2: Membership Criteria	
Council F2	
Steering Committee/ other committees	Nor fewer than six (6) people who are members of the council will be formed by the council
Membership	Membership of the council shall consist of between fifteen (15), and forty (40) members. Any individual seeking membership shall notify the Chair of his/her interest in serving on the Council.
Council F8	
Steering Committee/ other committees	The Chair shall establish a steering committee...The steering committee shall consist of the Officers and others as deemed appropriate by the chair.
Membership	Submitted a letter showing agreement with the mission and the purpose of the council...Attended at least one meeting within the most recent 12-month period. Signing in to a meeting extends membership for the next 12 months....Paid dues to watershed council if required

General members of formal councils can participate at two levels. First, they can serve on various committees through appointment or by volunteering. Table 5-8 delineates formal councils into two groups according to the number of participation levels. Group 1 consists of councils with four levels of participation, with lowest to highest influence in general watershed council members, executive committee or officers, standing committees, and executive board. The second group consists of councils with only two levels of participation, the steering committee and general watershed membership.

Barring active committee participation, general watershed council members are limited to attending and commenting at board or executive meetings but cannot participate in actual decision-making processes of that committee. In most cases, the primary decision-making group is not the general watershed council, but sub-sets of members that represent various interests in the watershed. Boards, executive committees, and officers represent exclusive participation levels open only to members approved or appointed by the general membership and stakeholder groups. These levels of participation clearly contribute to hierarchies in formal councils, which can limit participation at each level. While not likely intentional, the hierarchies do exclude general members from fully

participating in watershed council decision-making. Table 5-9 displays these various levels of hierarchy in formal councils.

TABLE 5-9: Formal Council Hierarchies

Watershed Council	Tier 1 (Primary Decision-Making Group)	Tier 2 & 3 (Advisory Groups)	Tier 4 (General Membership)
F1	Board	Executive Committee	Watershed Partnership General Members
F2	General Watershed Council	Officers/Steering Committees/ Ad hoc committees	N/A
F4	Executive Council	Officers/Committees	General Council Membership
F5	Executive Board	Committees	General Watershed Council
F6	Executive Council	Officers/Committees	General Council Membership
F7	Board	Basin Teams/Committees	General Watershed Council
F8	General Watershed Council	Basin Teams/Steering Committee	N/A

5.2.4. Decision-Making Authority

To make decisions, watershed council members need the ability to act in a fashion that binds the council to a course of action, representing the best interest of the council and the Oregon Plan. Council documents and survey data provided the necessary information to examine who had decision-making authority on watershed councils. These data revealed contrasting decision-making authority in informal and formal councils. In informal watershed councils, decision-making authority rested with the general watershed council membership. With formal watershed councils, decision-making authority and the type of decision-making authority varied with participation level.

TABLE 5-10: Binding Decision Making Authority

Who has authority to make binding decisions for your WC?	Informal N=31	Formal N=61
	Yes	
a. All WC members at the WC meeting	60%	68%
b. All WC members on committees	10	13
c. Non-WC members on committees	0	3
d. WC coordinator	13	26
e. Coordinating Council members	13	11
f. All in attendance at the WC meeting*	23	5
g. WC members at board meeting	10	21
h. All committee members (both WC and non-WC)	3	3
i. Board of Directors / Executive Board only	43	29
j. Other	10	8

* p-value < 0.05

Table 5-10 provides inconclusive evidence regarding survey question 13, which asked, “Who has authority to make binding decisions for your watershed council?” While informal and formal survey respondents offered similar responses in many of the categories, informal councils are more likely (25%) than formal councils (5%) to allow visitors to participate in decision-making. This result seems to indicate that merely attending an informal watershed council meeting grants an individual a certain degree of decision-making authority, while attending a formal watershed council meeting seemingly grants attendees no decision-making authority. This result again speaks to the open and extemporaneous nature of informal councils, and their utilization of all available resources. The opposite seems evident in formal councils: the existence of a more rigid internal structure sets guidelines and rules that govern participation by non-members.

As noted previously, decision-making authority in informal councils is generally extemporaneous, and rests with those attending watershed council meetings. Available informal council by-laws, however, make the following claims about decision-making authority; “all voting members of the council present at the meeting are entitled to one vote,” “one must attend the three immediately previous meetings to become a voting member, and “only directors at a board meeting shall be allowed to vote.” These statements are interesting considering the small size of informal

councils. The size and general isolation of informal councils from neighboring councils and communities typically limited meeting attendance and participation to members of that particular watershed council. More often than not, the only non-members attending meetings were individuals or groups presenting or gathering information (e.g., Oregon Department of Transportation, Oregon Department of Environmental Quality, and OSU graduate students conducting research).

Although opportunities to observe decision-making in action were limited at informal meetings, observations generally agreed with reported data but contradicted by-law information. For example, when council I1 updated their by-laws, all in attendance at the meeting participated in the decision-making regardless of the number of meetings attended. Another example involved council I1's assessment update. Again, all meeting attendees regardless of previous meeting attendance history, agreed to postpone a discussion in order to provide feedback to the assessment coordinator. Moreover, in a separate meeting, all council I1 members present agreed to draft a letter to ODOT expressing the council's concerns in terms of salmon habitat impact regarding a proposed road construction project in their area. In all these examples, there was no observed distinctions among members during decision-making, or discussion of which members met decision-making criteria. This may suggest that council I1 created their by-laws before the council recognized it could run the council extemporaneously or that members are more familiar with by-laws or purposely ignore them.

Via observations, formal council decision-making authority is not as straightforward as table 5-11 indicates. As was the case with membership rules and participation hierarchies, formal councils have rules granting decision-making authority paralleling participation level. The most intriguing result in table 5-10 pertains to respondents indicating that only 29% agree that the board or executive group has exclusive decision-making authority. This result contradicts by-laws that delineate who has the authority to oversee the business of the watershed council. As table 5-11 indicates, in all Group 1 formal councils the board or executive councils were entrusted with the authority to oversee the business of the council. However, the 68% percent of survey respondents

reporting that “all watershed council members at the watershed council meeting” had decision-making authority was in fact somewhat representative of actual events because most meeting participants actually were part of an elected or appointed group with decision-making authority. Unlike informal councils where decision-making authority was extended by ignoring by-laws, authority was extended to formal council meeting attendees because they were generally members of the primary decision-making group (e.g., executive council, or board). Thus, these responses are somewhat unrepresentative of where decision-making authority lies within formal watershed councils since meeting attendees are generally members of the executive council or board, which is where decision-making authority lies.

TABLE 5-11: Decision Making Authority in Formal Watershed Councils

Group 1: Decision-Making Authority	
Council F1	
General membership	Annual meeting only, elect executive council
Executive Committee	Can represent council; limited to those granted by executive council
Various Committees	Advisory capacity
Board	Primary decision-making group
Council F4	
Active Membership:	Annual meeting only, elect executive council
Officers	Can represent council; limited to those granted by executive council
Various Committees	Advisory capacity
Executive Council:	Manage the affairs of council: primary decision-making group
Council F6	
Watershed Association:	Annual meeting only
Officers	Administrative
Various Committees	Advisory capacity
Board of Directors (Executive Council)	Manage affairs of the association; primary decision-making group
Council F7	
Membership	Annual meeting only
Technical Team	Strong Advisory role
Board	Manage affairs of the council; primary decision-making group
Group 2: Decision-Making Authority	
Council F2	
Steering Committee/ other committees	Strong Advisory role

Continued

Membership	Manage affairs of the council; primary decision-making group
Council F8	
Steering Committee/ other committees	Strong Advisory role
Membership	Manage affairs of the council; primary decision-making group

For Group 1 formal watershed councils, the degree of decision-making authority is closely associated with membership in committees and boards described in table 5-11. As indicated, the group with the least amount of decision-making authority is the general membership. Generally, by-laws limit general members' exercisable decision-making authority to annual or semi-annual general watershed council meetings at which time they elect board members and approve measures presented to them by the board. General members can normally exercise non-binding decision-making authority through participation on voluntary advisory committees. Outside of these meetings and committees, general members only comment (not vote) at meetings of the primary decision-making group.

The next higher steps in the formal council decision-making hierarchy are leadership type committees (e.g., executive committees, and boards). These groups perform functions assigned to them by the board or executive council. For example, in councils F1, F4, and F6 the executive committee has the authority to represent the council if directed by the board. Outside assigned duties, these groups typically perform supervisory functions and administrative duties such as council treasurer and secretary.

The next higher level in decision-making authority is advisory committees. These committees, standing or created to address a specific problem, meet regularly and are generally technical in nature. Agency professionals, industry representatives, and general watershed council members typically staff technical committees. These committees exert their decision-making influence by being the principal group to evaluate, structure, and frame information; they ultimately make recommendations to the primary decision-making group. For example, to support

rehabilitation projects, council F5's Technical Team had the responsibility of prioritizing the biological suitability of sub-watersheds and waterways throughout the watershed. This group of Technical Team members consisted of agency professionals, a representative from Native American tribes with lands in the watershed, a Soil and Water Conservation District (SWCD) representative, and the council coordinator. The culmination of their work was a recommendation to the primary decision-making group for use in evaluating and implementing projects throughout the watershed. Purposeful or not, this small group's recommendations affects the types of projects the council would determine were suitable and where in the watershed the council considered projects most likely to succeed. Similarly, council F6's Technical Team reviewed and evaluated all potential council projects. Projects evaluated by the F6 Technical Team included whether to renew their service agreements with vendors, discussion of cost sharing proposals with the BLM to use salvage logs for in-stream projects, fish culvert replacement, involvement in Coastal America projects, and whether to 'partner' and cost share with ODFW on a fish ladder modification project. While many general watershed council members are ineligible to vote directly on issues such as these. These examples demonstrate the enormous authority exerted by Technical Team recommendations through their recommendations to the primary decision-making group.

Committees in Group 2 councils have a good deal of authority as well, although less than Group 1 committees. Group 2 committees were staffed exclusively from the general watershed council membership, which is also the primary decision-making group. All general watershed council members and not just a small sub-group of the watershed council membership evaluate Group 2 committee recommendations. This seems to limit the ability of Group 2 committees to influence final decisions to the degree of Group 1 committees. For example, when council F2 created its Action Plan, the general watershed council (i.e., primary decision-making group) created an ad-hoc committee of its larger membership to focus on creating the action plan. When the committee presented drafts for review or requested guidance, they requested it from their fellow general watershed council members and not from a dedicated Technical Committee. Ultimately,

when Group 2 committees present information back to the primary decision-making group, they are presenting to all watershed council members who each have vested decision-making authority. Nonetheless, committees in Group 2, as in Group 1, that work independent of the general watershed council still have the capacity to influence council decisions based on reported information.

A significant difference was found between informal and formal council survey respondents when asked how influential various participants were to the decision making process (Q20). Informal council respondents reported unanimously (100%) that watershed council members at the meeting were very influential in the decision process, while only 83% of formal council respondents reported they were (Table 5-12). Formal council by-laws supported descriptions of hierarchies indicating that not all members of formal watershed council are influential. Conversely, members of informal councils, having limited available resources, relied strongly on fellow council members for decision-making.

TABLE 5-12: Perceived Influence of Members (Select Factors)

Q20: Of the individuals that have the authority to make decisions on your WC, in your opinion how influential are those individuals to your WCs decision-making process.		Very Influential	Somewhat Influential	Not Influential
WC members at the meeting*	Informal (N=31)	100%	0%	0%
	Formal (N=58)	83	16	2
Visitors to the WC**	Informal (N=32)	36	48	16
	Formal (N=57)	16	50	34

p-value < 0.05, ** p-value < 0.10

Table 5-12 also reports perceived influence of visitors to watershed council decision-making. For example, 36% of informal members perceive that visitors to the watershed council are very influential, while only 16% of formal council members responded similarly. In the case of informal councils, this may reflect the lack of immediately available internal resources and the need to rely on other resources. In observations, informal councils commonly looked beyond the council for information or other resources. An example of an extra-council resource is the North Coast

Watershed Association (NCWA) (formerly the Clatsop County Coordinating Council). The NCWA is a confederation of five North coast watershed councils (i.e., Ecola, Skipanon, Necanicum, Nicolai-Wickiup, and Young's Bay) (Clatsop County Watershed Council 2002). With access to resources such as the NCWA, informal councils are capable of taking on larger-scale projects such as watershed assessments. For example, councils I2, I4, and I5 in conjunction with the larger NCWA demonstrated their ability to cooperate and collaborate in completing their watershed assessments. In place of three individual grants, these three councils pooled their resources to request one OWEB grant in order to hire a consultant to gather and compile much of the technical data needed to complete all three-watershed assessments concurrently. As a group, along with the consultants and logistical support from the NCWA, the councils compiled and reviewed their respective assessments. Conversely, prior to this joint effort, council I1 began their assessment independently of the NCWA and struggled with the cumbersome requirements of an OWEB watershed assessment. Council I1's main difficulty was the detailed scientific knowledge required to conduct and complete an OWEB approved watershed assessment (Watershed Professionals Network 2001). Eventually, council I1 turned to the NCWA for assistance in completing their watershed assessment. While not conclusive, this example may indicate that when visitors and external resources have resources and knowledge needed by informal councils their influence can be considerable, as was the case with the NCWA and the councils it assisted.

Formal councils reported a very different perception, with only 16% of formal council members reporting visitor input as very influential. This result may reflect who can participate in formal council decision-making. As mentioned previously, general membership typically includes a broad range of participants such as agency professionals, private industrial forestry, local government, advocacy organizations, and limited private citizen involvement. Those with decision-making authority, however, are a select group of this general watershed council membership. As was observed in committee meetings, however, a limited number of professional members are often in a position to exercise their technical knowledge or utilize the knowledge of the interest group

they represent; thus, they rarely seek extra-council resources for decision-making. Formal council observations corroborated this finding. During observations rarely did a non-council member present additional key information to a formal council. In fact, during observations, visitors to the watershed council only gave advice to a formal council twice, once to council F5 regarding stream geomorphology and once to council F3 concerning ODEQ's Total Maximum Daily Load (TMDL) process. On the other hand, formal council members often presented information to their own council, supporting the claim that formal council members perceive that necessary resources pre-exist within the council. While there were certain exceptions in which such councils relied on outside consultants or parties, they often did so only because they were cooperating on specific projects. Often these presentations were project status updates more than providing specific information about an issue under consideration by the council.

These findings suggest that informal council often look outside the watershed council for necessary expertise due to their small membership size and resulting lack of inter-council resources. Formal watershed councils on the other hand, rarely need to rely on external resources due to their broader membership base and links to professional organizations and agencies.

5.2.5. Decision-Making Tools

OWEB and watershed councils typically describe themselves as council based decision-making groups. According to available by-laws, consensus is the most common decision-making strategy for both informal and formal councils. However, survey results, observations, and council documents suggest that councils use a multitude of decision-making tools.

We began this research assuming consensus was the primary decision-making tool because of claims by OWEB and watershed councils. Nevertheless, we found that there is no commonly agreed upon definition of consensus. For example, comparing F8 by-laws description of consensus with definitions from the literature, differences emerge.

Watershed Council: “By-laws recognize consensus as happening when “all parties believe their views on a particular issue have been satisfactorily heard and agree not to block the group’s decision on the issue.” (F8)

Literature: A panel is chosen that includes representatives from every significant interest group with a stake in the issue. They meet fact-to-face; agree to take each other seriously, to stay at it as long as necessary, and to focus on finding a mutually acceptable result rather than merely looking for avenues of self-expression (Ehrenhalt 2002).

Literature: “Environmentalism is a big-picture movement, valuable when it comes to imagining a different kind of world than the one we live in, but usually incapable of implementing that vision. Implementation takes people who work the land, who can invent machinery, logging, and grazing techniques, and who can put together capital and labor and markets to restore the land. Environmentalists need to be at the table because we understand what the land should look like. But others must translate that vision into concrete achievements. Those environmentalists who participate in consensus efforts aren’t doing it out of the goodness of their hearts, or because they are foolish and overly trusting. They do it because they need help to get their way. The same enlightened but selfish reasoning brings ranchers, loggers, and federal land managers to the table. They join consensus efforts because it is the most efficient way for them to do business today” (Marsten 1999: 1).

These definitions show different understandings of consensus. This utilitarian watershed council definition is illustrative of various definitions from watershed council literature that suggest consensus occurs when members agree not to block a council’s desired direction. The literature definitions tend to describe consensus as a relationship intensive process based on sustained communication. In general, informal and formal councils consider consensus to occur when the primary decision-making group reaches general agreement while working within the auspices of cooperation and collaboration.

Table 5-13 describes decision-making tools used by informal and formal watershed councils. The first column of table 5-13 describes the decision-making tools found in council by-laws. While most informal and formal council propose to use consensus, a few propose modified consensus, or voting some form of method (e.g., voting, consensus minus one) methods. The second column reports the decision-making tools observed at council meetings. Both informal and

formal councils use consensus to a degree, but they also used Robert's Rules of Order to set discussion limitations (e.g., time, or number of responses) and voting.

The final column reports survey results of respondents who were asked whether their watershed council used alternative decision-making tools (Q19) when consensus seeking failed. The two commonly cited alternative decision-making tools by informal councils was majority vote (45%) and followed by tabling the decision until the next meeting (42%). These decision-making tools likely work sequentially. For example, if a council cannot reach consensus on an issue, the council will table the issue until a subsequent meeting. At the subsequent meeting, the council continues discussing the issue and attempting to reach consensus. If consensus is not attainable, the council may resort to voting on the issue in order to arrive at a final decision. Alternatively, councils also use voting as a preliminary tool to measure the degree of consensus in order to determine whether to table a decision. In formal councils the most frequently used strategy when consensus fails is to table the decision (46%) either permanently (as described above in the case of herbicide use) or until a further meeting.

TABLE 5-13: Decision-Making Tools

By-Laws	Observed	Survey Reported (Q19a)	
Informal		(Yes) N=31 * p-value < 0.05	
I1: Consensus = unanimous vote	<ul style="list-style-type: none"> • Consensus • Robert's Rules 	a. Robert's Rule*	29%
I3: ¾-majority vote of voting members.		b. Majority vote*	45
I7: Majority Vote of quorum present, or, majority vote of board.		c. Super majority vote	3
		d. Table the decision	42
		e. "Fist of Five" *	0
		f. "Unanimity"	19
		g. Other*	16
		h. Don't know	16
Formal		N=61	
F1: Consensus minus one	<ul style="list-style-type: none"> • Modified consensus • Robert's Rules 	a. Robert's Rule*	11
F4: Consensus of quorum		b. Majority vote*	8
F6: Consensus		c. Super majority vote	3
F7: Modified consensus		d. Table the decision	46
F2: Consensus and voting		e. "Fist of Five" *	13
F8: Modified consensus + majority vote		f. "Unanimity"	10
		g. Other*	36
		h. Don't know	8

In responses to an open-ended question about what happens when someone objects to a decision (Q19), informal councils provided a range of options that support observations and other survey results. These decision-making tools include (Table 5-14):

TABLE 5-14: Decision-Making Tools: Informal Councils -Alternative

- | |
|--|
| <ul style="list-style-type: none"> • All decision will be made by consensus (I1, and I3) • Consensus reached by members present (I4, and I5) • Majority vote of all members present (I3) • Votes are made, and if consensus is made it is accepted (I1) • Voted on by present members (I1, and I6) • Voted on by consensus (I2) • Board approval (I7) |
|--|

The responses of informal council members and observations of meetings are clear that while consensus is valued; voting is often used to keep the decision-making process moving forward. In one example, the coordinator of council I6 expressed that one member cannot hold up a project. When one or more members dissent, the council works with dissenting members as much as possible to overcome objections or concerns. However, if consensus is unattainable, this council will resort to Robert's Rules and voting to move a project forward. In this same vein, council I1 did discuss how to move from consensus to a vote if necessary. The same council also discussed how to determine tabling an issue, in order to avoid continually dealing with the issue. The council also discussed what consensus was, and if they could or should combine consensus and Robert's Rules.

A major difficulty councils had, was having a common definition of what consensus was. For example, one I1 council members considered consensus a tool, not an absolute, allowing member's to express dissent while not holding up an issue. This council's discussions illustrate a members understanding that differs markedly from the literature understandings of consensus presented above. Whatever their understanding of consensus, informal councils often discuss their way through issues and begin planning how to execute the issue before they realize they have reached a decision by consensus.

These observations and survey data agree with information in available informal council documents. The results indicate that informal councils generally utilize consensus if it allows the council to move forward on an issue. However, if tabling the issue and holding it over for future discussion does not ameliorate the problem; informal councils will resort to Robert's Rules and voting to reach a decision

Decision-making strategies are considerably different for formal councils. The decision-making tools reported in table 5-15 are those used by the primary decision-making group only and do not include information from other groups in formal watershed councils. Formal council by-laws generally reflect the desire to use consensus as a decision-making strategy but recognize that an alternative may be needed:

In agreement with, or are willing to accept, the same proposed resolution of an issue under consideration. (F6)

All decisions shall be made by consensus except where otherwise provided in these by-laws. All members believe their views on a particular issue have been satisfactorily heard and agree not to block the group's decision on the issue. Participants with dissenting views may stop the decision process if their disagreement is strong enough, or they may express their disagreement but allow the decision to proceed. (F7)

All council members believe their views on a particular issue have been satisfactorily heard and agree not to block the group's decision on the issue. Participants with dissenting views may stop the decision process if their disagreement is strong enough, or they may express their disagreement but allow the decision to proceed. These By-laws recognize that there may be situations in which a unanimous vote is not possible but circumstances dictate that the Council reaches a decision in a timely fashion. In such instances, the Chair, 30 days prior to the next meeting, may notify the membership of such a situation and modify the requirement for a consensus decision such that a three-fourths (3/4) majority vote is required. (F2)

These descriptions of consensus define a decision-making process that allows members to express dissent, while still allowing a project move forward. These loose definitions of consensus are one way councils incorporate Robert's Rules into the decision-making process to keep projects moving forward.

Observations reveal a different picture of the decision-making tools used by formal watershed councils than the ones reflected in their by-laws. The most frequently observed decision-making tool used by formal watershed councils was Robert's Rules, a process used to tally votes. Repeatedly, councils discussed issues identifying difficulties, worked through as many as possible; but eventually voted on the issue, noting dissenting votes in meeting minutes and moving a project forward if those dissenting agreed not to hold the project up. A council F3 example involved discussion surrounding culvert replacements throughout the watershed. The council discussed whether to focus on individual sub-watersheds or on the watershed as a whole. During the ensuing discussion, members expressed their views favoring one or the other. Following open and sometimes emotional discussion, and an inability to reach consensus, a member made a motion (i.e., Robert's Rules) to focus the council's efforts basin wide. A member seconded the motion, a vote was taken, and the result was to focus basin wide, with dissenting votes noted in the meeting minutes. While some members preferred to focus on individual sub-watersheds, they did not halt the overall council's decision to focus watershed wide. This discussion and subsequent inability to move to an acceptable conclusion is an exemplary example of how formal councils combine the auspices of consensus and Robert's Rules as decision-making tools.

Survey responses, however, differ from these observations. The most commonly reported alternative decision-making tool was to "table the decision until the next meeting" (46%) (Table 5-13). As was discussed previously, council F4's decision to table herbicide use following numerous attempts to reach consensus illustrates that tabling an issue occurred rarely, and only when the issue was particularly divisive, and after repeated attempts to reach consensus unsuccessful. Conversely, reported use of Robert's Rules (11%) contradicted observations of meetings in which the use of Robert's Rules is very common. Open-ended survey responses, displayed in table 5-15, reveal multiple categories of alternative decision-making strategies.

TABLE 5-15: Decision-Making Tools: Formal Councils -Alternative

Voting
<ul style="list-style-type: none"> • Consensus voting and Robert's Rules. • If approved by committees brought to general council for voting. • A member makes a motion; it is seconded, then discussed and voted on. Motion passes if there are zero no's. • Group votes on recommendation. • Passed by technical committee, then voted/approved by watershed council. • There is discussion or some action, or non-action and we vote whether to do it. • We use the Fist-of-five system.

The results from the open-ended question verified the observed decision-making tools in which a combination of consensus and voting are used to measure dissent, but still allow a project to move forward. This method of combining consensus and voting to express dissent was best described by council F6's coordinator as "social pressure not to oppose" projects. In other words, if council members perceive social and political pressure to move projects forward, consensus may seem like a very tedious and unproductive decision-making process. Ultimately, councils utilize voting as a tool that allows member to register dissent, but also allows projects to move forward. To many this seems to represent the spirit of consensus. In one example, one formal council coordinator reported that individual members could block a project from moving forward, but that such situations were likely to occur only where members perceived that the project violated their values.

The results of this study show that while the literature and by-laws focus on consensus as a decision-making tool, both informal and formal councils combine consensus and voting in their actual decision processes. Furthermore, there appear to be clear differences between the preferred tools that informal and formal councils use to make decisions. The most striking difference is in the use of non-consensus based decision-making tools. While informal councils reported using Robert's Rules and majority voting, in reality, they seem only to use them occasionally. While formal councils reluctantly report the use of methods other than consensus, observations and survey responses reveal that they often rely on non-consensus based decision-making tools. Moreover,

informal councils regularly discussed issues over multiple meetings attempting to ameliorate dissenting views and reach consensus, only resorting to voting or tabling an issue as a last resort. Formal watershed councils may also discuss an issue over more than one meeting, addressing dissenting views, but not to resolution. Using Robert's Rules to call for a vote was the norm for council decision-making, while tabling an issue was uncommon.

Possibilities for explaining these differences may be linked to the long-term relationships that exist between council members. Informal council relationships may provide members with a familial atmosphere to discuss issues over several council meetings without the pressure to move forward until it is either resolved through consensus or the membership decides that action is necessary. Formal councils, with their emerging and newer relationships among members, may feel a self-imposed social and political pressure to approve projects to reinforce their idea that the council is accomplishing its goals. This self-imposed pressure may lead formal council members to depart from the consensus process prematurely, and resort to a modified consensus process that allows projects to move forward.

5.3 WATERSHED COUNCIL CULTURE AND NORMS

For the purposes of this research, culture focused on two related but slightly different aspects of culture: worldviews and organizational norms. The first, aspect, worldviews, has two components. The first explores paradigms, in part represented by the New Ecological Paradigm (NEP). The NEP is “an academic analogue of green thinking, advocating an approach which was less anthropocentric and more ecocentric” (Hannigan 1995: 12). NEP questions try to comprehend “concepts, values, perceptions and practices” about human interaction with ‘nature’ (Milbrath 1998: 115-134). The second component explores reasons watershed council members participate in their local watershed council, and associated activities.

Organizational norms focus on three aspects of watershed council culture. The first examines how members perceive their participation and affiliation with the watershed council. The

second reviews how council members perceive their watershed councils. The final aspect sheds light on council members' participation in specific watershed council activities. Collectively, these three aspects of organizational norms are a powerful way to understand a watershed council's sense of place, its shared goals, and the relationships between watershed council members. Furthermore, they provide an opportunity for understanding involvement and the organizational ethos of watershed councils.

Survey information provides the majority of the evidence for observations about watershed council culture. Observations and interviews provide limited support for survey claims. Survey data reveal that informal and formal councils are generally similar across the range of cultural components. Survey data also show that informal and formal councils vary in the following areas: affiliation with the New Environmental Paradigm (NEP), reasons for participation, representativeness of community values, affiliation, frequency of participation, and value of volunteer participation. These findings are discussed in detail below.

5.3.1. Worldviews

To help understand worldviews of informal and formal council members, survey questions explored council member perceptions of participation and reasons for participation. The NEP survey question, (Q25), explores environmental perceptions concerning agreement, and disagreement regarding environmental awareness, as well as insight into human relationships with nature. This research did not compare watershed council NEP responses with other available NEP survey data.

TABLE 5-16: New Ecological Paradigm (NEP)

Question # 25		Strongly disagree	Neutral	Strongly agree
a. The balance of nature is very delicate and easily upset by human activities.	Informal (N=30) Formal (N=61)	17% 21	13% 17	70% 62
b. The earth is like a spaceship with only limited room and resources.	Informal (N=30) Formal (N=61)	10 13	7 8	83 79
c. Plant and animal exist primarily for human use.	Informal (N=31) Formal (N=61)	77 72	10 13	13 15
d. Modifying the environment for human use seldom causes serious problems.	Informal (N=31) Formal (N=61)	78 84	3 10	19 6
e. There are no limits to growth for nations like the United States.	Informal (N=30) Formal (N=61)	87 93	3 5	10 2
f. Humankind was created to rule over the rest of nature.	Informal (N=30) Formal (N=61)	84 82	6 5	10 13
g. Technology will find a way to solve the problem of shortages of natural resources.	Informal (N=30) Formal (N=60)	55 63	29 19	16 18
h. People will be better off if they lived without so much technology.	Informal (N=30) Formal (N=61)	42 49	32 23	26 28

As table 5-16 demonstrates, both, informal and formal council members expressed strong pro environmental worldviews. For example, table 5-16-b shows that 83% of informal and 79% of formal respondents strongly agreed that earth has limited room and resources. Table 5-16-c also reveals that 77% of informal and 72% of formal council members did not perceive that plants and animals exist primarily for human use. Table 5-16-d shows that 78% of informal and 84% of formal council members observed that a connection exists between human modification of the environment and environmental damage. Informal and formal councils were the most divergent on NEP questions related to technology. Accordingly, table 5-16-g shows that 55% of informal and 63% of formal respondents do not believe that technology will help narrow the gap in shortages of natural resources. The comparatively low confidence shown in technology demonstrates a perception that technology alone will not resolve environmental damage, or in this case improve watershed health. Table 5-16-h speaks to this aspect of technology. Despite the lack of faith in technology to solve problems, about half of the respondents reported that they would be better off with less technology.

This response indicates that many survey respondents find both value and problems with technology.

The overall environmental sentiment expressed by watershed council members and their perception that technology alone cannot solve all environmental problems suggests a preference for a holistic approach to watershed rehabilitation. The types of projects councils implement reflect this rehabilitation approach. These projects are representative of their possible realization that watershed rehabilitation principally involves habitat rehabilitation, a decidedly low technology concept. Informal and formal council projects have included not only the expected culvert replacement, tree planting, and woody debris placement, but also larger bio assessments and survey of whole watersheds, nutrient studies of entire streams, and land purchases for easements.

While these are only some examples of watershed council projects, many are holistic in their approach to habitat restoration and use the appropriate technology to accomplish their goals.

The second aspect of worldviews reflects reasons members participate in their watershed council. Generally, members of informal and formal councils reported similar reasons for participation (Table 5-17).

TABLE 5-17: Reason for Participation

How important to you are each of the following reasons for participating in your watershed council?		Very Important	Moderately Important	Not Important
a. It is easy.**	Informal (N=31) Formal (N=59)	16% 8	36% 19	48% 73
b. Benefits my community.	Informal (N=32) Formal (N=63)	75 86	25 14	0 0
c. Benefits salmon and steelhead.	Informal (N=30) Formal (N=63)	90 87	7 8	3 5
d. Good for the environment.	Informal (N=31) Formal (N=62)	87 92	6 5	7 3
e. We're running out of time to save endangered species.	Informal (N=32) Formal (N=62)	65 60	16 27	19 13
f. It is part of my job.	Informal (N=32) Formal (N=58)	19 22	22 14	59 64
g. Benefits water quality and water quantity.	Informal (N=32) Formal (N=61)	78 90	19 7	3 3
h. To ensure that WC activities do not negatively affect me.	Informal (N=30) Formal (N=61)	43 34	20 18	37 48
i. I disagree with the OP for salmon and Watersheds.*	Informal (N=29) Formal (N=60)	17	4 14	79 83

* p-value < 0.05, ** p-value < 0.10

For surveyed watershed council members, reasons for participation again show a strong environmental tendency, agreeing with the NEP responses shown in table 5-16. For example, 90% of informal and 87% of formal council members perceived benefiting salmon and steelhead as a very important reason for their participation (Table 5-17-c). In addition, 87% of informal and 92% formal council members reported participating because they felt it was 'good for the environment' (Table 5-17-d). Informal and formal watershed councils showed a significant difference on two reasons for participation. One, interestingly, was 'disagreement with the Oregon Plan;' 17% of informal council members reported this as a very important reason for participation in their watershed, while this is only a very important reason for 3% of formal council members (Table 5-17-i). In addition, 16% of informal members reported 'it is easy' as a very important reason for participation, while this was true for only 8% of formal council members (Table 5-17-a).

Interestingly, the top four reasons for participation (Table 5-17-c, d, g, & b) are similar for informal and formal councils; however, the top two reasons are reversed. For informal council members, “benefits salmon” ranked higher than “good for the environment.”

The reversal of these top two reasons raises an interesting point. Potential explanations may relate to the scarcity of immediately available resources and the smaller size of informal councils compared to formal councils. As mentioned earlier in the results, the lack of immediately available resources may compel informal watershed councils to focus their efforts on cornerstone species, such as salmon, recognizing that improving salmon and steelhead survivability qualifies as ‘good for the environment.’ On the other hand, formal councils having additional human and non-human resources available to them can broaden their focus to include efforts that not only benefit salmon and steelhead, but also may have narrower or specific watershed benefits. Thus, the size of the watershed council may contribute to the variations in perceived benefit of participation, and focus council efforts.

Overall, these results were not surprising. NEP data in table 5-16 demonstrates that informal and formal council members generally have a strong environmental ethic. These results show that regardless of affiliation, watershed council members believe strongly in environmental integrity and a need to bring human activity into alignment with natural systems. These environmental values are further supported by the reasons informal and formal council members give for participating in their local watershed council. Reasons for participating raise a number of speculative factors. Some council members may participate simply because they perceive their actions to improve salmon and steelhead survivability, others may perceive that their participation improves the environment, and still others may participate out of fear of a larger, broader federal regulatory program replacing the locally driven Oregon Plan. Whatever the reasons, informal and formal council members participate because they believe it benefits salmon, watershed, and the environment in general.

5.3.2. Organizational Norms

Norms speak about patterns typical to a group, in this case watershed councils. To understand organizational norms, I relied primarily on survey responses and watershed council literature. Survey questions provide information in areas such as how representative members perceive their watershed councils to be, how council members perceive their affiliation with their watershed council, and how frequently members participate in various watershed council functions. I also relied on professional literature to describe the norms developed by others not directly involved in the watershed council process.

The original intent of the Oregon Plan was for a broad range of watershed stakeholders, including traditionally antagonistic stakeholders, to cooperate and collaborate in order to create strategies to rehabilitate salmon and watersheds (Nichols 1997b). To accomplish this, the Oregon Plan creators determined that a watershed council should strive to “include representatives from a broad range of stakeholder interests including conservation, recreational, timber, agriculture and other interests within their basin. The state encouraged councils to be as inclusive as possible” (Nichols 1997a: Chp17: 5). The legislature provided the following direction in describing a watershed council:

“A watershed council may be a new or existing organization as long as the council represents a balance of interested and affected persons within the watershed and assures a high level of citizen involvement in the development and implementation of a watershed action program. A local watershed council may include representatives of local government, representatives of nongovernmental organizations and private citizens, including but not limited to:

- a. Representatives of local and regional boards, commissions, districts and agencies;
 - b. Representatives of federally recognized Indian tribes;
 - c. Public interest group representatives;
 - d. Private landowners;
 - e. Industry representatives;
 - f. Members of academic, scientific and professional communities; and
 - g. Representatives of state and federal agencies.”
- (Oregon Revised Statutes 2001)

The Oregon Plan authors further described watershed councils as “locally organized, voluntary, non-regulatory groups...that offer local residents the opportunity to be involved in making decisions at the local level that affect their watershed” (Nichols 1997a: Chp17: 5). From this perspective, the norms of watershed councils include representativeness and are aimed at including all interested stakeholders who wish to participate in a watershed council.

Interpreting the above list as a guide for council representativeness, a watershed council in the spirit of the Oregon Plan would have as many of the above stakeholders as possible. While creating a council with all of the representatives described in the statutes may or may not be possible, councils should continually strive to expand the diversity of their membership.

An important element of council norms is how representative of interests members perceive their councils are. Results show that members of informal and formal councils perceive their councils representativeness very differently. Only 43% of informal council members perceive their councils as very representative, while 68% of formal council consider their councils very representative (p -value = 0.03). Generally, these results are an accurate reflection of council representativeness. For informal councils, these results reflect the limitations informal councils face in developing a diverse council membership due to geography, land ownership, and population dynamics discussed earlier.

Information for representativeness is somewhat accurate for formal councils, but council hierarchies are a consideration here. The existence of hierarchical structures discussed earlier, makes determining watershed council representativeness difficult. At the general watershed council level, formal councils are generally representative. Higher ‘up’ in formal council hierarchies, however representativeness may vary. Typically, general council members vote for members of Technical Committees and Steering Committees or appoint representatives of water related interests in the watershed to participate in these committees. Often, these groups consist of agency and industry professionals, with few general citizens or members of interest groups.

How members perceive their affiliation with the council is also an important council norm. ‘Affiliation’ refers to the interest or the group that members perceive they represent in their watershed council (Table 5-18). Responses to this question are in two categories, primary and secondary affiliation. The two categories allowed council members to register an interest or group they feel they principally represent on the watershed council along with any secondary affiliations. Overwhelmingly, results show that informal and formal watershed council members identified themselves as ‘community members’ for both their primary and secondary affiliations (Table 5-18). Whether members chose “community member” or the professional organization they work for as their primary or secondary affiliation, a possibility exists that many, if not all, watershed council members perceived their affiliation with the watershed council to be civic-minded in nature. Ultimately, each member whether an agency professional, industry representative, advocacy group representative, or private citizen brings their specific skills to bear in the watershed council setting but thinks of their membership more broadly.

TABLE 5-18: Member Affiliation

Question # 6	Community Member	Government	Natural Res. Industry	Advocacy Organization	Other
Primary **					
Informal (N=31)	54%	10%	10%	10%	16%
Formal (N=55)	45	22	22	0	11
Secondary					
Informal (N=19)	32	21	21	10	16
Formal (N=28)	43	18	14	18	7

** p-value < 0.10

Despite the variety of responses given to the affiliation question, it would be fair to say that informal councils are not fully representative of their watershed communities. For example, in informal councils federal agency participation occurred rarely if ever, even though all informal watershed councils were located on the Columbia River or Oregon Coast where federal agencies have jurisdiction over federal salmon recovery efforts. Industrial timber was generally the sole industry representative, while other industries such as commercial or shell fishing were generally

absent. Private landowners, public interest groups, and members of academic, scientific and professional communities (i.e., OSU Extension Service Agents) participate, but in limited numbers and not on a consistent basis. Alternatively, many councils had intermittent agency participation (e.g., ODF, ODFW, SWCD, or ODOT) observed at one time or another.

Hierarchies in formal councils complicate understanding formal council characteristics for representativeness and affiliation. Since survey results only represent the primary decision-making group, these conclusions are limited to that group. Reported representativeness and primary affiliation do not accurately reflect formal council members participating at the primary decision-making group level, nor do the results reflect desired council compositions defined in council documents.¹ Observations and document analysis reveals that participants at the primary decision-making group level come from a somewhat limited range of watershed interests, and are not necessarily representative of all concerned interests in the watershed. These two sources do not reflect the claim that 45% of formal watershed council members consider their primarily affiliated as community members (Table 5-18). In many formal watershed councils, secondary affiliation more accurately reflects the interests represented at the primary decision-making group level. At this affiliation level, the principal change occurs in the advocacy group's category, which jumps from 0% to 18% (Table 5-18). Other affiliation categories remain largely unchanged, with 43% claiming community member as their secondary affiliation (Table 5-18). By intent or not, committee and advisory groups consist primarily of professionals representing agencies, industry representatives, and representatives from local advisory groups (e.g., Soil and Waters Conservation Districts). While many of these members may perceive their affiliation with the council as community-oriented due to the civic nature of watershed councils, many lay council members still view these watershed council members as representing a specific non-community oriented interest. One possible reason these committee are dominated by professionals is the time of day they meet to

¹ See Formal council by-laws for the MidCoast, Coos, and Coquille watershed councils.

conduct meetings. Many technical and advisory committees in formal councils meet during the middle of the day. This may make attendance difficult for members who do not participate as part of their job. For example, private citizens or members of advocacy groups that have other full time employment may find meetings in the middle of the day difficult to attend.

Only one significant difference exists between types of activities in which formal and informal council members participate (Table 5-19). Informal council members were more likely to report (61%) they had never been involved in spending or managing public money than were formal council members (44%). This, once again, is likely to reflect the make-up of hierarchical decision authority in formal councils.

TABLE 5-19: Participation in General Organizational Council Activities

a. General Organizational		Weekly	Monthly	Quarterly	Annually	Never
b. Write grants	Informal (N=32) Formal (N=57)	6% 0	13% 9	16% 16	9% 15	56% 60
c. Gather information	Informal (N=31) Formal (N=56)	29 23	13 39	32 11	16 11	10 16
d. Spend and manage public money*	Informal (N=31) Formal (N=57)	13 7	7 28	13 7	6 14	61 44
e. Create new organizational committees	Informal (N=30) Formal (N=57)	0 2	10 9	13 21	30 33	47 35
f. Develop and monitor budgets	Informal (N=30) Formal (N=57)	3 3	10 25	14 12	20 14	53 46
g. Office work; greeting, filing, mailings	Informal (N=31) Formal (N=56)	9 12	10 14	3 4	10 11	68 59

* p-value < 0.05

For participation in technical activities, the results do not show remarkable results, nevertheless, the results are interesting (Table 5-20). Formal and informal council members tend to participate in technical activities at similar rates (Table 5-20).

TABLE 5-20: Participation in Technical Council Activities

B. Technical		Weekly	Monthly	Quarterly	Annually	Never
a. Monitor projects	Informal (N=29) Formal (N=56)	14% 4	20% 17	14% 29	38% 18	14% 32
b. Conduct watershed assessments	Informal (N=28) Formal (N=56)	11 0	11 7	18 7	32 38	28 48
c. Project reporting	Informal (N=28) Formal (N=54)	3 0	18 15	32 22	18 19	29 44
d. Project development	Informal (N=27) Formal (N=57)	4 2	18 24	30 30	37 18	11 26
e. Set project priorities	Informal (N=28) Formal (N=57)	4 2	18 28	39 39	28 12	11 19
f. Meet with experts	Informal (N=28) Formal (N=56)	7 9	32 43	39 23	22 13	0 12
g. Strategic planning	Informal (N=29) Formal (N=57)	3 0	28 30	31 19	21 28	17 23

On a monthly basis, for activities requiring fieldwork, project reporting and completion, (i.e., monitoring projects, or conducting watershed assessments), informal watershed council members have slightly higher participation rates than formal watershed council members (Table 5-20-a, b, & c). This result is likely related to the limited amount of resources available to informal watershed councils. In these examples, the small size of informal watershed councils may lead to the same council members frequently participating in on-the-ground project activities. The opposite may be true for formal councils. Having larger council memberships, individual council members' frequency of working on projects may be limited. However, formal council members show higher levels of participation in pre-project phases such as project development, setting project priorities, and meeting with experts (Table 5-20-d, e, & f). This phenomenon may result from the use of multiple paths into a watershed council where primary decision-making group members can evaluate projects, and the use of committees, requiring technical oversight, and final approval by the primary decision-making group. Interestingly, formal council members report having never

participated in specific activities at higher rates than informal council members in five out of seven categories.

Watershed council culture spoke to how members of informal and formal watershed councils differ in their perception of their role in the watershed council experience. As the results show, members of informal and formal watershed councils have a strong environmental ethic as displayed by the NEP survey question (Table 5-16) and reasons for participating (Table 5-17). This strong environmental ethic allows all watershed council participants to apply their unique skills towards achieving the goals of the Oregon Plan.

In terms of norms, informal and formal councils do differ. Informal council representativeness is limited primarily due to the small size of their councils, and probably not due to inability to attract or recruit a diverse membership. Conversely, formal councils have a developed a hierarchical structure that at the lowest level does create a very representative watershed council. Nevertheless, the primary decision-making group of many formal watershed councils is not very representative of the diverse interests in the watershed, or on the general watershed council.

These two differing cultures do seem to operate in a fashion that allows both to perform the goals they have laid out for themselves. As with other differences between informal and formal councils, the differences in council culture are not detrimental to the overall function of the watershed councils. Informal councils suffer primarily from size and the burden to accomplish a seemingly large task with limited resources. Formal councils face a different cultural difficulty, to create a council fully representative of watershed interests where all participants have an active role and say in the projects and direction of the watershed council.

CHAPTER 6: CONCLUSION

As we have seen, watershed size, landownership dynamics, and population work together to produce markedly different watershed council types in select Oregon coastal watershed councils. The most noticeable difference between informal and formal councils is the lack of an internal organizational structure in informal councils, and a highly formalized organizational structure in formal councils. These differences lead to dissimilar approaches for conducting daily business in informal and formal watershed councils.

A simple pathway of decision-making process is the most distinguishing aspect of informal watershed councils decision-making. This process is the cornerstone in establishing generally open council operations for informal councils. This simple pathway decision-making process is not likely an intentional design, but instead, an evolutionary product resulting from the factors that contribute to the size of informal watershed councils. With relatively small council memberships, limited or no paid staff, and a lack of resources, informal councils do not have the ability to operate multiple standing committees or conduct large projects simultaneously. While informal councils may have as many committees as formal councils in name, these committees generally meet intermittently or only when required. This observable fact is not necessarily a setback for informal councils. Standing committees, such as those found in formal councils that function autonomously from the primary decision-making group filter requests, information, and alternatives as they shape recommendations. Without such filters, informal council members have the full opportunity to explore requests, problems, and decisions on their original merits. If additional information is required, informal councils often create issue specific ad-hoc committees to research and report their findings back to the general council members and then disband. Over time, all informal watershed council members have participated on various ad-hoc committees, gaining experience in watershed issues and problem solving.

With few limitations, membership in informal councils is open to all interested citizens or landowners that support the goals of the watershed council. In addition, informal council decision-making authority rests with the general watershed council and not a sub-group of the general watershed council. These structural factors do not appear to limit informal council's ability to operate. Contrarily, these factors create advantages including the ability to familiarize themselves with the multiple roles members take on, creating a membership with knowledge in the many facets of watershed council business. These opportunities create and understanding of common experience on the council. In addition, to participating in the watershed council, informal members may encounter each other in other venues (e.g., community events, PTA, and other volunteer associations such as the Rotary Club). These recognizable community relationships enhance the decision-making capacity of informal councils by extending the existing social capital into the watershed council. By integrating into the existing social capital of the community, informal councils can leverage that familiarity within local units of government and other community entities as a resource for improving salmon and watershed issues. By capitalizing on strong community relationships, informal councils create a positive collaboration and cooperation relationship among industry, community groups, state, and local government.

Formal watershed councils, have a more traditional organizational structure. The chief components of this structure include multiple decision-making levels resulting in multiple complex decision-making paths and multiple levels of decision-making authority. These components create a business-like, vertically integrated organization. This structure enhances the ability of formal watershed councils to implement multiple large, complicated, and complex projects. However, this organizational structure interdicts member participation and diminishes the possibility of true consensus-based decision-making.

Formal council operations organize a large consortium of potential participants including federal and state agencies, natural resource industry, advocacy groups, and landowners in the watershed. One way this occurs is through standing committees (i.e., projects committee) while

other committees direct the general efforts of the council (i.e., executive board). Some of these committees evaluate and filter projects for the primary decision-making group. In most cases, the primary decision-making group is not the general watershed council, but an elected, nominated, or appointed individuals from the general membership that represents the various interests in the watershed.

With the presence of hierarchies, formal councils are capable of processing considerable amounts of information, validating that information and disseminating the information to coordinate projects simultaneously. A major allusion is the use of consensus as the decision-making tool, their use of modified consensus (Tables 5-13 & 5-14) limits decision-making participation concerning council activities. Council by-laws clearly describe membership levels and the decision-making hierarchies. Combining modified consensus based decision-making tools (e.g., Robert's Rules) and membership hierarchies, formal councils hinder consensus-based decision-making by limiting who can participate and on what level members can participate. Limiting decision-making authority to a single group creates a 'glass ceiling' of participation for council members not in groups with decision-making authority.

TABLE 6-1: Factor Differences

Factors	Informal	Formal
Watershed Size	Small	Large
Landownership	Single dominate	Multiple co-dominant
Population	Small	Large
Structure	Extempore	Ridged – Rule defined
Operations	Single - simple path	Multiple - complex paths
Membership	Open, limited rules	Defined by rules Multiple levels
Decision-making Authority	Open, limited rules	Defined by rules Multiple levels
Decision-making Tools	Open participant discussion Consensus Modified Consensus	Recommendation & restrictive discussion Modified Consensus Voting
Information	Basic scientific/technical Rely heavily on extra-council resources to validate and disseminate	Basic scientific/technical, & available advanced Internally verify accuracy, and disseminate easily

As table 6-1 illustrates, the differences between informal and formal councils are discernible on multiple factors. As this research has attempted to elucidate, differences in these select factors strongly correlated to distinctly different, yet capable, watershed council structures. Informal councils, while small, have a high degree of participation from a small and dedicated cadre with a structure in terms of meetings, membership, and decision-making processes. Yet informal councils lack the necessary internal resources to take on large-scale projects simultaneously. This research illustrated, informal councils typically focus on a range of small-scale projects or one large project. Conversely, formal watershed councils, being considerably larger, create a structure that limits participation throughout the watershed council. However, their large team of internal technical and administrative resources allows them to coordinate multiple projects of varying scale. These differences while marked, do not limit informal or formal watershed councils from accomplishing aspects of the Oregon Plan.

As volunteer groups (i.e., interest groups) understanding where watershed council fit on the spectrum of volunteer organizations in the United States. Historically, interest groups compete for

their own narrow interest at the expense (possibly) of the broader public interest. This phenomenon was understood by James Madison when in Federalist 10 he proposed that the cause of the factions (i.e., interest groups) are “sown into the nature of man...[and that] free men are more likely to try to oppress each other than they are to co-operate for the common good” (Berry 1989: 3 quoting Madison). Madison’s primary fear was that interest groups with greater resources (human and non-human) might gain greater access to government for their interests than interest groups with fewer resources (Berry 1989). Interest groups form non-governmental links between their interest groups and government, “forming a channel of access through which members voice their opinions to those who govern” (Berry 1989: 6). Outside of voting, interest groups allow citizens direct participation in the governance process. If this is the case, why, according to Putnam (2000) is participation in interest groups declining significantly? From the beginning of the gilded and progressive age, civic participation seemed to rise steadily through the end of the 1960’s (Putnam 2000). Since that time volunteerism has seen a steady decline. Surveys administered between 1987 and 1999 reflect this decline:

In 1987, of baby boomers interviewed, 53 percent thought their parents’ generation was better in terms of “being a concerned citizen, in helping other in the community...fully 77 percent said the nation was worse off because of “less involved in community activities” (Putnam 2000: 25)

In 1992 three-quarters of the U.S. workforce said that “the breakdown of community” and “selfishness” were “serious” or “extremely serious” problems in America (Putnam 2000: 25).

In 1996 only 8 percent of all Americans said the “the honesty and integrity of the average American” were improving, as compared with 50 percent of us who thought we were becoming less trustworthy (Putnam 2000: 25).

In several surveys in 1999, two-thirds of Americans said that America’s civic life had weakened in recent years...and that our society was focused more on the individual than the community. More than 80 percent said there should be more emphasis on community, even if it put more demands on individuals. (Putnam 2000: 25)

According to these results, it would seem that the amount of civic participation (i.e., volunteerism) is not changing in the near future. However, the history of volunteerism shows not just a rise and fall in civic participation, but a “story of ups and downs in civic participation (Putnam 2000: 25).

If civic participation is indeed in a period of decline, a central question is what kind of organizations will generate the impetus to improve civic participation? The Oregon Plan represents a unique attempt at government sponsored interest group politics where the goal is to direct multiple interest groups to achieve a broader interest public goal; increased wild salmon numbers, healthier watersheds strong economies, and communities in Oregon. By bringing together differing, often antagonistic, interests, with the understanding that cooperation and collaboration are the norms of reciprocity, and not the exception, the Oregon Plan has the opportunity to affect the degree of support for the changes called for in the Oregon Plan. Within a watershed council, representatives of specific interests may initially participate in their local watershed council by attending meetings with the goal of protecting their group’s interest. Over time, the councils active participants predictably ask regularly attending participants, especially those with a significant interest in the watershed, to contribute to the watershed council’s activities. This proactive encouragement to participate in council activities creates the opportunity to cross over from traditionally antagonistic interest participation to cooperative and collaborative participation. Within the watershed council, this proactive non-coercive participation creates social capital (i.e., intentional community) for watershed councils to achieve the plans of the Oregon Plan (Putnam 2000). Optimistically, the idea is that intentionally community translates into actually community, as well as a sense of belonging to a place (Preister & Kent 1997; Cheng 1999). The broader result is achieving ‘generalized reciprocity,’ or seeing value in doing something in someone else’s interest without expecting something specifically for that effort, but knowing in time your efforts will be repaid. These norms of reciprocity establish “connections among individuals” and interest groups that lead to “trustworthiness” among watershed council participants (Putnam 2000: 19).

The Oregon Plan provides an opportunity to mobilize and redirect individual interest group efforts into a common issue identification forum where all interests are welcome to participate in developing a collaborative plan that addresses salmon and watershed health issues while concomitantly establishing connections within coastal communities. Through proactive participation utilizing cooperation and collaboration as the main inducements, participants recognize the private (individual) benefits of watershed council participation, as well as the broader public (collective) benefits of participation in their local watershed council.

Watershed councils may represent an evolutionary phase in how interest groups conduct business in light of our modern litigious and regulated society. The general reactionary nature of interest groups involved in salmon and watershed related issues has placed government as the center piece responsible for sponsoring programs that bridge the gap between competing interest groups to ensure broader goals that go beyond expanded regulatory compliance, but also to allow individual interest groups the opportunity to pursue their interests in a positive atmosphere.

Decision-making capacity in a voluntary cooperative and collaborative setting, whose goals include ecological restoration, as well as social and economic sustainability, creates the image of groups coming together, gathering the necessary information, thoroughly discussing an issue, and then coming to consensus on the best course of action to take. No one doubts the sincerity of the Oregon Plans goals to achieve biogeosocial rehabilitation sustainability, certainly not the Oregon legislature, the Oregon Plan authors, or those participating in the Oregon Plan. The Oregon Plan implies is that consensus-based decision-making leads to divergent participants setting aside their differences to better their common surroundings for a common good. This romanticized perception of decision-making ignores potential animosity that exists between watershed council participants, and the contrary goals participants may have. This idealized perception also ignores the complexity of group decision-making processes. Conceptually consensus allows participants to express their perspectives while maintaining the discussion integrity and respect of participants. The difficulty of incorporating consensus in all decision-making is the amount of time required to discuss a topic to

the point consensus. Another difficulty of employing consensus is maintaining the projects initial scope through the consensus process. During the time of this research, watershed councils utilized consensus to a certain degree (e.g., modified consensus, Table 5-13) but not fully implementing consensus. As the results show, watershed councils often resort to voting to make a final decision. If watershed councils are to live up to the expectations of the Oregon Plan, external watershed council resources (e.g., extension staff) need to provide councils with the necessary tools to engage in consensus as their decision-making tool for substantive salmon and watershed rehabilitation projects.

What this study shows is that the decision-making in Oregon coastal watershed councils occurs in two very dissimilar organizational structures, leading to unique decision-making capacities that play to the strengths of the structure. Playing to these strengths does not necessarily lead to minimizing their weaknesses, but simply allows different types of group structures to focus where they will gain the most. The Oregon Plan's non-conventional, visionary approach that combines cooperation, collaboration and consensus, also offers a unique opportunity to move beyond traditional top down, federally mandated and managed, recovery approaches and decision-making. This uniquely Oregon Plan offers the opportunity to create bridges across traditionally divergent boundaries, between natural resource industries, and environmental institutions, regulatory agencies to achieve a common goal of healthy watersheds for salmon and people.

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CHAPTER 8: APPENDICES

APPENDIX A: QUALITATIVE CODING MATRIX

INTERNAL FACTORS	CENTRIFUGAL FORCES (-)	CENTRIPETAL FORCES (+)
Group Methodology	<ol style="list-style-type: none"> 1. Lack (strong) procedural guidelines 2. Lack methodology and guidelines for group process 3. Lack legitimate strategy for problem solving 	<ol style="list-style-type: none"> 1. Have (strong) procedural guidelines 2. Have methodology and guidelines for group process 3. Have strategies for problem solving (table it, committee, vote, brainstorm)
Culture	<ol style="list-style-type: none"> 1. Existence of biases, prejudices, sexism; no supportiveness for open expression 2. Differences of worldviews; traditions, norms, cultural differences 3. Pressure for immediate Results 4. Lack of group identity or cohesiveness; lack of trust; Conflicting goals and missions 5. Limited Volunteer Opportunities 	<ol style="list-style-type: none"> 1. Trust among council/community members 2. Inclusive behavior; Opportunities to gain through collective action; Volunteer Opportunities 3. Sense of place/sense of 'us'; Shared goals 4. Entrepreneurs and champions...of the group goal
Planning	<ol style="list-style-type: none"> 1. Failure to define the focus of the group 2. Inadequate preparation by the facilitator and/or participants 3. Inadequate planning of meeting strategy 4. Limited resources 	<ol style="list-style-type: none"> 1. Good/adequate facilitator planning 2. Ability of coordinator/planner to draw in reluctant persons over time.
Group Composition	<ol style="list-style-type: none"> 1. Failure to have participants with correct level of authority at the table (decision-making ability) 2. Failure to include key actors 3. Participants have inadequate knowledge of problem 	<ol style="list-style-type: none"> 1. Perception of common problem or threat 2. Innovative structure to maintain cooperative relationships 3. Key actors present
Communication	<ol style="list-style-type: none"> 1. Inability to find and use a common language among the group 2. Inability to effectively listen to what others are saying 3. Dominance in group by one person or faction 	<ol style="list-style-type: none"> 1. Group information evaluation 2. Knowledge/Information sharing 3. Strong/good communication

Continued

Member Attitude	<ol style="list-style-type: none"> 1. Existence of negative and resistant attitudes 2. Unrealistic expectations of the process 3. Unwillingness to be flexible and compromising 	<ol style="list-style-type: none"> 1. Positive attitude 2. Learning cooperatively
Process	<ol style="list-style-type: none"> 1. Failure to reach consensus → move to vote 2. Lack of group participation 3. Tendency to focus on solution/decision before defining the problem & dealing w/ the problem ('rush to decision-making') (Rewards for not solving the problem) 4. Failure to deal with 'sacred cows' 	<ol style="list-style-type: none"> 1. Agreement on (relatively small) non-controversial points (e.g., non-sacred cow issues) 2. Have a (working) decision-making process (connects to methodology) 3. Agreement on non-controversial (non sacred cows)
Information	<ol style="list-style-type: none"> 1. Lack of quality/relevant information 2. Unorganized information 	<ol style="list-style-type: none"> 1. Providing it 2. Information adequate/relevant
EXTERNAL FACTORS	CENTRIFUGAL FORCES (-)	CENTRIPETAL FORCES (+)
	<ol style="list-style-type: none"> 1. Public opposition, fear, and skepticism 2. Preexisting allegiances and relationships 3. Lack of agency support 4. Government policies and procedures 5. Opportunities to proceed independently 6. Condition of physical environment 7. Conflicting opportunities 8. Incorrect/unorganized information 	<ol style="list-style-type: none"> 1. Opportunities, resources and incentives 2. Public pressure or interest 3. Technology 4. Condition of physical environment 5. Relationship building among stakeholders 6. Opportunities to create cooperative relationships 7. Constituent service by politicians

APPENDIX B: SALMON LISTING STATUS

Evolutionary Significant Unit (ESU) Endangered Species Act Status of West Coast Salmon & Steelhead: (National Marine Fisheries Service 2003)	Date Listed (mm/year)	Coho (<i>O. kisutch</i>)	Chinook (<i>O. tshawytscha</i>)	Chum (<i>O. keta</i>)	Sockeye (<i>O. nerka</i>)	Steelhead (<i>O. mykiss</i>) I	Sea Run Cutthroat (<i>O. clarki clarki</i>)
Southern Oregon/Northern California Coasts	5-1997						
Oregon Coast	8-1998						
Puget Sound/Straight of Georgia	N/A						
Lower Columbia River/Southwest Washington	N/A						
Snake River Fall-run	4-1992						
Snake River Spring/Summer-run	4-1992						
Puget Sound	3-1992						
Lower Columbia River	3-1999						
Upper Willamette River	3-1999						
Upper Columbia River Spring-run	3-1999						
Southern Oregon/Northern California Coastal	N/A						
Hood Canal Summer-run	3-1999	T					
Columbia River	3-1999	T	T				
Snake River (E)	11-1991	C	T				
Ozette Lake (T)	3-1999	C	T				
Upper Columbia River	8-1997		T				
Snake River Basin	8-1997		T				
Lower Columbia River	3-1998		PT	T		E	
Upper Willamette River	3-1999			T	E	T	
Middle Columbia River	3-1999				T	T	
Klamath Mountains Province	N/A					T	
Oregon Coast	N/A					T	
Umpqua River (E)	8-1996					C	E
Southwestern Washington/Columbia River	N/A						PT
Oregon Coast ESU	N/A						C

APPENDIX C: WATERSHED COUNCIL SURVEY

Participation and Affiliation (Volunteerism)

1. Which Watershed Council are you affiliated with? _____

2. How long have you been active in your WC?

	Informal N=29	Formal N=60
Mean	3 (+/- 1.4)	3 (+/- 1.2)

3. How long have you lived in your Watershed?

	Informal N=26	Formal N=57
Mean	25 (+/-20)	25 (+/-24)
*Median	21	12

* p-value < 0.05, ** p-value < 0.10

4. How regularly do you attend your WCs 'general' meetings? (Please circle one)

(p-value < 0.174)	Informal N=32	Formal N=62
a. Weekly	9%	4%
b. Monthly	78	92
c. Quarterly	9	3
d. Semi-Annually	3	0

* p-value < 0.05, ** p-value < 0.10

5. I participate in my WC as (check only one):

	A volunteer	Part of my job	Other
Informal (N=29)	69%	21%	10%
Formal(N=59)	68	27	5

6. People on a WC may wear 'multiple hats' or represent multiple perspectives. Which description best describes your PRIMARY affiliation and, if appropriate, Secondary affiliation with the WC?

Select only two, using 1 for your primary affiliation and 2 for your secondary affiliation

Primary affiliation**	Community Member	Government	Natural Res. Industry	Advocacy Organization	Other
Informal (N=31)	54%	10%	10%	10%	16%
Formal (N=55)	45	22	22	0	11
Secondary affiliation					
Informal (N=19)	32%	21%	21%	10%	16%
Formal (N=28)	43	18	14	18	7

* p-value < 0.05, ** p-value < 0.10

* Private industrial timber, small woodlot owners, agriculture, aquaculture, fisheries, recreation, etc.

** An advocacy organization might include, but is not limited to, groups like the Trout Unlimited, Audubon society, or Cattlemen's Association

7. How important to you are each of the following reasons for participating in your watershed council?
Please circle one number for each response

		Very Important	Moderately Important	Not Important
a. It is easy.**	Informal (N=31) Formal (N=59)	16% 8	36% 19	48% 73
b. Benefits my community.	Informal (N=32) Formal (N=63)	75 86	25 14	0 0
c. Benefits salmon and steelhead.	Informal (N=30) Formal (N=63)	90 87	7 8	3 5
d. Good for the environment.	Informal (N=31) Formal (N=62)	87 92	6 5	7 3
e. We're running out of time to save endangered species.	Informal (N=32) Formal (N=62)	65 60	16 27	19 13
f. It is part of my job.	Informal (N=32) Formal (N=58)	19 22	22 14	59 64
g. Benefits water quality and water quantity.	Informal (N=32) Formal (N=61)	78 90	19 7	3 3
h. To ensure that WC activities do not negatively affect me.	Informal (N=30) Formal (N=61)	43 34	20 18	37 48
i. I disagree with the OP for salmon and Watersheds.*	Informal (N=29) Formal (N=60)	17 3	4 14	79 83

* p-value < 0.05, ** p-value < 0.10

Questions 8 & 9 relate to your participation in various WC activities, and your opinion of how beneficial volunteers (volunteers are WC members who participate in WC activities outside of their regular job duties) are to your WC in various activities. Question 8 is on the left side of the page, and question 9 is on the right side of the page. *For each question, please circle one response.*

8. How often do you participate in the WC activities listed below?

A. General Organizational		Weekly	Monthly	Quarterly	Annually	Never
a. Write grants	Informal (N=32)	6%	13%	16%	9%	56%
	Formal (N=57)	0	9	16	15	60
b. Gather information	Informal (N=31)	29	13	32	16	10
	Formal (N=56)	23	39	11	11	16
c. Spend and manage public money*	Informal (N=31)	13	7	13	6	61
	Formal (N=57)	7	28	7	14	44
d. Create new organizational committees	Informal (N=30)	0	10	13	30	47
	Formal (N=57)	2	9	21	33	35
e. Develop and monitor budgets	Informal (N=30)	3	10	14	20	53
	Formal (N=57)	3	25	12	14	46
f. Office work; greeting, filing, mailings	Informal (N=31)	9	10	3	10	68
	Formal (N=56)	12	14	4	11	59
B. Technical						
a. Monitor projects	Informal (N=29)	14%	20%	14%	38%	14%
	Formal (N=56)	4	17	29	18	32
b. Conduct watershed assessments	Informal (N=28)	11	11	18	32	28
	Formal (N=56)	0	7	7	38	48
c. Project reporting	Informal (N=28)	3	18	32	18	29
	Formal (N=54)	0	15	22	19	44
d. Project development	Informal (N=27)	4	18	30	37	11
	Formal (N=57)	2	24	30	18	26

Continued

e. Set project priorities	Informal (N=28)	4	18	39	28	11
	Formal (N=57)	2	28	39	12	19
f. Meet with experts	Informal (N=28)	7	32	39	22	0
	Formal (N=56)	9	43	23	13	12
g. Strategic planning	Informal (N=29)	3	28	31	21	17
	Formal (N=57)	0	30	19	28	23
C. Outreach						
a. Present information to local government	Informal (N=31)	0%	23%	19%	13%	45%
	Formal (N=56)	0	20	11	14	55
b. Present information to K-12 students	Informal (N=30)	0	7	7	23	63
	Formal (N=58)	2	5	12	14	67
c. Interact with landowners	Informal (N=31)	13	39	16	19	13
	Formal (N=57)	18	33	26	14	9
d. Generate volunteer participation for WC activities	Informal (N=31)	3	16	23	35	23
	Formal (N=56)	2	20	23	20	35
e. Create partnerships outside the WC	Informal (N=31)	4	13	17	33	33
	Formal (N=56)	2	16	14	24	44
f. Cultivate council diversity	Informal (N=30)	0	13	17	33	37
	Formal (N=56)	7	20	20	25	28
g. Write news articles, newsletters, prepare displays	Informal (N=31)	0	3	13	19	65
	Formal (N=57)	0	11	21	26	42

* p-value < 0.05, ** p-value < 0.10

9. Please rate how useful volunteer participation is in each of the activities.

A. General Organizational		Very Useful	Moderately Useful	Not very Useful
a. Write grants	Informal (N=31)	61%	23%	16%
	Formal (N=56)	55	23	21
b. Gather information	Informal (N=31)	87	7	6
	Formal (N=55)	80	16	4
c. Spend and manage public money*	Informal (N=30)	30	33	37
	Formal (N=54)	61	19	20
d. Create new organizational committees	Informal (N=31)	48	32	19
	Formal (N=55)	67	24	9
e. Develop and monitor budgets	Informal (N=31)	45	29	26
	Formal (N=54)	56	24	20
f. Office work; greeting, filing, mailings	Informal (N=31)	48	19	32
	Formal (N=53)	55	19	26
B. Technical				
a. Monitor projects	Informal (N=31)	90%	3%	7
	Formal (N=54)	87	9	4
b. Conduct watershed assessments	Informal (N=31)	52	23%	26
	Formal (N=55)	51	26	24
c. Project reporting	Informal (N=31)	58	29	13
	Formal (N=53)	52	28	21
d. Project development	Informal (N=31)	61	23	16
	Formal (N=54)	65	19	17
e. Set project priorities	Informal (N=31)	61	19	19
	Formal (N=54)	65	28	7
f. Meet with experts	Informal (N=31)	58	29	13
	Formal (N=54)	72	20	7

Continued

g. Strategic planning	Informal (N=31)	71	16	13
	Formal (N=54)	74	20	6
C. Outreach				
a. Present information to local government(s)	Informal (N=31)	65%	29%	7%
	Formal (N=53)	64	19	7
b. Present information to K-12 students	Informal (N=31)	65	16	19
	Formal (N=52)	62	21	17
c. Interact with landowners	Informal (N=30)	77	20	3
	Formal (N=56)	89	7	4
d. Generate volunteer participation for WC activities	Informal (N=31)	81	16	3
	Formal (N=54)	85	11	4
e. Create partnerships outside the WC	Informal (N=29)	66	24	10
	Formal (N=54)	76	11	13
f. Cultivate council diversity	Informal (N=29)	76	14	10
	Formal (N=54)	70	17	13
g. Write news articles, newsletters, prepare displays	Informal (N=31)	61	29	10
	Formal (N=52)	60	25	15

* p-value < 0.05, ** p-value < 0.10

10. The following is a list of common WC activities. In general, how much influence does each of the listed groups have in the activities described below?

Please use a scale where:

- 1 = Very influential; people always consider these views/concerns
 2 = Influential; people usually consider these views/concerns
 3 = Somewhat influential; people occasionally consider these views/concerns
 4 = Not influential; people never consider these views/concerns
 5 = N/A; don't take part in decision-making

A. Federal Agencies		Very Influential	Somewhat Influential	Not Influential
a. Landowner contact	Informal (N=21)	28%	24%	48%
	Formal (N=48)	42	27	31
b. Serve on committees	Informal (N=21)	38	24	38
	Formal (N=50)	54	18	28
c. Project prioritization	Informal (N=20)	50	10	40
	Formal (N=49)	55	27	18
d. Budget setting	Informal (N=20)	25	25	50
	Formal (N=47)	51	17	32
e. Make formal recommendations	Informal (N=19)	42	26	32
	Formal (N=47)	57	15	28
f. Make WC decisions**	Informal (N=21)	24	28	48
	Formal (N=47)	53	13	34
g. Make committee decisions	Informal (N=21)	33	14	53
	Formal (N=45)	51	18	31
h. Develop projects	Informal (N=21)	33	29	38
	Formal (N=47)	57	17	26
i. Volunteer recruitment/retention	Informal (N=21)	10	19	71
	Formal (N=45)	27	22	51

Continued

A. State Agencies				
a. Landowner contact**	Informal (N=21) Formal (N=50)	53% 62	14% 28	33% 10
b. Serve on committees**	Informal (N=21) Formal (N=51)	48 76	28 12	24 12
c. Project prioritization*	Informal (N=22) Formal (N=50)	59 74	9 20	32 6
d. Budget setting**	Informal (N=21) Formal (N=48)	43 62	14 21	43 17
e. Make formal recommendations**	Informal (N=21) Formal (N=49)	57 84	24 8	19 8
f. Make WC decisions*	Informal (N=22) Formal (N=49)	23 70	36 16	41 14
g. Make committee decisions*	Informal (N=22) Formal (N=47)	32 66	23 19	45 15
h. Develop projects*	Informal (N=23) Formal (N=48)	39 81	17 15	44 4
i. Volunteer recruitment/retention	Informal (N=22) Formal (N=47)	18 40	32 30	50 30
B. Natural Resources Industry†				
a. Landowner contact	Informal (N=22) Formal (N=49)	59% 67	14% 21	27% 12
b. Serve on committees*	Informal (N=23) Formal (N=50)	65 80	13 18	22 2
c. Project prioritization	Informal (N=22) Formal (N=50)	64 78	18 18	18 4
d. Budget setting	Informal (N=21) Formal (N=49)	48 61	14 21	38 18
e. Make formal recommendations	Informal (N=22) Formal (N=50)	59 74	18 16	23 10

Continued

f. Make WC decisions*	Informal (N=22)	46	27	27
	Formal (N=51)	72	22	6
g. Make committee decisions*	Informal (N=22)	41	32	27
	Formal (N=48)	71	23	6
h. Develop projects**	Informal (N=23)	48	30	22
	Formal (N=49)	74	18	8
i. Volunteer recruitment/retention**	Informal (N=22)	27	27	46
	Formal (N=48)	52	27	21
C. Private Property Landowners				
a. Landowner contact	Informal (N=23)	74%	9%	17%
	Formal (N=50)	80	14	6
b. Serve on committees	Informal (N=23)	70	17	13
	Formal (N=51)	80	18	2
c. Project prioritization	Informal (N=21)	62	24	14
	Formal (N=50)	78	18	4
d. Budget setting	Informal (N=20)	50	25	25
	Formal (N=49)	61	27	12
e. Make formal recommendations	Informal (N=21)	57	33	10
	Formal (N=50)	76	16	8
f. Make WC decisions	Informal (N=22)	68	23	9
	Formal (N=51)	71	25	4
g. Make committee decisions	Informal (N=22)	59	27	14
	Formal (N=48)	63	27	10
h. Develop projects	Informal (N=22)	54	32	14
	Formal (N=49)	63	31	6
i. Volunteer recruitment/retention**	Informal (N=21)	38	29	33
	Formal (N=48)	63	27	10

Continued

D. Advocacy Groups††				
a. Landowner contact	Informal (N=21)	38%	29	33
	Formal (N=45)	36	51	13
b. Serve on committees*	Informal (N=22)	27	46	27
	Formal (N=48)	58	29	13
c. Project prioritization	Informal (N=21)	43	33	24
	Formal (N=47)	49	38	13
d. Budget setting	Informal (N=20)	30	30	40
	Formal (N=45)	45	33	22
e. Make formal recommendations	Informal (N=21)	48	19	33
	Formal (N=47)	59	28	13
f. Make WC decisions*	Informal (N=21)	14	43	43
	Formal (N=47)	55	21	24
g. Make committee decisions*	Informal (N=21)	19	38	43
	Formal (N=46)	50	30	20
h. Develop projects	Informal (N=22)	32	36	32
	Formal (N=44)	52	30	18
i. Volunteer recruitment/retention**	Informal (N=21)	29	33	38
	Formal (N=44)	59	23	18
E. General WC Members				
a. Landowner contact	Informal (N=22)	68%	23%	9%
	Formal (N=51)	69	23	8
b. Serve on committees	Informal (N=23)	78	9	13
	Formal (N=51)	86	12	2
c. Project prioritization	Informal (N=23)	65	18	17
	Formal (N=50)	80	14	6
d. Budget setting	Informal (N=22)	64	23	13
	Formal (N=50)	64	28	8
e. Make formal recommendations	Informal (N=23)	65	26	9
	Formal (N=47)	70	24	6

Continued

f. Make WC decisions	Informal (N=22) Formal (N=49)	71 80	21 16	8 4
g. Make committee decisions	Informal (N=24) Formal (N=48)	75 79	13 19	12 2
h. Develop projects	Informal (N=24) Formal (N=49)	71 74	21 20	8 6
i. Volunteer recruitment/retention	Informal (N=23) Formal (N=50)	78 72	9 22	13 6
F. General Public in attendance that night				
a. Landowner contact	Informal (N=20) Formal (N=47)	40% 36	30% 32	30% 32
b. Serve on committees	Informal (N=20) Formal (N=46)	25 33	35 24	40 43
c. Project prioritization	Informal (N=19) Formal (N=45)	21 29	42 33	37 38
d. Budget setting	Informal (N=18) Formal (N=45)	17 20	28 31	55 49
e. Make formal recommendations	Informal (N=19) Formal (N=46)	26 30	42 33	32 37
f. Make WC decisions	Informal (N=20) Formal (N=46)	30 26	30 35	40 39
g. Make committee decisions	Informal (N=19) Formal (N=45)	31 27	32 29	37 44
h. Develop projects	Informal (N=20) Formal (N=44)	15 27	40 27	45 46
i. Volunteer recruitment/retention	Informal (N=19) Formal (N=45)	42 38	21 24	37 38

* p-value < 0.05, ** p-value < 0.10

† Examples may include; private industrial timber, small woodlot owners, agriculture, aquaculture, recreation, etc.

†† An advocacy organization might include, but is not limited to, groups like Trout Unlimited, Audubon society, or the Cattlemen's Association.

11. Each WC undertakes many different projects or types of activities. What has made it difficult for you to participate on a specific WC project or activity?

Please check all that apply

	Informal (N=32) Formal (N=60)	Yes	No
a. Little spare time	Informal Formal	75% 67	25% 33
b. I already volunteer for other WC activities	Informal Formal	44 57	56 43
c. I already volunteer for non-WC activities	Informal Formal	50 58	50 42
d. I disagreed with the project choice	Informal Formal	9 10	91 90
e. I disagreed with how the project was being done	Informal Formal	0 7	100 93
f. I don't get along with the WC coordinator	Informal Formal	0 0	100 100
g. I don't get along with the other WC members	Informal Formal	0 2	98 100
h. The activity was not well organized	Informal Formal	9 8	92 91
i. Activity was responsibility of federal or state agency	Informal Formal	6 10	90 94
j. It's not easy to get involved with the WC	Informal Formal	3 3	98 97
k. The need for volunteer was never made clear	Informal Formal	3 2	98 97
l. I never felt personally invited	Informal Formal	3 3	97 97
m. I didn't care about the activity	Informal Formal	3 12	88 97

Continued

n. Time or location of the activity was inconvenient*	Informal	22	55
	Formal	45	78
o. I have physical limitations/disabilities	Informal	16	92
	Formal	8	84
p. Other	Informal	22	88
	Formal	12	78

* p-value < 0.05, ** p-value < 0.10

Watershed Council Organization (Power/Exclusion/Inclusion)

12. How is membership determined for your WC?

Please check only one

	Informal N=25	Formal N=62
a. Every one who attends the meeting is a member	76%	18%
b. Must attend a certain number of meetings	8	23
c. Anyone who pays dues	0	25
d. Approved by existing WC	4	18
e. Chosen to represent certain interests/areas	0	14
f. Other	12	2

13. Who has authority to make binding decisions for your WC?

Please check all that apply

	Informal N=31	Formal N=61
	Yes	
a. All WC members at the WC meeting	60%	68%
b. All WC members on committees	10	13
c. Non-WC members on committees	0	3
d. WC coordinator	13	26
e. Coordinating Council members	13	11
f. All in attendance at the WC meeting*	23	5
g. WC members at board meeting	10	21
h. All committee members (both WC and non-WC)	3	3
i. Board of Directors / Executive Board only	43	29
j. Other	10	8

* p-value < 0.05, ** p-value < 0.10

Both questions 14 and 15 refer to WC committees. Question 14 is on the left, and question 15 is on the right.

14. Please check any type of committee that your WC has ever had.

Check all that apply

Committee Type		Current	Past	Never
a. Administrative/Steering	Informal (N=21)	71%	10%	19%
	Formal (N=41)	78	7	15
b. Executive	Informal (N=18)	39	11	50
	Formal (N=37)	54	3	43
c. Technical**	Informal (N=16)	56	19	25
	Formal (N=43)	84	7	9
d. Action Planning**	Informal (N=15)	47	20	33
	Formal (N=38)	58	34	8
e. Finance/Budget	Informal (N=18)	44	17	39
	Formal (N=30)	50	10	40
f. Education/Outreach	Informal (N=19)	47	21	32
	Formal (N=39)	74	13	13
g. Projects	Informal (N=18)	67	5	28
	Formal (N=41)	73	17	10
h. Other	Informal (N=10)	60	0	40
	Formal (N=13)	62	23	15
i. N/A	Informal (N=4)	25	0	75
	Formal (N=3)	67	0	33

* p-value < 0.05, ** p-value < 0.10

15. Please check HOW your Watershed Council forms committees.
Check all that apply

Committee Type		Express Interest	Members Assigned	Other N/A
j. Administrative/Steering	Informal (N=18)	83%	11%	6%
	Formal (N=37)	84	3	13
k. Executive	Informal (N=16)	50	19	31
	Formal (N=28)	46	7	47
l. Technical**	Informal (N=15)	86	7	7
	Formal (N=38)	79	8	13
m. Action Planning**	Informal (N=15)	86	7	7
	Formal (N=34)	94	3	3
n. Finance/Budget	Informal (N=18)	66	17	17
	Formal (N=25)	56	4	40
o. Education/Outreach	Informal (N=16)	87	0	13
	Formal (N=38)	84	5	11
p. Projects	Informal (N=17)	88	6	6
	Formal (N=38)	92	5	3
q. Other	Informal (N=3)	67	0	33
	Formal (N=12)	75	0	25
r. N/A	Informal (N=1)	0	0	100
	Formal (N=5)	40	0	60

* p-value < 0.05, ** p-value < 0.10

- * Some WCs have administrative/steering committees to oversee the daily business of 'running' the WC. This may include keeping the budget, monitoring grant funds, or long term capital planning.
- ** An executive committee may oversee the direction of the WC as a volunteer organization. They may help determine the type of projects to under take, the scope of community involvement to pursue, and which issues to become involved with.
- *** A projects committee may include, but is not limited to the following types of projects: Assessment, Monitoring, GIS, Riparian Planting, and Fish Passage Modification.

16. If WC members meet outside of your regularly scheduled WC or committee meetings why do they meet?
 Please be as detailed as possible. *If more space is needed, please use the space on pages 9 & 10.*

17. Which members (left column) typically participate on each of your WC's committees (top row)?

Informal N=23 Formal N=56	Administrative Steering		Executive		Technical Projects**		Action Planning		Finance Budget		Education Outreach		Other		NA	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Federal Agencies																
Informal	17%	83%	17%	83%	39%	61%	35%	65%	9%	91%	26%	74%	13%	87%	30%	70%
Formal	25	75	14	86	63	37	41	59	16	84	34	66	5	95	9	91
State Agencies																
Informal	17	83	13	87	52	48	43	57	9	91	30	70	13	87	9	91
Formal	32	68	14	86	82	18	66	34	20	80	45	55	5	95	2	98
Natural Resource Industry																
Informal	43	57	22	78	74	26	52	48	30	70	43	57	13	87	0	100
Formal	63	37	34	66	66	34	61	39	29	71	36	64	9	91	0	100
Private Property Landowner																
Informal	57	43	43	57	78	22	57	43	30	70	43	57	9	91	9	91
Formal	66	34	38	62	73	27	63	37	32	68	50	50	9	91	0	100
Advocacy Groups																
Informal	22	78	4	96	39	61	30	70	17	83	22	78	17	83	0	100
Formal	41	59	18	82	50	50	50	50	23	77	34	66	9	91	9	91
General WC Members																
Informal	61	39	39	61	70	30	57	43	43	57	57	43	13	87	0	100
Formal	61	39	41	59	70	30	63	37	32	68	59	41	11	89	0	100

Continued

General Public in Attendance																
Informal	17	83	9	91	26	74	30	70	9	91	26	74	13	87	13	87
Formal	2	98	5	95	16	84	14	86	4	96	16	84	4	96	13	87
Other																
Informal	4	96	4	96	4	96	4	96	4	96	9	91	4	96	9	91
Formal	2	98	4	96	4	96	4	96	2	98	0	100	0	100	2	98
N/A																
Informal	0	100	9	91	4	96	4	96	9	91	9	91	0	100	4	96
Formal	4	96	7	93	2	98	2	98	5	95	4	96	4	96	5	95

Watershed Council Decision-Making & Structure (Structure)

18. Please describe the internal organizational structure of your WC. For example, when a project or request is brought to the WC how is it introduced, discussed, and moved through the WC in order to make a final decision?

Please be as detailed as possible, using the space provided. *If more space is needed, please use the space on pages 9 & 10.*

19. (A) When your WC CANNOT reach consensus on a proposed decision or agenda item, what decision-making strategy does your WC rely on?

Check all that apply

Informal (N=31) Formal (N=61)	Informal		Formal	
	Yes	No	Yes	No
a. Robert's Rule*	29%	71%	11%	89%
b. Majority vote*	45	55	8	92
c. Super majority vote	3	97	3	97
d. Table the decision	42	58	46	54
e. Fist of Five *	0	100	13	87
f. Unanimity	19	81	10	90
g. Other*	16	84	36	64
h. Don't know	16	84	8	92

* p-value < 0.05, ** p-value < 0.10

19. (B) Please describe what happens to an agenda or action item when a WC member objects.
Please be as detailed as possible, using the space provided. If more space is needed, please use the space on pages 9 & 10.
-

20. Of the individuals that have the authority to make decisions on your WC, in your opinion how influential are those individuals to your WC's decision-making process.

Please circle one number for each response

- 1 = Very influential; people always consider their view/concern
 2 = Influential; people usually consider their view/concern
 3 = Somewhat influential; people occasionally consider their view/concern
 4 = Not influential; people never consider their view/concern
 5 = N/A; doesn't take part in decision-making

		Very Influential	Somewhat	Not Influential
a. WC members at the meeting*	Informal (N=31)	100%	0%	0%
	Formal (N=58)	83	16	2
b. WC members on committees	Informal (N=32)	85	3	13
	Formal (N=57)	9	4	5
c. Non-WC members on committees	Informal (N=32)	25	28	47
	Formal (N=56)	27	27	46
d. WC coordinator	Informal (N=32)	84	13	3
	Formal (N=59)	81	12	67
e. Coordinating council members	Informal (N=29)	69	17	14
	Formal (N=50)	58	10	32
f. Visitors to the WC**	Informal (N=31)	36	48	16
	Formal (N=56)	16	50	34
g. WC members at board meeting	Informal (N=28)	57	14	29
	Formal (N=53)	76	9	15

Continued

h. All committee members (both WC and non-WC)	Informal (N=28)	68	11	21
	Formal (N=53)	62	19	19
i. Board of director/Executive board only	Informal (N=31)	55	7	39
	Formal (N=52)	67	4	29
j. Other	Informal (N=6)	33	33	33
	Formal (N=9)	67	0	33

* p-value < 0.05, ** p-value < 0.10

21. If you are in a position to take part in decision-making on your WC, how valuable do you believe YOUR participation is in each of activities listed below?

Please circle one number for each response

A. General Organizational		Very Valuable	Somewhat Valuable	Not Valuable
a. Monitor Projects	Informal (N=30)	83%	10%	7%
	Formal (N=53)	68	15	17
b. Gather information*	Informal (N=30)	93	7	0
	Formal (N=54)	70	21	9
c. Spend and manage public money	Informal (N=30)	53	27	20
	Formal (N=54)	46	26	28
d. Create new organizational committees	Informal (N=30)	37	27	36
	Formal (N=52)	48	27	25
e. Determine budgets	Informal (N=30)	53	23	24
	Formal (N=54)	46	17	37
f. Office work; greeting, filing, mailings	Informal (N=30)	37	26	37
	Formal (N=52)	27	25	48
B. Technical				
a. Write grants	Informal (N=30)	43	20	37
	Formal (N=52)	44	17	39

Continued

b. Conduct watershed assessment(s)**	Informal (N=30)	60	27	13
	Formal (N=53)	41	25	34
c. Project reporting*	Informal (N=30)	70	30	0
	Formal (N=52)	52	21	27
d. Project development*	Informal (N=30)	67	33	0
	Formal (N=51)	63	16	21
e. Set project priorities	Informal (N=30)	86	7	7
	Formal (N=52)	65	19	16
f. Monitor projects**	Informal (N=30)	83	10	7
	Formal (N=55)	60	22	18
g. Meet with experts	Informal (N=30)	80	17	3
	Formal (N=52)	60	25	15
h. Strategic planning	Informal (N=30)	74	23	3
	Formal (N=55)	67	20	13
C. Outreach				
a. Present information to local government(s)	Informal (N=30)	47	23	30
	Formal (N=53)	42	26	32
b. Present information to K-12 students**	Informal (N=30)	47	10	43
	Formal (N=53)	25	26	49
c. Interact with landowners	Informal (N=30)	67	30	3
	Formal (N=55)	71	16	13
d. Generate volunteer participation for WC activities	Informal (N=30)	5	23	20
	Formal (N=55)	60	22	18
e. Create partnerships outside the WC	Informal (N=30)	47	27	27
	Formal (N=52)	58	27	15
f. Cultivate council diversity	Informal (N=30)	50	37	13
	Formal (N=51)	57	27	16
g. Write news articles, newsletters, project reports	Informal (N=30)	37	33	30
	Formal (N=52)	38	23	38

Sources of Information

22. Below are 27 sources of information that might be useful to WCs. Please indicate how useful these sources of information have been to your WC.

Please circle one number for each response

A. Federal Agencies		Very Useful	Slightly Useful	Not Useful
a. Bureau of Land Management*	Informal (N=29)	41%	4%	55%
	Formal (N=56)	75	16	9
b. U.S. Forest Service*	Informal (N=28)	54	0	46
	Formal (N=60)	73	15	12
c. National Marine Fisheries Service	Informal (N=29)	59	31	10
	Formal (N=59)	56	32	12
d. Army Corps of Engineers	Informal (N=29)	38	38	24
	Formal (N=59)	42	31	27
e. Environmental Protection Agency	Informal (N=29)	45	38	17
	Formal (N=60)	53	27	20
B. State Agencies				
a. OWEB	Informal (N=29)	93	7	0
	Formal (N=58)	98	2	0
b. Department of Forestry	Informal (N=30)	83	17	0
	Formal (N=60)	78	22	0
c. Department of Agriculture*	Informal (N=30)	50	20	30
	Formal (N=58)	66	26	8
d. Division of State Lands	Informal (N=30)	46	37	17
	Formal (N=58)	43	36	21
e. Department of Transportation	Informal (N=30)	47	33	20
	Formal (N=58)	33	41	26
f. Water Resources Department	Informal (N=28)	71	25	4
	Formal (N=57)	51	32	17

Continued

g. Parks & Recreation Department	Informal (N=30)	30	30	40
	Formal(N=57)	18	33	49
h. Department of Fish & Wildlife	Informal (N=30)	93	7	0
	Formal (N=60)	88	8	4
i. Dept. of Environmental Quality	Informal (N=30)	77	13	10
	Formal (N=59)	76	15	9
C. Natural Resource Groups				
a. Timber	Informal (N=30)	80	17	3
	Formal (N=60)	85	5	10
b. Agriculture*	Informal (N=30)	43	37	20
	Formal (N=58)	72	16	12
c. Ranching	Informal (N=30)	33	37	30
	Formal (N=57)	41	26	33
d. Fishing	Informal (N=29)	69	28	3
	Formal (N=59)	61	25	14
e. Aquaculture	Informal (N=29)	41	28	31
	Formal (N=59)	34	22	44
D. Other				
a. Information from recreation groups	Informal (N=28)	32	39	29
	Formal (N=55)	24	43	33
b. Courses in school (k-12, college, workshops)	Informal (N=30)	63	17	20
	Formal (N=56)	55	23	22
c. Personal Experience	Informal (N=30)	100	0	0
	Formal (N=59)	88	10	2
d. Environmental advocacy groups	Informal (N=30)	50	27	23
	Formal (N=58)	53	33	14
e. Information from private property owners	Informal (N=30)	83	17	0
	Formal (N=57)	81	14	5

Continued

f. Information from local community organizations*	Informal (N=30)	67	33	0
	Formal (N=58)	72	16	12
g. Information produced by your WC	Informal (N=30)	97	3	0
	Formal (N=59)	88	10	2
h. Newspapers reports	Informal (N=30)	33	47	20
	Formal (N=58)	31	43	26
i. T. V. reports	Informal (N=30)	17	43	40
	Formal (N=57)	11	35	54
j. OSU Extension Service	Informal (N=30)	80	10	10
	Formal (N=59)	71	20	9
k. Relatives, friends, neighbors, etc.*	Informal (N=30)	47	53	0
	Formal (N=57)	39	39	22
l. University scientists**	Informal (N=30)	60	37	3
	Formal (N=57)	74	16	10
m. Other	Informal (N=3)	100	0	0
	Formal (N=7)	57	0	43

* p-value < 0.05, ** p-value < 0.10

23. In addition to using information, we would like to know how often the following WC participants engage in information gathering to benefit a specific project or activity the WC is working on.

Please circle one number for each response

		Always	Sometimes	Rarely
a. Community members*	Informal (N=28)	82%	18%	0%
	Formal (N=56)	52	38	11
b. Federal agency representative*	Informal (N=26)	35	23	42
	Formal (N=55)	62	20	18
c. State agency representative	Informal (N=26)	65	27	8
	Formal (N=56)	75	25	0
d. Local government representative	Informal (N=27)	41	41	19
	Formal (N=56)	39	41	20
e. Natural resource industry representative	Informal (N=27)	63	30	7
	Formal (N=57)	63	30	7
f. Advocacy organization	Informal (N=26)	27	42	31
	Formal (N=54)	42	28	32
g. Other	Informal (N=2)	0	50	50
	Formal (N=8)	38	25	38

* p-value < 0.05, ** p-value < 0.10

Values & Perceptions

24. How representative is your WC of the diversity of values in your community?
Please circle one response

Diversity of Values in your Community*	Very Representative	Somewhat Representative	Not Representative
Informal (N=30)	43%	53%	4%
Formal (N=60)	68	25	7

25. For each question or statement, please circle the response, which most closely represents your view.
Please circle one number for each response

		Strongly disagree	Neutral	Strongly agree
a. The balance of nature is very delicate and easily upset by human activities.	Informal (N=30) Formal (N=61)	17% 21	13% 17	70% 62
b. The earth is like a spaceship with only limited room and resources.	Informal (N=30) Formal (N=60)	10 13	7 8	83 79
c. Plant and animal exist primarily for human use.	Informal (N=31) Formal (N=61)	77 72	10 13	13 15
d. Modifying the environment for human use seldom causes serious problems.	Informal (N=31) Formal (N=61)	78 84	3 10	19 6
e. There are no limits to growth for nations like the United States.	Informal (N=30) Formal (N=61)	87 93	3 5	10 2
f. Humankind was created to rule over the rest of nature.	Informal (N=31) Formal (N=61)	84 82	6 5	10 13
g. Technology will find a way to solve the problem of shortages of natural resources.	Informal (N=31) Formal (N=60)	55 63	29 19	16 18
h. People will be better off if they lived without so much technology.	Informal (N=31) Formal (N=61)	42 49	32 23	26 28

26. In what order should the following WC components occur in order for your WC to be successful?
 Please use a scale from 1 to 7, where 1 = most important and 7 = least important

Informal (N=24) Formal (N=53)		Most Important	Very Important	Important	Somewhat Important	Not very Important	Not Important	Least Important
Capitol Investment								
	Informal	17%	0%	8%	0%	21%	33%	21%
	Formal	7	2	8	6	13	45	19
Vision								
	Informal	33	21	17	12	17	0	0
	Formal	28	30	23	11	4	4	0
Leadership								
	Informal	12	38	17	17	8	8	0
	Formal	13	27	28	17	13	2	0
Power								
	Informal	4	0	0	13	4	25	54
	Formal	2	2	0	4	11	21	60
Local & Technical Knowledge								
	Informal	25	12	21	21	17	0	4
	Formal	15	15	15	34	17	2	2
Trust								
	Informal	17	17	21	21	12	8	4
	Formal	32	19	15	13	13	4	4
Social Networking								
	Informal	8	4	17	17	25	17	12
	Formal	2	8	9	17	30	19	15

27. Are you?

Gender	Informal N=31	Formal N=60
Male	65%	63%
Female	35	37

28. What is your age? _____

Age	Informal N=31	Formal N=57
Mean	53 (+/- 13)	51 (+/- 13)
Median	52	51.5

29. What is the highest level of education you have completed?

Please mark only one

Highest level of education	Informal N=30	Formal N=56
a. High school non diploma, high school graduate, or GED	4%	5%
b. Associate's degree or some college	13	14
c. Bachelor's degree or some Graduate school	53	43
d. Graduate or Professional degree	30	38