Adaptive Management Possibilities: A paired analysis of drivers and actions for the Forest Practices Adaptive Management Program

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Executive Summary

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This report summarizes the findings of the study *Adaptive Management Possibilities: A Paired Analysis of Drivers and Actions for the Forest Practices Adaptive Management Program*.

The Washington State Forest Practices Adaptive Management Program (AMP) was established through the Forests and Fish Report of 1999. The AMP aims to revise forest practices rules over time in response to new scientific knowledge obtained through monitoring and research. Washington's AMP is considered one of the most ambitious and expansive adaptive management programs in the United States, encompassing more than 9 million acres of private and state forestlands. Also ambitious is the driving goal of the program: to reconcile the competing imperatives of timber production and public resource protection through science-based policy.

To accomplish this goal, the AMP is divided into a science branch (CMER) and a policy branch (TFW Policy). CMER designs and runs scientific research studied the efficacy of forest practices rules and their impacts on public resources, namely, fish, aquatic and riparian-dependent wildlife, and water quality. TFW Policy makes policy recommendations to the Forest Practices Board based on the results of CMER studies. Both CMER and TFW Policy are composed of members representing diverse caucuses: state agencies including the Washington Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), and Washington Department of Ecology (WDE); tribal governments and intertribal organizations such as the Northwest Indian Fisheries Commission; large industrial and small private timber landowners; environmental and conservation groups; and two federal agencies, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. The AMP caucuses are committed to consensus-based decision making that requires unanimous agreement – a condition prescribed in the Forests and Fish Report of 1999, and considered fundamental to the program by many of its members.

Views of the AMP's processes and progress have become skeptical and frustrated over time. Commissioned reports in 2018 and 2020 found that some participants in the AMP saw the program as slow-moving due to deep-seated conflict and procedural bottlenecks. Participants have expressed concerns that the AMP has lost its original spirit of mutual respect, in which different caucuses sought to help each other solve their problems. In 2021, the Washington State Auditor's Office conducted a formal performance audit and found that the AMP was not meeting its goals. In the years since the SAO report was published, the AMP Administrator has made great strides to apply its recommendations to improve clarity, transparency, and engagement throughout its procedures and membership.

This research builds on the findings of these previous studies. The reports from 2018 and 2020 sought to identify systemic challenges in the program, and all three studies referred to participants' differing risk perceptions, definitions of scientific uncertainty, and underlying beliefs and values. Our study explicitly seeks to measure and compare how different participants comprehend ecological, regulatory, and economic risks; define and respond to scientific uncertainty; and understand their core values and their relationship to the AMP. We also sought to understand the degree to which caucus affiliation drives individual AMP participants' perceptions of the program, its failures, and its opportunities.

Study Overview

To measure and compare AMP participant viewpoints, we applied a formal, mixed-methods approach called Q-methodology (hereafter referred to as "Q-method"). Q-method combines qualitative methods (document review, grounded theory, semi-structured interviews) with quantitative measurement (inverted statistical factor analysis).

Study Design: Working from the text of the three aforementioned reports, we collected over 1000 opinion statements representing the breadth of potential viewpoints regarding issues facing the AMP. We created a representative sample of 40 statements from the original list.

Data Collection: Data collection took place between January-April 2023. Participants sorted a set of 40 subjective opinions about the program on a quasi-normal forced choice distribution board, a procedure known as a "Q-sort". We asked participants to conduct the Q-sort twice. First, participants sorted the statements from those they believed are the 'highest priority' to 'lowest priority' issues facing the AMP. Second, they sorted the statements from those they believed are the 'most feasible' to the 'least feasible' for the AMP to resolve. After each Q-sort, participants completed a semi-structured interview to explain their answers in more detail.

Participants: From 80 current and former AMP participants invited to complete the study, 67 individuals participated. 65 individuals completed the first Q-sort (Priority only), and 63 completed both Q-sorts (Priority and Feasibility). We purposively sampled participants to ensure we included representation across all caucuses and program roles.

Data Analysis and Interpretation: We completed inverted, by-person factor analysis using dedicated Q-method analysis software to identify clusters of participants who sorted the 40 statements in a similar pattern. Each cluster of Q-sorts was weighted and averaged together to create a composite Q-sort, which we interpreted as representing a perspective shared by participants in that cluster. We gave each composite social perspective a descriptive name indicating its most salient characteristic. In our results, we present our interpretations as long-form narrative descriptions of each composite social perspective. To aid our interpretation, we included quotations from the post-sort interviews for added detail and nuance.

Summary of Social Perspectives

Priority Q-Sort

In the priority Q-sort, 67 participants sorted the set of 40 statements summarizing problems facing the AMP from what they believed to be *highest to lowest priority*. Subsequent analysis produced five social perspectives:

- *Back to the Foundations*: This perspective believed the AMP must get back to the fundamentals as originally laid out in the TFW and FFR agreements. They did not believe there were any problems with the underlying AMP structure, and in fact believed the program was well-designed overall. Rather, their highest priority issues related to how different individuals and/or groups interpret and interact with the program's originating documents and guidance.
- *Conflicts of Interest Come First*: Of all the perspectives, this perspective was the most concerned with imbalances of power they saw as built into the AMP's structure. They argued that this allows some caucuses to serve their own interests at the expense of the program's goals.
- *Focus on Procedural Issues*: This perspective believed the highest priority issues facing the AMP relate to, or stem from, procedural breakdowns. They argued many broader problems could be resolved by attending to areas within AMP structures, procedures, and administration that are not working as well as they should.
- *The Problem is Conflicting Goals*: This perspective saw the primary issue facing the AMP as stemming from the politics of the caucuses involved and their conflicting motivations, resulting in a breakdown of program procedures and trust between program members. They did not see changes to AMP processes as something that would fix the program's underlying issues.
- *Protect the Resources*: This perspective was primarily concerned with the AMP's role in protecting natural resources. They saw scientific uncertainty as the main issue facing the AMP, particularly how different individuals and groups interpret science to fit their worldviews. They were also most likely to view climate change as the program's highest priority.

Feasibility Q-sort

In the feasibility Q-sort, 65 participants sorted the set of 40 statements summarizing problems facing the AMP from what they believed to be those *most feasible to address to least feasible to address*. Subsequent analysis produced three social perspectives:

- *Easy Administrative Fixes*: This group defined statements as feasible to resolve if they had a clear action or plan allowing the problem to be solved, such as problems able to be fixed with additional training, administrative tasks, and creating or clarifying standards. They saw statements relating to external factors such as 1) participants' subjective perceptions as not feasible to resolve, or 2) regarding issues outside the scope of the program.
- *Coming to a Shared Understanding*: This group believed the statements that were most feasible to resolve related to whether AMP members can come to a shared understanding

about the original TFW agreement. They saw statements as non-feasible to resolve that they believed were fundamentally untrue, had already been addressed, involved structural issues in the program, or would require changing other members' minds.

- *Fixing the Science*: This group believed the most feasible problems to resolve related to knowledge and science, such as issues relating to CMER studies/processes, how scientific results are understood and used, the loss of institutional knowledge, and a lack of clarity and understanding about core program policies. They defined low feasibility as statements that were subjective opinions, driven by competing caucus interests/priorities, and systemic issues built into the AMP's structure.

One additional key finding of the study is that, while caucus affiliation is a relatively strong predictor of AMP member beliefs regarding the highest and lowest priority issues facing the program, it is *not* the sole determinant of member viewpoints. However, while we find evidence that individual values and perspectives do not fully align with caucus affiliation, qualitative data from the interviews suggests that members do ultimately conform with caucus-aligned voting, indicating that individual-level variation may be suppressed in the AMP context.

Recommendations

Our recommendations are derived from participants' suggestions during interviews, and in some cases from published scholarly literature. While the full recommendations include specific references to individual problems cited by participants, we summarize here the recommendations by theme.

1. *Develop and/or clarify procedures and protocols* to ensure all AMP processes are clear and transparent, and normalize following procedural steps to ensure transparency (e.g., dispute resolution, structured decision making, minority-majority decisions, developing/clarifying protocol manuals for TFW Policy and CMER, enforcement procedures for violations, etc.). Make sure all program and administrative documents are accessible to AMP members in an organized and navigable digital format.
2. *Convene workshop series and/or dedicated working groups* for members to develop and/or clarify definitions, standards, and benchmarks (e.g., AMP goals and expectations, definitions of success, membership criteria).
3. *Develop training and continued education* for new and existing AMP members to assist with areas such as participant onboarding, preserving institutional knowledge, training in science (e.g., understanding study results, scientific uncertainty, risk), and management training for members in leadership positions. Consider digitizing and making training materials asynchronous so that members can complete them on their own time and revisit them as needed.
4. *Bring in third party licensed facilitators* when appropriate for dispute resolution, workshops, negotiations, or other topics considered to be divisive (or potentially so). Provide licensed facilitator training for interested AMP parties.
5. *Identify methods for building trust and addressing cross-caucus divisions* within the AMP. Examples could include responsive feedback sessions, confidential cross-caucus

interactions in both formal and informal settings, cross-role discussion groups, scenario planning exercises, structured role-switching sessions, anonymous peer feedback, etc. Identify and publish examples of AMP successes aside from rule changes to help build trust in the program and its outcomes.

6. *Consider funding continuing research* and/or partnering with third party researchers to further address issues within the AMP. Examples could include oral histories to preserve institutional knowledge and systematic literature reviews to identify best practices on relevant topics (e.g., adaptive management, addressing scientific uncertainty, conflict resolution in collaborative environments, etc.).

Chapter 1: Background, Methods, and Results

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1. Introduction

Adaptive management (AM) emerged in the 1970s as a formalized approach to natural resource decision-making under uncertainty (Holling 1978, Walters 1986). Its central premise is that management actions should be treated as structured experiments that are implemented deliberately, monitored systematically, and revised in response to new evidence. Originally developed in the context of fisheries and wildlife management, AM has since been applied across a wide range of resource governance contexts, including water management, forestry, and endangered species recovery (Williams et al. 2009, Allen et al. 2011). While "adaptive management" is sometimes invoked loosely to describe any flexible management approach, formal AM programs share a common set of elements: defined objectives, explicit hypotheses about how management actions will affect outcomes, structured monitoring, and institutionalized feedback loops that connect evidence to policy revision (Gregory et al. 2006). A persistent challenge across many AM programs is implementing this process as functional governance, particularly in multi-stakeholder settings where scientific uncertainty intersects with competing interests, divergent values, and the practical demands of institutional decision-making (Pahl-Wostl 2007, Koontz and Thomas 2006).

The Forest Practices Adaptive Management Program (AMP) is one of the most ambitious and expansive adaptive management frameworks in the United States. Encompassing more than 9 million acres of private and state forestlands across Washington, the plan details the state's goals to reconcile the competing imperatives of timber production and public resource protection (DNR 2005). Established in 1999, the AMP emerged from the Timber, Fish, and Wildlife (TFW) Agreement of 1987, a groundbreaking effort to shift Washington's forest policy from confrontation to collaboration (DNR 1987a). That agreement brought together a diverse and, at times, adversarial set of actors: state agencies including the Washington Department of Natural Resources (DNR), Washington Department of Fish and Wildlife (WDFW), and Washington Department of Ecology (WDE); tribal governments and intertribal organizations such as the Northwest Indian Fisheries Commission; large industrial and small private timber landowners;

environmental and conservation groups; and two federal agencies, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service. In the wake of growing environmental concerns and litigation threats under the Endangered Species Act and Clean Water Act, these groups committed to a science-based, consensus-driven approach to policy decisions that aimed to protect water quality and aquatic species while sustaining a viable forest products industry, a major component of Washington's state economy (Wilhere and Quinn 2018). Prior to the TFW Agreement, forest practices regulation was characterized by persistent litigation between the timber industry, tribal governments, and environmental groups, with disputed rules frequently stalled in court for years. The agreement was negotiated explicitly as an alternative to this cycle of legal conflict, bringing adversarial parties to the table under a shared commitment to collaborative governance.

The Forests and Fish Report (FFR) of 1999 (DNR 1999) laid the foundation for the AMP in its current form. Through the AMP, forest practices rules are expected to evolve over time in response to new scientific knowledge. The AMP institutionalized a process through which caucuses representing different constituents and interest groups in the state could collaboratively identify research needs, evaluate evidence, and recommend policy changes (DNR 2023). Each caucus participates in both CMER and TFW Policy through designated representatives. Decision-making in both bodies operates by consensus, defined as unanimous agreement among all caucus representatives present. The consensus requirement was designed to ensure that no single interest could impose outcomes on others, and to build sustainable and broadly supported agreements. When consensus cannot be reached, matters are first referred for a formal dispute resolution process, then may be escalated to the Forest Practices Board or returned to working groups for further deliberation.

The goals of the AMP are both ecological and economic: to conserve habitat for salmonids and other species listed under the Endangered Species Act, while providing regulatory predictability and economic viability for landowners and timber operators. The sheer scale of the plan, and the diversity of its participants, make Washington's AMP one of the largest and most complex adaptive management efforts in the country.

Immediately after its establishment, the AMP was viewed optimistically by participants, decision makers, and the public as an innovative approach to collaborative governance with immense potential to balance the state's economic and ecological goals (DNR 1987b). Constituents who had previously clashed in regulatory and legal arenas, such as tribal governments and intertribal organizations, timber companies, environmental groups, and state and federal agencies, committed to working together through structured processes to evaluate the ecological effects of forest practices and recommend rule changes grounded in scientific evidence. The AMP adopted a consensus-based model, rooted in mutual accountability and shared risk, to guide its decision processes (DeCaro et al 2017, Dietz et al 2003). Many of those directly involved in the formation

of the program described it as a time of unusual cooperation and creativity, with a strong sense of collective purpose, even during times of tension (Meridian 2018, Madden 2020). Participants believed that disagreements could be resolved through the transparent production and application of science, and the adaptive structure was praised for its ability to evolve as scientific knowledge changed.

To operationalize this vision, the program is divided into two branches: the science arm (the Cooperative Monitoring, Evaluation and Research Committee, or CMER) and the policy arm (the Timber, Fish and Wildlife Committee, or TFW Policy). CMER's role is to conduct scientific studies which monitor and test existing forest practice rules. CMER study results inform TFW Policy's decisions regarding rule change: i.e., to keep rules as currently written, or to revise them. TFW Policy's opinions on rule change are submitted to the Forest Practices Board as recommendations. Both CMER and TFW Policy's decisions are consensus-based, in that all decisions rely on unanimous approval.

Over time, however, AMP processes that initially inspired optimism met with greater skepticism and dissatisfaction. Some members of TFW Policy currently view the AMP as slow-moving and conflict-laden, with only two rule changes passed over twenty years since the Washington Forest Practices Board approved the original Forests and Fish rules in 2001 (DNR 2007, Meridian 2018, Madden 2020). The first formal rule change in 2006 changed the method for determining the perennial initiation point of non-fish-bearing streams. The second rule change in 2009 increased the basal area target corresponding to the desired future condition (DFC) of riparian forests. This change resulted in less timber harvest within most riparian management zones.

Within the program, both rights holders and stakeholders have voiced concerns that the AMP has lost its original spirit of mutual problem-solving. Some tribal governments and conservation organizations have chosen to disengage from the AMP process entirely, citing limited progress, barriers to meaningful influence, or a perceived lack of respect for sovereign authority and cultural perspectives. Others have remained involved but express frustration with the program's growing complexity, persistent stalemates, and perceived imbalance in power and influence across caucuses. The consensus model, initially designed to ensure shared buy-in and joint accountability, is now seen by many as a structure that enables strategic obstruction and limits timely decision-making. As individuals and organizations have cycled in and out of AMP leadership roles, institutional memory has weakened, and relationships that once supported effective collaboration have frayed (Madden 2020, SAO 2021). Broader changes, such as the consolidation of the timber industry, evolving environmental conditions, and shifting political dynamics have added new pressures and highlighted tensions within the program (Folke 2005, Chaffin 2014). While state leaders and agency staff continue to emphasize the importance of adaptive management in principle, many constituents across caucuses now describe the AMP as a process in need of revitalization, or even reimagining. Among the broader public and those

observing from outside the process, confidence in its ability to deliver either environmental or regulatory outcomes has markedly declined.

In response to these shifting perspectives and outcomes, three previous reports have evaluated the AMP. The Meridian Institute's 2018 report, commissioned by the Washington Department of Natural Resources, was the first in a series of major efforts to assess challenges within the AMP. Through confidential interviews with current and former AMP participants spanning all caucuses and levels of involvement, Meridian documented a sharp decline in trust, accountability, and functionality across the program. Interviewees described a breakdown in the spirit of shared responsibility that once characterized the process, with many pointing to increasing positionality, strategic obstruction, and a lack of meaningful consequences for violations of ground rules or collaborative norms. One participant reflected that "the sense that everyone had something to gain from being at the table and working together has eroded," while another described the process as "being gamed—it's how business gets done." While most still valued the idea of adaptive management, many felt that the AMP had become mired in process, with disproportionate time and resources spent on procedural debates rather than scientific progress or policy adaptation. Despite these challenges, the Meridian report underscored a strong desire among participants to preserve the program's original goals, especially the balance between economic viability and ecological health, and its recommendations centered on renewed commitment to collaboration, strengthened leadership engagement, and targeted structural improvements to program processes.

In a second evaluation, the 2020 assessment by the Center for Conservation Peacebuilding (Madden 2020) expanded on these findings through an in-depth exploration of conflict dynamics within the broader TFW and Forests and Fish framework. This assessment drew on 139 confidential interviews with participants across all caucuses, including tribal governments, industry representatives, agencies, and environmental groups. It documented significant variation in how different constituencies perceived the state of the program, ranging from cautious optimism to total disillusionment. The report found broad agreement that the AMP had strayed from its original intent. Many interviewees expressed concern about imbalances in power and participation, a breakdown in shared leadership, and a lack of progress on critical ecological goals, especially for fish recovery. Tribal respondents in particular highlighted the erosion of government-to-government relationships and a perceived failure to respect treaty rights and cultural knowledge. As one tribal respondent put it, "the fight over science is a manifestation of a deeper, identity-based conflict," while others described the AMP as "too slow to matter" or "no longer credible as a process for change." The report's recommendations emphasized rebuilding trust, clarifying roles and goals, and investing in both onboarding and long-term relationship-building across caucuses. It also recommended that the AMP's core disputes were less about science itself and more about divergent worldviews, competing interpretations of risk, and unresolved historical tensions.

In a third programmatic review, the 2021 performance audit by the Washington State Auditor's Office (SAO 2021) provided a formal, systems-level evaluation of the AMP's ability to fulfill its intended function. Drawing on documents, stakeholder input, and a review of AMP processes, the SAO concluded that the program was not meeting its objectives. The audit found that consensus decision-making, while theoretically inclusive, had in practice become a major obstacle to efficiency and progress. "Without clear decision rules and accountability," the report stated, "the AMP has not delivered on its promise to use science to adapt forest practices." It noted that decision rules were vague or inconsistently applied, that roles and responsibilities were poorly defined, and that there was limited accountability for outcomes. The report also flagged concerns about the AMP's ability to incorporate new science, finalize research, or make timely policy recommendations. While recognizing the program's importance in maintaining federal Endangered Species Act coverage for state and private forestlands, the SAO warned that its current trajectory could undermine both regulatory stability and ecological performance. The report called for clearer authority structures, a formal approach based on research in decision science, improved transparency, and renewed engagement from both agency leadership and other key participants.

The research presented in this report builds directly on the insights articulated in these previous evaluations, with the goal of providing both deeper understanding and clearer paths forward. To do this, we focused our research in three significant ways. First, while earlier reports identified common systematic challenges, such as slow processes, strategic obstruction, and declining trust, they also pointed toward deeper roots of conflict that had yet to be systematically explored. In particular, interviewees across all three reports consistently referenced differing perceptions and definitions of risk, incompatible definitions of scientific uncertainty, and a sense that participants were operating from fundamentally different value systems. These findings suggest that the persistent gridlock within the AMP is not simply procedural or technical, but also cognitive and cultural. This study investigates these underlying dynamics explicitly. We focus on how rights holders like tribes and stakeholders define and weigh ecological, regulatory, and economic risks; how they understand and respond to scientific uncertainty; and how their core values and caucus affiliations influence both their participation in the AMP and their vision for its future. Rather than treating these as background context, we treat them as central drivers of behavior and outcomes.

The second focus of our research that sets it apart from previous studies is methodological. To analyze these dynamics, we employed a formal, mixed-methods (qualitative and quantitative) approach known as Q-methodology (hereafter referred to as "Q-method"). This is an established tool for identifying shared perspectives and uncovering latent coalitions (Brown 1980, Robbins 2006, Brannstrom 2011, Watts and Stenner 2012, Zabala 2018, Sneegas 2020). Q-method is well-suited for complex, value-laden governance settings like the AMP, where individuals may not fit neatly into predefined categories but nonetheless share coherent ways of thinking about

key issues. Q-method thus represents an opportunity to focus more narrowly on key issues that emerged from previous evaluations.

Finally, our study is distinguished by its paired design: we conducted two linked exercises, called "Q-sorts." The first of these focused on what issues participants believed are the highest and lowest priorities facing the AMP, and a second focused on the perceived feasibility of various reform strategies. This design allows us to simultaneously explore the sources of perceived dysfunction in the program and the potential avenues for progress. Through this approach, we aim to contribute constructively to ongoing discussions about the AMP's future. This study's goal is not to revisit or rehash past criticisms, but to offer new insights and actionable findings to support both the formal processes and the informal culture of the program. We do so with respect for the long and complex history of the AMP, and in recognition of the enduring, if fragile, spirit of collaboration and shared purpose that continues to animate many participants' hopes for the program.

2. Methods

2.1 Background and preparation

Our project team included a scientist who was deeply involved in the Forests and Fish Report and has close working relationships with the Forest Practices Adaptive Management Program (AMP). At the outset, he helped the team understand the historical and institutional context of the AMP, including its evolution, structure, and key moments of conflict or reform. We also conducted an extensive review of prior assessments (Meridian 2018, Madden 2020, SAO 2021), as well as relevant internal documents and caucus communications.

Building on this foundation, we developed a set of initial hypotheses about the challenges facing the AMP. These hypotheses, ranging from differences in risk tolerance and scientific interpretation to the breakdown of collaborative norms, were not tested in a conventional experimental sense. Instead, we used them as guideposts to inform our qualitative inquiry and Q-method design. They helped direct our attention to specific areas of concern, pointed us toward additional background materials, and provided a conceptual framework for exploring both persistent barriers and possible solutions within the AMP.

Finally, we conducted preliminary presentations and conversations with members of the AMP to present the scope and goals of our research, receive their feedback, and establish connections that would allow our research to proceed.

2.2 Q-Methodology

Q-methodology is an unfamiliar term to many, and its technical-sounding name can make it seem more complicated than it is. In practice, Q-method is a research tool designed to systematically measure human subjectivity, or how people think, feel, and make sense of complex issues (Stephenson 1953, Brown 1980, Robbins and Krueger 2000, Watts and Stenner 2012, Sneegas 2020).

Q-method is a mixed method combining quantitative and qualitative techniques by asking participants to 'map' (Mattson et al. 2006) their views by rank-ordering a selection of statements about the topic of study on a forced-choice distribution board. Researchers use inverted factor analysis to produce groups of individuals who sorted their statements in a similar pattern, indicating they have a shared viewpoint on the topic. However, despite its use of statistical factor analysis, Q-method differs greatly from traditional statistical methods like surveys, which seek to identify generalizable patterns that predict what proportion of a population shares a particular position. Instead, Q-method examines non-generalizable case studies to identify patterns in how individuals think by producing distinct, internally coherent perspectives that may cut across conventional lines of affiliation or roles.[1]

Q-method is therefore useful in situations where disagreements exist about underlying values, priorities, and interpretations of risk and uncertainty (Mattson et al. 2006, Zabala et al. 2018). Q-method has been widely used in fields such as environmental conflict resolution, natural resource management, public health, and collaborative governance (Barry and Proops 1999, Robbins 2006, Webler et al. 2009, Churruca et al. 2021, Amick et al. 2015, Fast 2015, Sneegas et al. 2021). It is well-suited for exploring intractable or multi-stakeholder issues, where technical solutions alone cannot resolve underlying tensions. These may include contexts that, like the AMP, are marked by conflicting mandates, uneven power relations, strong emotional and cultural investments, and/or disagreements over potential actions (Lehrer and Sneegas 2016, Mukherjee et al. 2018, Zabala et al. 2018).

We selected Q-method for this project because it offers a combination of analytical rigor and conceptual flexibility. It allows us to describe what issues are most and least divisive, where unexpected alliances might form, and how different definitions of risk, uncertainty, and legitimacy shape the space of possible change. Q-method's combination of quantitative and qualitative results make it suitable for work at the intersection of science, policy, and public engagement.

2.3 Study Design, Implementation, and Analysis

We designed our study according to best practices as described in published Q-methodology literature (Brown 1980, Webler et al. 2009, Watts and Stenner 2012, Sneegas et al. 2021). The

[1] For an in-depth discussion of the differences between Q-method and traditional statistics, please see the Appendix section 1.6: Comparing Q-methodology and R-methodology.

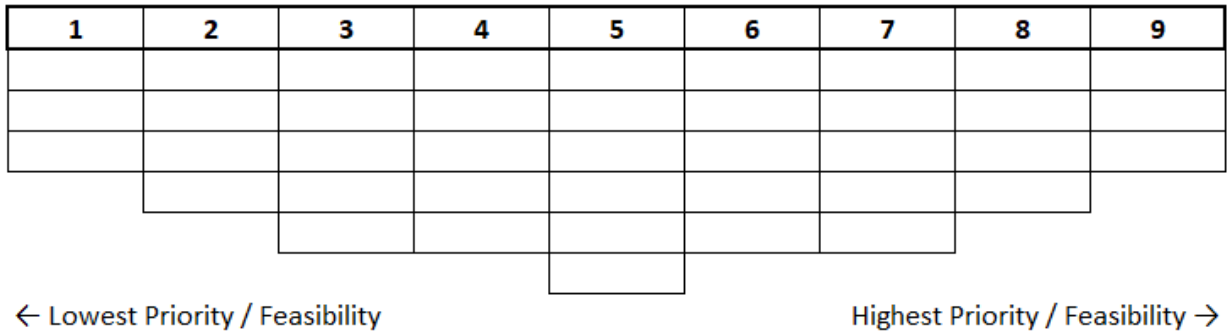
following section provides a short description of the study. For a more detailed description of our full methodology, see Appendix 1.

Study Design: Working from the qualitative quotes included in earlier reports (Meridian 2018, Madden 2020, SAO 2021), we sampled over 1000 opinion statements representing the breadth of potential viewpoints regarding issues facing the AMP. We created a representative sample of 40 statements from this list, following procedures outlined in Watts and Stenner (2012). We iteratively coded statements to ensure comprehensive, non-overlapping coverage of the full range of issues facing the AMP. This process involved multiple rounds of review across the research team and was refined through pilot testing with AMP members prior to data collection.

Participants: We invited 80 current and former AMP participants to complete the study. This represented nearly all available past and present members who were willing and able to participate. Of these, 67 individuals participated. 65 individuals completed the first Q-sort, and 63 completed both Q-sorts. We purposively sampled participants to ensure we included representation across all caucuses and program roles.

Data Collection: Data collection took place between January-April 2023 remotely via video conferencing. For the study, participants completed Q-sorts by sorting the final 40 opinion statements on a forced choice distribution board, resulting in an inverted quasi-normal distribution (Figure 1).

Figure 1: Forced choice distribution board used for this study. The board includes spaces for 40 individual statements, which participants are required to sort in a spectrum with a prescribed number of statements under each column.



We asked participants to sort the statements in response to two different conditions[2]:

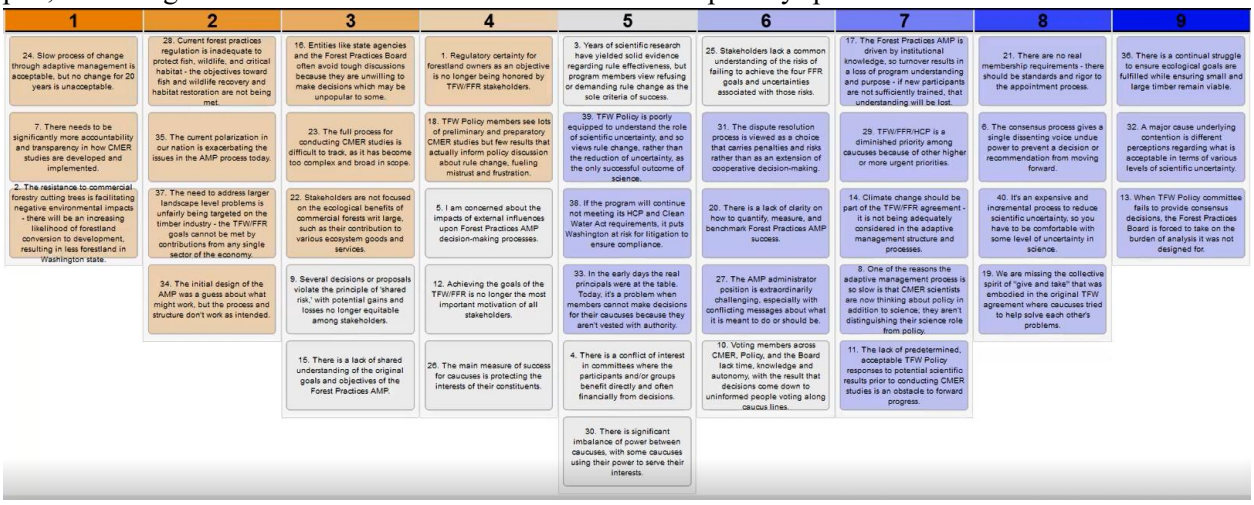
[2] Asking participants to sort the same statements under two separate conditions is relatively rare in Q-method research, but has been used to connect perceptions of problems and solutions in complex governance systems (Mattson et al. 2006, Amick et al. 2015).

1. Priority: In the first stage, participants sorted the statements from those they saw as the *highest priority problems facing the AMP* (right-hand side) to those they saw as the *lowest priority problems facing the AMP* (left-hand side).
2. Feasibility: In the second stage, participants sorted the statements from those they saw as having the *highest feasibility to be resolved* (right-hand side) to those they saw as having the *lowest feasibility to be resolved* (left-hand side).

For each Q-sort, we asked participants to first sort the statements into three piles: 1) higher priority/feasibility, 2) neutral or not sure, and 3) lower priority/feasibility. Then, participants sorted the statements in each pile on a spectrum from highest priority/feasibility on the right-hand side to lowest priority/feasibility on the left-hand side.

After each Q-sort, we interviewed participants for an additional 30-90 minutes to understand their reasoning, asking them to explain the statements they saw as highest priority/feasibility and those they saw as lowest priority/feasibility. We also asked participants to describe their role(s) and history in the AMP.

Figure 2: Screenshot of a completed, anonymous sort from the priority sorting stage. Blue statements were first sorted into the 'higher priority' pile, white statements were first sorted into the 'neutral/not sure' pile, and orange statements were first sorted into the 'lower priority' pile.



Data Analysis and Interpretation: We completed by-person factor analysis using KADE Q-methodology software (KADE 2025). By-person factor analysis identifies clusters of participants who sorted the 40 opinion statements in a similar pattern, indicating a shared social perspective. The software then weights and averages together all participant responses associated with each cluster to create a composite of that perspective.

To interpret each perspective, we holistically examined how the statements within each composite perspective related to each other and how each perspective's patterns related to the patterns of other social perspectives (Watts and Stenner 2012). The results are presented as long-form narratives describing each composite social perspective, supplemented with qualitative data from the interviews for added detail and nuance.

Reading and Interpreting Q-method Results: The Results section (Section 3) presents full narrative descriptions summarizing the social perspective shared by clusters of participants whose sorted statements were statistically similar. Each narrative represents a coherent way of seeing the AMP including how it works, what its problems are, where responsibilities lie, and what kinds of change are possible. In the context of the AMP, the narratives help clarify the worldviews that shape participation, influence conflict, and structure what change is seen as legitimate or feasible. They reveal not only what divides participants, but also where shared ground may exist.

We include the rankings for relevant Q-sort statements throughout each narrative. The statement scores are ranked from 1 to 40, aligning with the forced choice distribution board (Figure 3). A score of 1 means a perspective sees that statement as having the *highest* priority/feasibility, while a score of 40 means a perspective sees that statement as having the *lowest* priority/feasibility.[3] For example, (S1: 3) indicates that statement 1 was ranked third of all 40 statements.

Figure 3: Forced choice distribution board used for this study, showing how individual statement locations are ranked.

1	2	3	4	5	6	7	8	9
38	34	29	24	18	13	8	4	1
39	35	30	25	19	14	9	5	2
40	36	31	26	20	15	10	6	3
	37	32	27	21	16	11	7	
		33	28	22	17	12		
				23				

← Lowest Priority / Feasibility Highest Priority / Feasibility →

Distinguishing statements are those statements that one social perspective ranks significantly differently compared to the other perspectives ($p < 0.05$), and are considered statistically

[3] The statement scores are derived using z-scores for each statement. In Q-method, z-scores are used to standardize the measurements between scores, by calculating the relative position of each statement within the overall distribution of all statement scores. A statement's z-score for a particular social perspective represents how many standard deviations away that each perspective sorted the statement relative to its mean average score across all study participants. Thus, a z-score close to 0 indicates that perspective sorted the statement close to the mean, while z-scores more than 2 standard deviations beyond the mean indicate a social perspective sorted the statement differently from other participants in the study.

meaningful indicators of what makes their perspective unique. Distinguishing statements are marked with an asterisk (*) for $p < 0.01$ or a dagger (†) for $p < 0.05$.

The empirical results (i.e., statement rankings) are supplemented with qualitative interview data for added detail and nuance. Three to six relevant quotations pulled from the interviews are included as bullet points, illustrating shared themes across participants associated with each social perspective. To preserve participant confidentiality, participants are identified using a two-digit number and their decision-making role within the program. Quotations have been lightly edited for clarity and to remove identifying information.

3. Results

The following sections present the research team's interpretations of the social perspectives for both the Priority (Section 3.1) and Feasibility (Section 3.2) phases. It is common practice to assign each factor with a descriptive title summarizing the encapsulated perspective.

The following table (Table 1) summarizes the study participants who completed the Q-sort, including key demographic criteria used to purposively select participants. Two participants were only able to complete the first phase of the Q-sort.

Table 1: Study Participant Summary

Category		**Total Number**	**% of Total**
	Total Participants:	***65***	
Caucus	Conservation	8	12.3%
	County Government	3	4.6%
	Federal Government	1	1.5%
	State Government	12	18.5%
	Large Timber Industry	13	20%
	Small Forest Landowners	6	9.2%
	Eastside Tribes	5	7.7%
	Westside Tribes	8	12.3%
	No caucus affiliation	9	13.8%
Role	CMER	25	38.4%
	TFW Policy	25	38.4%

	Forest Practices Board	11	16.9%
	Administrative / Other	4	6.2%
Member Status	Current Voting	28	43.1%
	Current Non-voting	13	20%
	Former member	24	36.9%

3.1 Priority Q-sort

For the Priority phase of the study, we identified a solution with five distinct social perspectives. Each perspective is descriptively titled in a way to encompass the central objective or priority driving individuals aligned with that viewpoint:

1. *Back to the Foundations* (P1)
2. *Conflicts of Interest Come First* (P2)
3. *Focus on Procedural Issues* (P3)
4. *The Problem is Conflicting Goals* (P4)
5. *Protect the Resources* (P5)

For a complete list of how each perspective ranked and sorted the statements, see Table A3 in the Appendix.

Table 2: Summary of key criteria for each social perspective in the Priority study phase. For a full list of weighted criteria used to holistically assess each perspective, see Figure A1.3 in the Appendix.

	Priority Social Perspectives				
	P1 *Back to the Foundations*	P2 *Conflicts of Interest Come First*	P3 *Focus on Procedural Issues*	P4 *The Problem is Conflicting Goals*	P5 *Protect the Resources*
Variable					
Eigenvalue	10.99	9.24	4.29	3.65	3.43
Percentage of variance explained	14%	10%	8%	7%	10%
Number of defining	14	10	7	8	12

sorts					
Average relative coefficient	0.8	0.8	0.8	0.8	0.8
Composite reliability	0.982	0.976	0.966	0.970	0.980
Standard error of factor Z-scores	0.134	0.155	0.184	0.173	0.141

From 65 sorts completed by 65 participants, 49 loaded significantly onto only one social perspective. Eight participants did not significantly load onto any social perspective. Another eight participants were confounded, meaning they loaded significantly onto two or more social perspectives (Table A4). In the following sections, we report our interpretations for these social perspectives with a narrative summarizing what each perspective viewed as the highest and lowest priority issues facing the AMP.

The following figures show how the social perspectives factors break down along lines of caucus affiliation (Figure 4), program role (Figure 5), and voting status (Figure 6). Because some caucuses, roles, and/or voting statuses are over/under-represented, the absolute numbers of members affiliated with different groups may give a false sense of how common certain perspectives are held among different groups within the AMP.

To remedy this, we include percentages for each group (i.e., individual caucuses for Figure 4, program roles in Figure 5, types of voting status in Figure 6). These percentages calculate how many members of that group are affiliated with each social perspective to give a more nuanced picture of how different perspectives are related to these demographic variables. For example, one member affiliated with the County Government caucus would be represented as 33.3% because only three County Government caucus members participated in the study, while one member affiliated with the State Government caucus would be represented as 6.6% because fifteen State Government caucus members participated in the study.

Figure 4: Priority Q-sort factor affiliation by caucus. Percentages in each stacked bar refer to the caucus members affiliated with each factor relative to the total number of caucus members in the study.

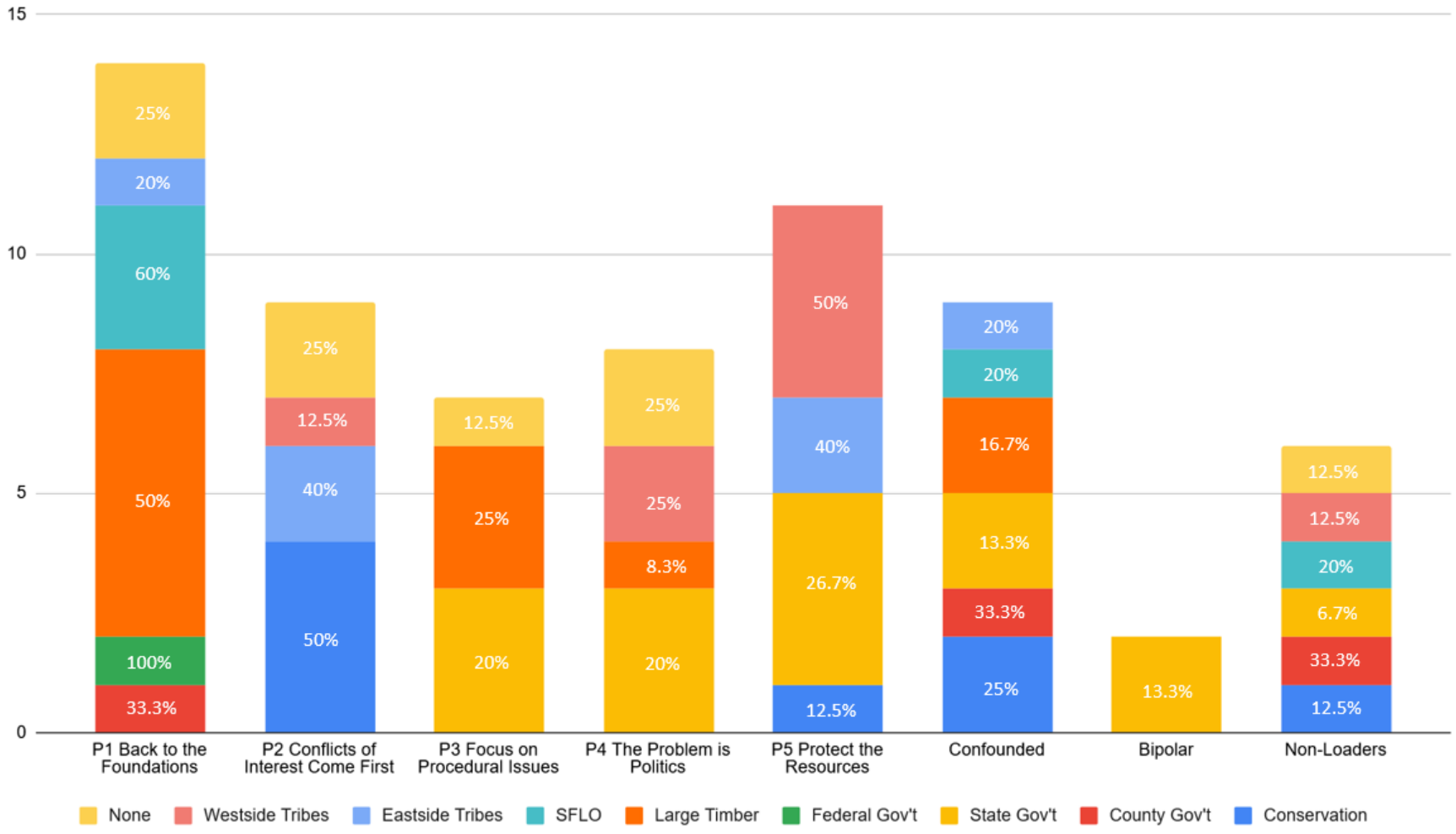


Figure 5: Priority Q-sort factor affiliation by program role (CMER, TFW Policy, Forest Practices Board, or Admin/Other). Percentages in each stacked bar refer to persons in that program role affiliated with each factor relative to the total number of study participants serving that role. Members with experience in multiple roles (e.g., both CMER and TFW Policy) have both roles represented; thus, the totals are greater than the number of participants.

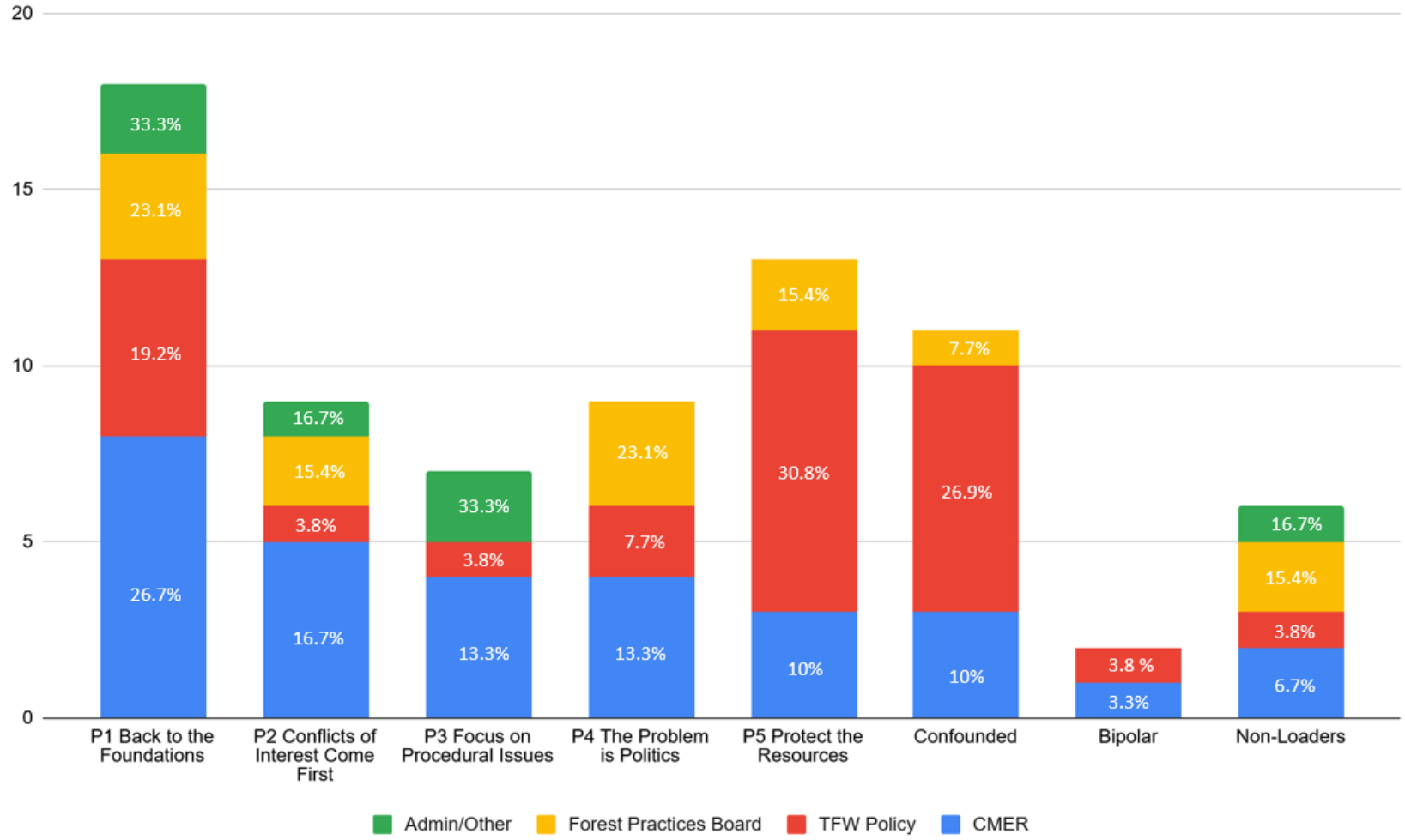
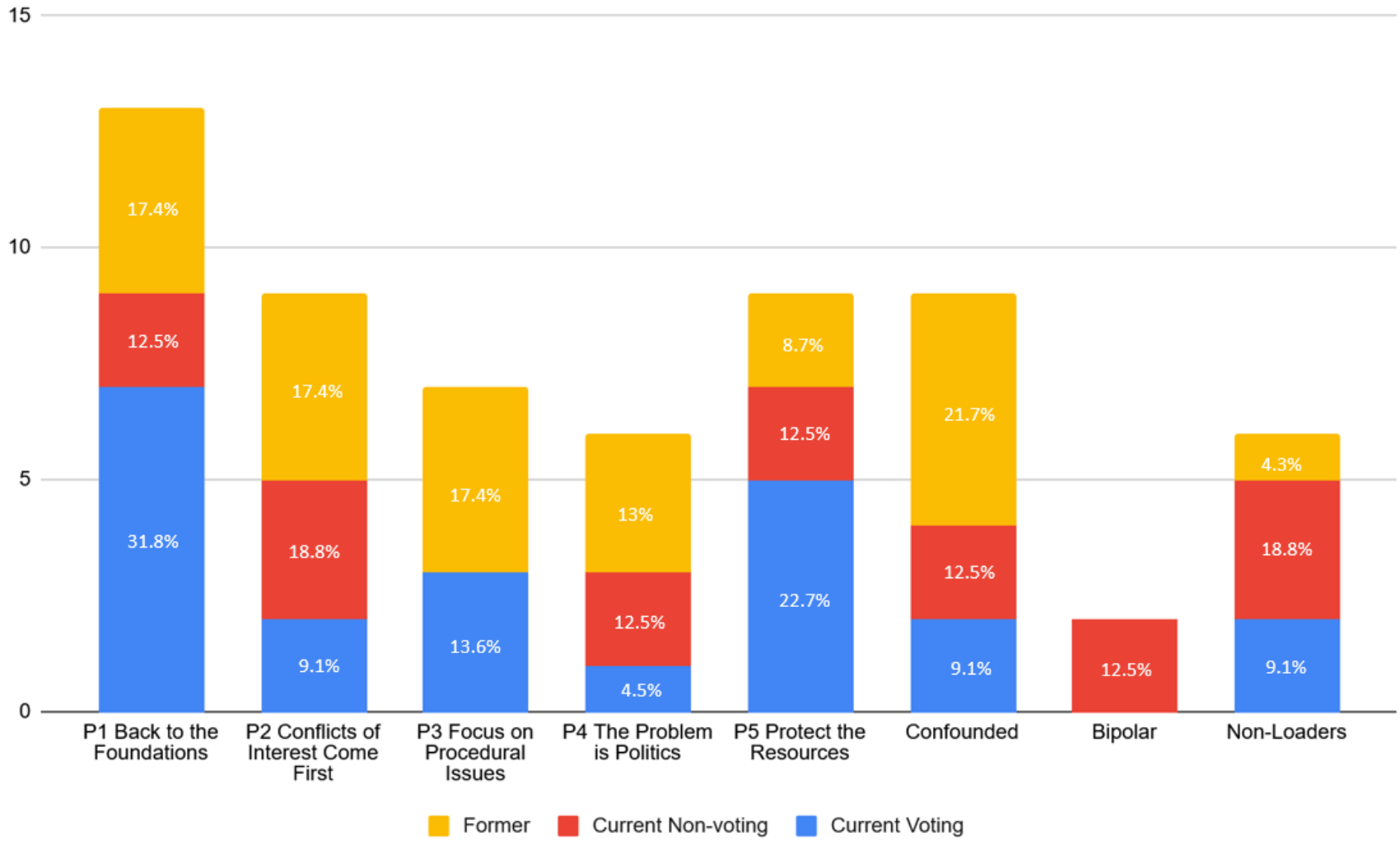


Figure 6: Priority Q-sort factor affiliation by voting status. Numerical figures for each stacked bar section represent the members with that voting status affiliated with each factor as a percentage of the total number of study participants associated with that voting status.



3.1.1 Back to the Foundations (Priority 1)

Back to the Foundations' top concerns related to their perception that the program needs to get back to the program's foundations as originally laid out in the TFW and FFR agreements. They did not see structure as a major problem with the AMP; rather, they believed the problem lies within how different groups are interpreting or interacting with structural documents and guidance. This perspective shaped many of the problems which they saw as highest priorities, such as misunderstanding or violating the principle of shared risk (*S9: 4), misunderstanding the FFR goals and associated risks (*S15: 1, S25: 7), and lacking regulatory certainty for forestland owners (†S1: 9).

Illustratively, *Back to the Foundations* ranked S15 ("There is a lack of shared understanding of the original goals and objectives of the Forest Practices AMP.") as a higher priority than any other social perspective. They argued that caucuses need to revisit the original TFW and FFR agreements and their goals, and that many other issues within the program stem from failing to arrive at a shared understanding of these goals.

- We are going through this [right now]. … It's been 20 years, we have the same goals. The original goals are still valid. (10Multiple)
- I don't think there's a lack of shared understanding. I think people understand. It's not too hard to read the original objectives. But they do not agree with them. It's not hard to understand the objectives. It's harder to agree with them than to try to do them. (37CMER)
- The thing that just kills me is we're supposed to be looking at solutions that help everybody. We're not supposed to be just looking at three of the four, or two of the four. To me that's the fundamental thing. We're supposed to be looking at all the goals. We're trying to have win-win for all, to identify solutions that address the needs of all the different caucuses. (43Multiple)
- The timber industry is part of the [four goals]. It isn't just the ecological pieces of it. It feels like a lot of the statements say things like we're not considering climate change, or if it doesn't result in a rule change it isn't successful. The TFW agreement was that we're all in it together. The timber industry isn't just this extractive part that we're having to deal with, they were part of the whole agreement. (44CMER)
- People have lost sight of the original goals. There's been a big shift, and it's influenced a lot by climate change coming out, that we need to relax the requirements for science-based rule making in order to deal with the perceived crisis. … But now there's a zero-impact assumption being imposed on landowners, and it's in conflict with the TFW agreement and it's in conflict with the HCP and it's in conflict with the Forest and Fish agreement. (60CMER)

Back to the Foundations argued that a major reason underlying the caucuses' failure to come to a shared understanding of the program's goals and purpose was due to a diminishing collective spirit of 'give and take' from the original TFW/FFR agreement (S19: 2). Thus, they believed that it is not the AMP's structures that are the problem, but rather the interactions of individuals and/or groups within its processes who are not interested in helping one another. They argued that fixing this problem could help address many of the other problems that they saw as high priority, such as lacking motivation to achieve TFW/FFR goals (S12: 3), the diminishing priority of TFW/FFR among caucuses (†S29: 11), and disagreements over the idea of 'shared risk' (*S9: 4).

- That was in the vision that's embodied in several of these first high priority deals, that we're going to work together. We're going to solve each other's problems. … We would have set the tone as envisioned by the originators of Forest and Fish where I'll scratch your back, you scratch my back, and we didn't do that. We failed. (12Policy)
- People come to the table with very different objectives in mind. We're focused on our own interests rather than the collective interests. (26Multiple)
- You put yourself in the other person's shoes to take on their problems. … I took on timber industries' needs and issues, and I would expect the timber industry to take on the ecological needs. And that, stepping into each other's shoes and problems and issues to find solutions, I thought was a magic ingredient of the Adaptive Management Program. And if everybody is just kind of sending their person to fill their seat, but they don't carry that shared responsibility with them, maybe it has eroded over time. (44CMER)
- I think that each caucus probably would have its own definition of shared risk. I think that there was a more comprehensive common understanding [of] shared risk in the past. And because those definitions have diverged from each other, I think that that is a huge problem with trying to come together in a collaborative decision making process. (52Policy)

Back to the Foundations saw the lack of 'give and take' within the program as further sidelining and marginalizing the timber and small forest landowner caucuses within the Adaptive Management Program. More so than any other perspective, they considered statements relating to economic considerations for forest landowners as high priority issues that they argued were being marginalized compared to other program goals and priorities. This concern was further reflected through statements relating to what this perspective saw as undue burdens being placed on the timber industry and small forest landowner caucuses, such as concerns over regulatory certainty (†S1: 9), resistance to commercial forestry fueling negative environmental outcomes such as forestland conversion to development (*S2: 17[4]), and the disproportionate allocation of responsibility for salmon habitat being placed on the timber sector (S37: 5).

- It's way too heavy to the more environmental [side] than a landowner perspective. This whole system is set up to regulate landowners, private landowners, small and large, and if they don't have at least an equal vote, the cards are against them. (10Multiple)
- Landowners are very definitely disrespected by the Adaptive Management Program processes. (12Policy)
- I would hope that instead of spending so much time spinning their wheels on process and fighting about results that they actually get down to working on what ecological protection looks like, and what maintaining a viable forest products industry looks like. That is just really important for our rural communities, and really important for small forest landowners. (52Policy)
- Yeah, [the timber industry] can make money, but they can make a lot more money if they sell their land and let people build houses. At which point timber, the DNR, and the whole [program] loses. Effectively, you lose complete control over what happens once that happens, because those rules are so unenforceable in those situations. (57CMER)

Finally, *Back to the Foundations* ranked as high priority items relating to scientific knowledge, uncertainty, and misunderstanding within the Adaptive Management Program (S10: 6, S11: 8, S39: 10). Common themes in this area included the need for participants to put in sufficient time

[4] *Back to the Foundations* ranked S2 ("The resistance to cutting trees for commercial forestry is facilitating negative environmental impacts - there will be an increasing likelihood of forestland conversion to development, resulting in less forestland in Washington state.") towards the middle of the board. However, S2 is considered a distinguishing statement for them because they ranked it as a higher priority than any other group at a statistically significant level, which is why it is included here.

to understand the science, the lack of scientific understanding among TFW Policy and Board members, and the role of caucus politics in shaping interpretations and applications of the science.

- I kind of buy the concept [of pre-determined Policy responses to scientific results, but] I don't think it will make a difference. Even if we agree up front and there's some sort of a gotcha that comes out of the science, [if] it helps one caucus, they're going to be [using] it as a weapon. (12Policy)
- [Uncertainty and misinformation are] some of the root problems that we experience routinely. … People don't do their homework on a pretty regular basis, don't come to the table fully prepared. And so [they] tend to take talking points or input from folks at the SAG or CMER level within their caucus, and they just [repeat that] when they get to the TFW Policy table. (26Multiple)
- I do think that's a pretty high priority that folks have dedicated time to participate in this. It cannot be collateral duties, or just nice to do if I have time to get to it. … If you don't have the time to participate in the adaptive management program, it's destined to fail. (44CMER)
- The lack of predetermined, acceptable policy responses, that's actually not very easy to do. It's easier than some other things. It would solve a lot of problems if we could do that, and I think it is also related to educating the policy. (57CMER)
- In my mind [it's] the lack of trust. … People are playing caucus games, and in the process of playing caucus games, they're creating an environment of mistrust. (58Policy)

In terms of low priority items, *Back to the Foundations* argued that the AMP is structurally well-designed and not in need of any significant overhauls**.** Overall, they argued that any issues with the program have more to do with differences across caucus priorities, not the way the program is structured (S34: 36).

- It would be a difficult can of worms to open up and put back together in a functional way. And I'm not convinced that the design of the program is the problem. … I'm not saying it couldn't be made better, but if you had two diametrically opposed groups, actually maybe six diametrically opposed groups trying to redesign it, I'm not sure it would come out better. (09CMER)
- I think the process is working well. … People outside of CMER and outside of the process are annoyed at our slow movement. Part of it is we've calcified with our protocols and standards manuals, so we're locked in… We can't make good decisions sometimes. But we have enormous, enormous differences that we're resolving, and we're doing it by consensus, so that isn't going to go very fast. (37CMER)
- I actually thought it was a pretty rigorous structure … [and a] really thoughtful approach to do adaptive management work. (44CMER)
- I don't think that the initial design of the program was guesswork. … There was pretty good detail on what the AMP was supposed to do, and that was to develop science through the prescribed process that had independent review and could be advanced to support decisions in rule. (60CMER)

This was particularly true of the program's consensus requirement, which *Back to the Foundations* ranked as the lowest-priority problem of all the factors (*S6: 38). This group saw the consensus process as foundational to the TFW/FFR agreement, and a necessary aspect of making it work as intended. They also argued that the consensus process was an important requirement for supporting a "collective spirit of give and take" within the program (S19: 2). They often cited dispute resolution (S31: 27) as a key aspect of continuing to make progress towards addressing the SAO report recommendations to improve the consensus process.

- I like the consensus process because it does force caucus members to sit down and reach a moderate decision. (10Multiple)

- I do not buy into the notion that the consensus decision making process is a bad idea. We've had that for a long time in this system. And done well, it forces us to actually really, legitimately and authentically consider other interests. (26Multiple)
- I'm committed to that consensus process, even though the argument is one person. Sometimes it's me, sometimes I'm the only person there objecting and holding up the process for further discussion. But it's important. … Over the last year or two, everyone has been using that dispute resolution process to force the discussion. And most often, not always, [but] most often we come to closure. (37CMER)
- The TFW agreement is based on consensus taking place. … It's fundamental. It is absolutely fundamental. The state auditors just absolutely got this wrong. This is not something that we [can get rid of]. My caucus will never, and I personally will die on this hill, that we're not going to get rid of consensus at TFW Policy. That is how we get the best solutions. (43Multiple)

Back to the Foundations also ranked several other statements as low priority relating to aspects of the program that they felt were functioning well and were not actually in any need of fixing (S34: 36, S16: 31, *S27: 28[5]). For instance, they ranked several statements as low priorities relating to tracking the CMER study process and its overall complexity, accountability, and transparency (S23: 37, S7: 29, S18: 33).

- [The process for conducting CMER studies] is not a problem. In fact, it's one of the successes of the program. (03CMER)
- We went through endless layers of review, and if somebody couldn't track, whether it was the proposal or the design or the reports that were coming out of it, I think it's because they weren't really paying attention. (09CMER)
- It's all written down in the protocol standards and manual from CMER. If somebody read that, they have an answer. (30Multiple)
- We have astonishing tracking tools. It's just absurd if anybody still thinks [the process is too difficult to track]. (58Policy)

The other class of problems that *Back to the Foundations* viewed as low priority related to statements that they believed were fundamentally untrue, such as conflicts of interest within the program due to people and/or groups benefiting financially from decisions (S4: 35) or the idea that few or no rule changes mean the program is an unacceptable outcome for the program (†24: 34). In particular, they viewed certain statements as scientifically or objectively inaccurate on some level, such as the claim that current forest practices are inadequate (†28: 40).

- That's total B.S. We're overprotective. (12Policy)
- They're just false statements. They are position statements rather than statements informed by anything. (26Multiple)
- To say the rules are inadequate is a matter of belief or opinion, not a matter of scientific rigour. (37CMER)
- I think that forest practices in Washington state are probably more stringent than just about any other state in the Union. … I just don't agree with that statement. (52Policy)

Similarly, *Back to the Foundations* disagreed with the claim that the program is at risk of litigation from not meeting its HCP and Clean Water Act requirements (†38: 30). Several

[5] *Back to the Foundations* ranked S27 ("The AMP administrator position is extraordinarily challenging, especially with conflicting messages about what it is meant to do or should be.") towards the middle of the board. However, S27 is considered a distinguishing statement for them because they ranked it as a lower priority than any other group at a statistically significant level, which is why we include it here.

members believed that the program does meet its legal requirements. While some other members of this group thought it might be true that the program was not fully meeting those requirements, they did not see the risk of litigation as a high priority, with several members mentioning the threat of litigation as a weapon used by certain caucuses.

- I don't believe that [there will be litigation if we don't meet the Clean Water Act]. I think it's a veiled threat. And frankly, I think it's done more harm than good, with Ecology always threatening this. (30Multiple)
- I think that we are meeting the requirements of HCP and the Clean Water Act, and I don't see a risk for litigation to ensure compliance. I just think that's an unrealistic threat from the conservation caucus. (59Multiple)
- I don't agree [with this statement]. It presumes that we're not meeting those requirements. (60CMER)

Finally, *Back to the Foundations* ranked climate change as a low priority issue for the program to address (S14: 32). Their responses to this statement ("Climate change should be part of the TFW/FFR agreement - it is not being adequately considered in the adaptive management structure and processes.") illustrate many of the reasons and definitions outlined above. Most of their arguments included that climate change is already sufficiently covered within the existing TFW/FFR agreement and forest practices.

- I believe the way that the adaptive management program is structured, climate change is pretty well covered in forest practice. … I think [climate change] is adequately covered. Maybe not as the words 'climate change,' [but] ecological protection and stabilizing the forest environment is already there. I just think that putting climate change in, you have to open up the TFW/FFR agreement, and if you did that there would be a lot more things that a lot of the caucuses would want to change. (52Policy)
- I don't think it really needs to be explicitly called out in the TFW/FFR Agreement, because it wasn't there to begin with, but it is something that we do every day, and our contribution should be acknowledged. … It doesn't need to be in the agreement because we're already doing it. (59Multiple)
- I think climate change is going to happen. It's a slow enough pace that the existing program should be able to track it and understand it, and then [make] rule changes as necessary, driven by data rather than relying on models and predictions of what might happen down the road in 30 years. (60CMER)

3.1.2 Conflicts of Interest Come First (Priority 2)

Conflicts of Interest Come First was the social perspective most concerned with imbalances of power, arguing that this allows some caucuses to serve their own interests at the expense of the program's goals (*S4: 1, *S30: 3, *S5: 5, S26: 10). They, more than any other perspective, saw these issues as the highest priority facing the program.

Conflicts of Interest Come First tended to define conflicts of interest in two main ways. The first and primary definition related to what many of them saw as an 'inherent' conflict of interest built into the program by having the regulated community (large timber and small forest landowner caucuses) be part of decision- and policy-making. They argued that the large timber caucus in particular had greater access to financial resources than many other caucuses, which resulted in them having a disproportionate level of influence both within the AMP and outside the program via lobbying. The second definition of conflict of interest related to CMER processes, such as

awarding research contracts to members of CMER, as well as the greater number of CMER members affiliated with the large timber caucus due to their greater financial resources.

- That's something the SAO hit on, some caucuses have more votes, like landowners have three CMER votes. The environmental caucus has one, the counties only have one, Eastside tribes have one. So there is an imbalance in the number of votes per caucus. (04CMER)
- There is an imbalance of power that's definitely played out in the last few decisions in how different Board members voted. They're using their influence through lobbying with different state organizations to get their way, and using the threat of lawsuits, which is antithetical to the DFW agreement, which is to check your weapons at the door and find solutions together, and that is not what's happening. (13Policy)
- There is a blatant conflict of interest at both CMER as well as the highest office. You shouldn't have people making decisions on research when they're getting paid by those decisions, and they're sharing those committees that are making those decisions. (19Policy)
- It concerns me, and has concerned me, that those that are regulated are the ones that have influence over what the regulations are. Particularly when you're thinking about companies that have a vested interest from the perspective of what their revenues are going to be, based on what the rules are. So to me that is a conflict of interest that they have as much influence as it appears that they do… a vested interest from the perspective of the amount of trees they can cut. (61FPB)
- The industry funds well-paid positions at their associations, and they have a lot of lawyers, and they can just FOIA. They can just delay. They can afford to do that. And the environmental caucus, the tribes, oh my gosh. Talk about lack of capacity! They don't have the capacity, the numbers, the financial [resources]. It's just not at all the same, the resources for each of the caucuses. (64FPB)

Relatedly, *Conflicts of Interest Come First* argued that the Forest Practices Board and some state agencies avoid certain decisions around forest practices and regulations (*S16: 2), or because of being uninformed about the issues at hand due to a lack of knowledge and/or time (†S10: 12). They saw both of these issues as potentially related to special interests or power imbalances within the program.

- It's not that they avoid tough decisions. I think that it's just [that] they don't want to make tough decisions because they are unpopular with one side or the other when they're forced to vote. It's a problem, because now it's winners and losers, as opposed to the process to develop consensus. The way the program's implemented, you likely will never get to consensus on important issues because we're sidestepping the shared risk win-win, working to solve other people's problems. (04CMER)
- At Policy, it seems like people are so involved in other activities like lobbying legislature and those sorts of things that they don't have time to stay up to speed on what's going on in the program. So by the time we get down and actually voting, there's no understanding from their parties. … You need to have qualified people who actually will commit the time to reading materials and staying up to speed. (19Policy)
- They're not as intimately connected to the consequences of some of the pieces…If everyone was actually following what we were doing … then I don't think we'd have the problems that we have. We have a governance issue. We have lots of structure, we have lots of rules, we have lots of manuals that tell us what to do. It's forcing people to actually do it, the governance of it, [that is the problem]. (36Admin)

Conflicts of Interest Come First also saw the need to incorporate climate change into the TFW/FFR agreement as a relatively high priority (*S14: 6).

- It's going to be to everybody's benefit to think about how we manage forests into the future under climate change, because it's coming. And that would benefit industry. (18CMER)
- This climate change situation is absolutely true, but we have governance issues that we really need to get in place. … We need to fix all these issues so that we can focus on things like what's missing like climate change. (36Admin)

- It's amazing to me that we can have Forest Practice Board meetings where the entire meeting goes without the words 'climate change' being used. It's something we should all be starting with, and we should all rethink everything we knew about conservation in light of what we now know and what we're continuing to learn. It's been a while since we've gotten research that is indicating that there's actually less to worry about than we thought. It's just the opposite. And I don't see that reflected in any sense of urgency or recalibrating what we need to be thinking about when it comes to our forests. (46CMER)
- Climate change is changing the nature of this whole discussion in a sense, because it's causing drought and fire and changes in forest ecosystems. The whole baseline is changing. (64FPB)

Finally, *Conflicts of Interest Come First* was also concerned about the overall efficacy of existing WA state forest practices and regulations, including concern about the relative lack of rule changes over the program's history (S28: 4; S38: 7, S24: 8, S25: 11, S39: 29[6]). They saw the existing consensus process as a structural issue contributing to these overarching problems (S6: 9).

Generally speaking, *Conflicts of Interest Come First* ranked statements as low priority that they did not see as fundamentally true. For instance, they did not see any issues relating to tracking, measurement, clarity, or complexity of AMP success or CMER output as a high priority because they did not see them as a problem in the first place (†23: 38, S7: 35, S18: 32, *S20: 31).

- The CMER protocol and standards manual, that's pretty extensive. We basically have words on paper that tell us how to handle [these things]. And then the benchmarks quantify measurements, those are in the Habitat Conservation Plan. So from that standpoint, they're there. The issue isn't whether they're there. The issue is once they get used, whether people like the answer or not. (04CMER)
- They're just not true. I think people do understand the goals. I don't think that the process is difficult to track. It takes a long time, and that's because of the stakeholders. There's a ton of transparency and accountability. So I just think those are all false statements. (18CMER)
- That's a pretty common excuse for people who don't want to follow the process. (19Policy)
- That's not a problem, especially with Lori at the helm. … I think that the studies are trackable, and I don't know that they're complex or too broad. I think that's manageable. (33CMER)

Conflicts of Interest Come First also saw statements relating to unfair burdens or outcomes to the timber industry as low priority (*S37: 40, S1: 39, S2: 35, †22: 34, S9: 33), primarily because they saw an inherent tension in the program between making timber industry as the regulated industry part of the conversation on regulating forest practices. As a result, they questioned the validity of such statements. This perspective aligned with their perception of conflicts of interest within the program as the most important issues to address.

- Regulatory certainty was never an objective of the HCP. That's why there's an adaptive management program. So I don't agree with that at all. That's the whole point of adaptive management is that something may change. You may have to adapt and it could have a regulatory effect, but it may not. (04CMER)
- I'm not interested in regulatory certainty. I'm interested in regulatory systems that meet an opportunity or an objective. I want to make sure you're getting the right regulatory system in place that allows viability as part of that conversation. (13Policy)

[6] Although S39 ("TFW Policy is poorly equipped to understand the role of scientific uncertainty, and so views rule change, rather than the reduction of uncertainty, as the only successful outcome of science.") is ranked towards the bottom of the board under 'lowest priority,' this perspective disagreed with the premise of the statement. They did not believe that viewing rule change as the 'only successful outcome of science' was due to misunderstanding the role of scientific uncertainty.

- Regulatory certainty is pretty much solid, nothing's changed for 22 years of this program. … I've never seen it more certain. It's certainly a lot higher certainty than prior to the adaptive management program when any caucus could sue. (19Policy)
- From a larger landscape perspective, it is not just the forest industry. There are huge land use considerations and forestry is not being unfairly targeted. They're not the only ones facing regulations and restrictions on activities, and checks and balances with ecological values and ecosystem function. That is across all industries and land use. (33CMER)
- There have been incremental changes over time to those processes and what the expectations are. But I don't feel like they're too much to ask. I think it's reasonable. (46CMER)
- I don't think the timber industry is being unfairly targeted. They agreed to this in the first place, they wanted certainty. We can't meet all of the issues from a single sector of the economy, but come on. They have a huge impact on the environment. (61FPB)

3.1.3 Focus on Procedural Issues (Priority 3)

Focus on Procedural Issues believed that the highest priority issues within AMP relate to, or stem from, procedural breakdowns. They argued that many broader problems could be resolved by attending to areas within AMP structures, procedures, and administration that are not working as well as they could (*S21: 1, *S18: 2, *S10: 3, *S3: 5, S6: 6, S8: 7, S39: 8, S27: 9, S11: 10). In discussing how they felt their highest priority issues could be resolved, many members of this group thus highlighted procedural and administrative solutions that they felt could improve the overall AMP process:

- I think that just a change in perspective on what it means to go into dispute resolution and really clarifying that process and making sure that folks don't see it as a sign of failure. … [We should see it] more as a really useful and available tool to help us be accountable and stay on a timeline, coupled with making sure that the process is clear and implemented consistently. (01CMER)
- There needs to be a policy and an understanding of the policy that [caucuses are appointing a person to CMER] to provide objective scientific review and critique, and also helping educate their Policy person. They need to recognize that they are a science representative first and not a Policy or caucus representative. (05CMER)
- We have an opportunity right now for some kind of adaptive management program reform, specifically through either adding to or amending guidance within the Board Manual Section 22, which is the section for the adaptive management program. People have recognized the need for a PSM manual for Policy, that shows in more detail how our process will function. I think if we do that and we adhere to it, then by following the process, we will bring forward the quality, the clarity on what we're doing. (20Policy)

Illustratively, several *Focus on Procedural Issues* participants described revising and clarifying membership requirements, particularly for CMER, as a high priority concern (*21: 1).

- Membership is a bit of a black box. It seems like maybe there's some standards there, but it's really unclear what those may or may not be. And there is definitely a view by at least some members or stakeholders that, if our group thinks this is the right person, then this is the right person. But there might not be a lot of consistency in expertise and qualifications across members. (01CMER)
- So from the CMER side, there is no question [that] the quality of the scientific people involved over time has eroded immensely. We used to actually have a statement somewhere about having scientific credentials, but it's not being agreed to. That leads to problems, unfortunately. (05CMER)
- To me [the lack of CMER membership requirements] is an issue, because these people are voting on what the research proposal is going to look like, what the methodologies are going to be, in some cases what the

statistics are going to be. Ultimately they approve the documents, which to me is kind of an issue because if you don't know the statistics and you don't know how to interpret statistics, how are you going to determine whether the conclusions are valid or not valid, and what are you going to base your decisions on? It's going to come down to your caucus's interests. (22Admin)

- I think [lack of membership requirements] was a problem at times, because there were people appointed to some positions and committees, that were leading committees, that really weren't scientists and didn't understand how that process worked or how to interpret some result**s**. (54CMER)

Focus on Procedural Issues saw the lack of membership requirements, particularly for CMER scientific credentials, as relating to other program issues they viewed as high priorities. Such issues included voting along caucus lines due to a lack of knowledge or time (*S10: 3), CMER members being concerned with policy and not respecting the CMER-TFW Policy firewall (S8: 7), scientific uncertainty (S39: 8, S40: 11), and a lack of clear and applicable results from CMER studies to inform TFW Policy decision-making (*18: 2).

- [CMER appointees are] a representative for science and that the science is done well. They need to have that understanding and that their caucus shouldn't be looking to them or asking them to weigh that stealth policy advocacy. (05CMER)
- A lot of times studies are done appropriately. Then they have to answer the six questions document where CMER members oftentimes try to interject policy statements and positions to affect the findings report. … I think we could resolve a huge amount of issues if we make sure that we adhere to every step of the process and that people are truly engaged. (20Policy)
- One of the things we were trying to do in designing the program was to frame the scientific questions in a neutral way. We wanted a technical answer, not a policy answer. And that takes a lot of skill to think that through, and it's not a common skill. … Because if you don't frame the questions neutrally, then from the get-go you have people for and against them. (24Other)

Despite these procedural concerns, *Focus on Procedural Issues* did believe that the program has been successful with regards to producing science showing that existing forest practice rules and regulations are effective. As a result, they were more likely than any other group to see the view held by some members of "rule change as the sole criteria of success" (*3: 5) as a high priority issue.

- This is probably more of a Policy issue. What is the meaning of success in terms of their goals? They should be forcing CMER to answer the question. Well, do we have any potential effect on fish? Where are the fish in this study? How does that relate to fish? Policy doesn't have any idea what success means. … [This] is driven by Policy, but CMER needs to give them examples, dream up examples that are ways to measure success and help them identify what that is. (05CMER)
- It's easy to find fault with the adaptive management program. … There's a lot of people that are more than willing to bash the program. There have been successes within the adaptive management, and I think we should take more time to find those and point them out and show, if you test the effectiveness of the rule, most studies come to Policy and Policy will come forward to the Board recommending that no action be taken as a result of the study. That should not be seen as a failure. That should be seen as a success and verification that the rule is effective, and I don't think we're doing it enough. (20Policy)
- You've got to be willing to go both ways on rule changes. You might relax some regulations on one end and have to tighten them up on the other. It seems like there was always a desire to make the rules more restricted. (54CMER)

Generally, *Focus on Procedural Issues* ranked statements as low priority if they saw them as untrue, currently being addressed, or not currently relevant to the program. Of all the perspectives, they were the likeliest to see concerns relating to program turnover and loss of institutional knowledge as a low priority (*S17: 24), with several participants mentioning current efforts to address these issues resulting in improved training and progress. They were also the least concerned about statements relating to the lack of understanding or motivation relating to the original TFW/FFR goals and objectives (†15: 29, *12: 26).

Relatedly, *Focus on Procedural Issues* did not see perceived conflicts of interests or imbalances of power between caucuses as a high priority to resolve (S31: 17, S4: 33), despite worrying about members voting along caucus lines when lacking time or knowledge, as described above (*10: 3). Responses ranged from describing such claims as "conspiracies" (20Policy) and therefore not viewing them as true, to seeing such imbalances as "the nature of the program" (24Other), a necessary aspect of the program's caucus structure which inherently causes conflict.

Focus on Procedural Issues also strongly disagreed with claims that the AMP program is not working (†S24: 39) or that current forest practice regulations are inadequate (†S28: 30).

- I don't believe that there has been 'no change'. I think there has been change. There might be different definitions of what changes. But to me, those reductions in scientific uncertainty, more confidence in the rules that we do have, that they are meeting the diverse objectives of the program, is progress. I'm defining that as change. (01CMER)
- I disagree with this statement (S28). It's factually wrong. The science is demonstrating the fish are not in trouble. … It's a total misinterpretation of what's in the research literature or what our findings are. (05CMER)
- The forest practices in Washington are the best in the world. They're the most environmentally protective forest practices in a place that continues to have profitable commercial forestry in the world. … Yes, you can have more restrictive rules. But there's a point where you've lost the economic ability to continue to own land and grow timber. (24Other)
- I see the slow process of change as a given. There's not much we can do about that, given how long it takes these ecosystems to respond to any kind of manipulation, and how hard that is to measure. (54CMER)

Thus, even though *Focus on Procedural Issues* believed that certain procedural changes would help the program function better, they did not believe that there were significant issues with the program's fundamental structures (S7: 36, S13: 34, S34: 37).

- There is a tremendous amount of transparency and accountability in the process, from the oversight of the project teams to the vetting through independent science review at University of Washington. (01CMER)
- CMER has a very rigorous process of study design and development and review, and it's very clear. Its problem is that the transparency is being hidden by the fact that the process is so onerous and you have to read a lot of stuff to try and figure out what's going on. But it's all there. (05CMER)
- Given that everything has to be approved by all the caucuses, all the way from CMER to Policy, where's the transparency that's lacking? I don't understand the issue at all. (22Admin)
- [To have more accountability and transparency], all you need to do is get more involved in the process. Meetings and study plans and all that stuff. They used to have an annual science conference, and all that stuff was open to anybody that wanted to attend. So if they feel like they don't know enough about it, all they need to do is really get more involved. (54CMER)

3.1.4 The Problem is Conflicting Goals (Priority 4)

In contrast to *Focus on Procedural Issues* (P3), *The Problem is Conflicting Goals* saw the primary problems facing the AMP as stemming from the politics of the caucuses involved and their conflicting motivations, resulting in a breakdown of program procedures and trust between program members. Overall, they viewed this as a lack of program member investment or motivation in the process, rather than an issue with the program's process itself (S12: 2).

- I think the design and fundamental nature and what it's intended to do are on point. It's the people at the table, there are some that it's just unavoidable conflict of interest. (34Multiple)
- I think a lot of people said, well, that's as far as we're going to go, and so we're not going to take it any farther. And other constituents believe that we haven't gone far enough. … We've got the timber industry. "Not one more tree." I believe that's their policy. And then you have the environmental community, … their agenda is to ban clear cuts. (45Policy)
- There has to be an appetite from the decision makers to institute new policies and make change that can make things function better. If we're not willing to do that, then everyone's going to continue to flounder. (53FPB)

The Problem is Conflicting Goals ranked statements relating to "missing the collective spirit of 'give and take'" (S19: 3) and having conflicts of interests due to caucus affiliations (*S4: 19) as high priorities because of their concerns over individual and/or caucus motivations. They saw these issues contributing to feelings of unfair treatment, and articulated the need to address the diverging political motivations of the caucuses in order to rebuild trust. Although they shared some concerns about caucus self-interest with *Conflicts of Interest Come First*, *The Problem is Conflicting Goals* believed the root cause was not structural power imbalances built into the AMP's design, but rather the diverging political motivations and incompatible goals of the people operating within it.

- It's basically the influence of politics and policy in the CMER process. It's the fact that we even have caucus divisions or stakeholder divisions within CMER. In theory, we should all be equally neutral across the table, trying to move science forward to address scientific uncertainty. But the reality is most of the participants in the CMER process represent various stakeholders, and they are advancing the individual agendas of those stakeholders. … The only way to resolve that would be to have CMER comprised of people that didn't represent stakeholders. But if you take active stakeholder participation out of the process, they're not going to be willing to accept the outcomes of the process. (17CMER)
- The notion of give and take in order to get the agreement in place, which was the starting point. … I'm not saying there's no give and take now, but I feel like people expect the same level now, and they weaponize the past. (34Multiple)
- The adaptive management program was set up with all involved under the assumption that if everyone was involved in the design and implementation of a project, everyone would agree on the results and the response to the results. This has not proven true. I do not think the various stakeholders would accept an adaptive management program run completely by a disinterested party, and I am not sure such an entity exists. (47CMER)
- I've seen in the CMER and committee work that participants of all stripes are affected by their affiliation with their caucuses and their understanding of the potential implications of decisions and research on their caucuses. … There could be a better effort to keep some of the goals of TFW, particularly the culture of the organization. We've got a continuing influx of new people coming into CMER and Policy, which is good because we need the fresh blood and fresh ideas. But a lot of those people aren't coming in with an understanding of what really brings the caucuses together, kind of a shared mission. (56CMER)

Illustratively, *The Problem is Conflicting Goals* saw as their highest priority the lack of clarity around the definition of 'viability' in the TFW/FFR goals, particularly relating to the economic viability of small and large timber (*36: 1). Although clarifying a definition could be seen as a procedural concern, most participants argued that the lack of clarity was being 'weaponized' (34Multiple) for political aims.

- Defining 'viable' is an issue, speaking of weapons. We could double the buffer size and the industry would still be viable. It wouldn't be as profitable as it is today, but they would still be making money. (34Multiple)
- We have never defined 'viable' and no matter what the profit levels are, we still hear requests to harvest more timber to retain a viable timber industry. … The idea that timber is viable in the commercial sense and that Tribal fishing is not - you've got to have them both if this [program] is going to be successful. If Tribal fishermen are sitting on the bank, we've got a problem. (47CMER)
- We're really struggling with how to measure success and really struggling with the combined focus on the benefit of working land on the landscape. How to meet our ecological goals without putting those types of land uses at risk is a really big issue. … It's not always going to align perfectly with a caucus focus, and that's one of the toughest parts of the work. (53FPB)
- That balance is very difficult to achieve, in part because the actual language in the original governing document is - ensure harvestable levels of fish and a viable timber industry - nobody has ever really defined what those need. And so it's hard to strike that balance when people have different understandings and perceptions about what that means. And you hear a lot, if you talk to Tribal members, that they think the timber industry is plenty viable. (55FPB)

Thus, while *The Problem is Conflicting Goals* ranked as high priorities issues relating to procedural elements such as dispute resolution (†S31: 7) and the consensus process (S6: 5), they tended to argue that it was the 'weaponization' (34Multiple) of these procedures by individuals and/or caucuses within the program rather than underlying problems with the processes themselves. Specifically, while they collectively believed views towards using dispute resolution were improving, they still ranked it as a high priority because they saw it as closely tied to issues with the consensus process.

- Dispute resolution is the process we use to handle non-consensus. … It's the process, it shouldn't be a bad thing. You have consensus, you don't reach consensus, you start dispute resolution and get a majority-minority report, and a decision gets made. … It's not the system that is broken, it's the expectation that people can weaponize it and get what they want. … It's the consensus piece in Policy that has been weaponized, but if you use dispute resolution it isn't a weapon. (34Multiple)
- I think with our commitment towards the consensus process, [dispute resolution] has been viewed as a failure. I think we're at the point where maybe we need to consider dispute resolution as just being another tool in the toolbox. It would help move things along. People are reluctant to take that step because it reeks of failure. (45Policy)
- Dispute resolution was considered a failure by the participants early on. They considered an inability to reach consensus to be a failure and were very reluctant to take anything into dispute resolution. I think we're getting past that. And in fact, at least a few people are putting things in dispute resolution for tiny little issues because they want to hold their ground. (47CMER)
- The hard part is, we don't have a good process at the board for how to handle when we get majority minority reports. Theoretically, the Board could take one or the other, it could take aspects of either one, or it could throw them both out and then do something brand new. And all of that is a little too loosey-goosey and certainly doesn't inspire confidence in the process or procedure. [We need] something in place for

when the Board gets a majority-minority report from TFW Policy, so that there's a known way that we'll handle them. (55FPB)

Overall, *The Problem is Conflicting Goals* disagreed with statements that indicated the adaptive management process is somehow broken. As a result, they did not always see changes to process as something that would fix the program's underlying issues - namely, diverging caucus motivations and conflicts of interest. For this reason, they ranked the idea of creating pre-determined policy outcomes based on study results lower than any other factor (*S11: 37).

- I don't understand how you would have a predetermined acceptable response to potential scientific results prior to conducting CMER studies. There's a lot of uncertainty. … That is not really a good approach to science. (14Policy)
- Currently we argue about everything at the end. The idea was, if we argue about it at the beginning, we won't argue about it at the end. But from what I've seen of the process, we'll now argue about it at the beginning and argue about it at the end. So really we're just adding more arguing without really streamlining or building clarity in the process. (17CMER)
- The idea that we can predetermine the outcomes and predetermine our response may be a little overambitious. … I don't think our ability to predict the outcomes is as good as some people think. … While it might be useful to try and define what level of difference from the expected is allowable, I am thinking it will just give us something else to argue about. (47CMER)
- It would be problematic if we tried to have predetermined TFW Policy responses prior to conducting CMER studies, because it would lead to outcome-oriented science. (55FPB)

Similarly, *The Problem is Conflicting Goals* felt incorporating climate change into existing program processes was not a high priority (S14: 32). Some participants argued this was because the existing program and forest practices rules were sufficient to address any related issues, while others believed that it would be too controversial among the caucuses.

- I definitely think people are influencing the climate, but I don't think that climate change is having a direct effect on forest practices. … We are growing forests, and forests are an extremely important factor in the discussion of climate change, and I think we should do more. … If we are executing the forest practices rules as they stand, we'll be doing the most we can for climate change. (14Policy)
- Climate change is ultimately an existential threat. But at the same time, we have some very immediate problems to address. Trying to address climate change on top of that might be a bit of a lower priority from that perspective. (17CMER)
- I think [the adaptive management program] is adequately responsive to [climate change]. … It is robust and flexible, I don't think it needs to be redesigned for climate change. (45Policy)
- I agree [climate change should be incorporated], but it will be controversial. (47CMER)
- Do I think we can go back and amend the agreement on climate change? Probably not. … I can't even imagine that occurring in the current relationship space. We're [a long way] away from a space where we could talk about incorporating that as a component of the process. (53FPB)

The Problem is Conflicting Goals also ranked statements as low priorities that they saw as false or not a significant problem to start with (†S21: 38, †S28: 36, S35: 40, S16: 35, S29: 34, S33: 33, S23: 31). For instance, they disagreed with the idea that "current forest practices regulation is inadequate" (†28: 36), arguing it was not supported by evidence:

- I've been working on evaluating work that we did years ago … and I think we're doing a great job. (14Policy)

- I don't know that it is backed by any of the science that I am aware of. Forest practices protections are much better than we are getting under development and agriculture. I have to give a shout out to the timber industry. They are the only group to better protect the aquatic resources, the habitat of salmon, etc. … They stepped up when no one else would. (47CMER)

Some statements were ranked as low priority because *The Problem is Conflicting Goals* saw them as 'an oversimplification' (47CMER) or only true in certain cases (*S10: 39, S26: 29, S30: 30). For instance, they ranked Statement 10 ("Voting members across CMER, Policy, and the Board lack time, knowledge and autonomy, with the result that decisions come down to uninformed people voting along caucus lines.") as a lower priority than any other group (*S10: 39). Although this statement may seem to align with their views that differing caucus motivations are a high priority (*S4: 8), in this case participants disagreed with the explanation of *why* participants vote along caucus lines:

- The voting is always along caucus lines, but it's not because they're uninformed, it's because voting has to occur along caucus lines. … The fundamental problem with CMER and why it struggles to be productive is because there are those really clear caucus lines and in theory, there shouldn't be. There should be all of us independently evaluating the science, but that simply doesn't exist because of caucus allegiances or stakeholder groups. …I'm not calling out one particular stakeholder here, it seems to be problematic across all of them. It depends on the type of project, the science that we do and what the perceived policy outcomes are of a project. If you're doing a project that one caucus group thinks might be detrimental to their goals, they will fight that, whereas another project going on that they don't view as detrimental to their goals, they'll help and facilitate. (17CMER)
- I think this is an excuse people say when the votes don't go their way. (34Multiple)
- Obviously it's an issue, but from what I've seen, an awful lot of the folks at Policy and most of the folks at the Board do work very hard to educate themselves on the issues at hand. I won't argue with the lack of time. (47CMER)

Similarly, *The Problem is Conflicting Goals* ranked other statements as low priorities that would seem to align with their views on the role of conflicts of interest due to caucus alignments, such as caucuses protecting their constituents' interests (S26: 29) or perceiving imbalances of power between caucuses (S30: 30). They saw caucuses as a part of the program design and process that, "sputtering as it may be, does continue to work on making forward progress" (47CMER).

- I'm not sure I see a significant power imbalance between caucuses. I'm sure each individual caucus feels that way, but not being a caucus member, I don't experience that same sort of under or over power balance. (17CMER)
- The whole point of having caucuses is because people have different values and opinions. Technically any one caucus has the same power as any other caucus in the forum, but there is perception that there is alignment among the caucuses that create majorities and minorities of agreement. When you're on the losing end, you think there is an imbalance of power, but you think it's fine when you're on the winning side. (34Multiple)
- I think this is true for some but I don't think it's true for all. There's clearly some folks in this game for their own benefit, but I don't think it's universally true. (47CMER)
- A caucus is similar to a lobbyist. They're paid basically to have a position, and so their position isn't going to be easy to change. They are going to be looking for big wins, and subsequently big losses for others. (53FPB)
- It's probably true for most caucuses [that their main measure of success is to protect their interests]. But that's why they're there at the table, is to represent a particular constituency. (55FPB)

3.1.5 Protect the Resources (Priority 5)

Protect the Resources' main concerns related to the need to protect natural resources - not only timber, but also fish stocks and riparian habitats. As one participant stated, "My priority is to try to get studies and science done to protect the resources" (29Policy).

Similar to *The Problem is Conflicting Goals*, this perspective believed polarized divergence between caucus interests was the main driver of their highest priority issues, such as how different groups perceived and interpreted scientific uncertainty. More so than any other perspective, this group ranked statements about the need to be comfortable with scientific uncertainty (*S40: 2) and issues relating to different perceptions of scientific uncertainty (†S32: 5) as some of the highest priorities facing the program.

- Science is not certain. It changes. So what we have to do is based on the skills and the technology that we have today. … We can recognize that it's uncertain, and the only way to have more confidence in it is that the scientists that are there are the best scientists that we can have and that they're actually focusing on the science and not biases on what they want, the outcome their caucus might want. So that's one way to lessen that uncertainty. (29Policy)
- I think there's an emphasis on trying to get things perfect before we do anything about it, which is a big problem. That's not how policy decisions are made. You make them because of the magnitude of the problem, not because you understand it perfectly. (32Multiple)
- My impression has been that … some people have different standards for what they [think] is acceptable [scientific uncertainty]. Some people say we have to have 100% clarity on what the impacts are going to be of any rule change or current practices before we can make any decision. That's just impossible, especially in field-based science. … This [gets] to the different perceptions regarding what is acceptable [uncertainty]. Therein lies the whole discussion, right? What is acceptable? Every policy member representing their unique caucus with its unique set of values is going to answer that differently. (40Multiple)
- I see us fight a lot, particularly around how much science is enough science. … I see a lot of arguments about, when do we need another study? Do we need better statistical analysis, or do we need better statistics for this to be a decision point? So I think that seems to be a huge problem. (65FPB)

Scientific uncertainty is highly intertwined with *Protect the Resources*' concerns regarding climate change. This social perspective ranked the need to address climate change within the program as their highest priority item - in fact, they ranked it as a higher priority than any other perspective (*S14: 1). They saw climate change as intrinsically related to conversations around scientific uncertainty, as defining and addressing climate change inherently involves discussions around what level of scientific uncertainty is appropriate. Several members of this group also discussed climate change as a kind of 'uncertainty multiplier,' since the growing ecological impacts of climate change for forests and riparian areas is projected to likewise result in escalating scientific uncertainties for researchers.

- Climate change just has to be [considered]. If the state is spending money on research, we have to consider climate change. We should have been all along and it's come up over the years, and it just isn't mentioned in any of the study designs, [at least not overtly]. … We're far enough behind already. (06Policy)
- We need to start looking at climate change. This goes with the understanding of risk. We need to start being more careful. Even if we don't have perfect scientific data to support a rule change, we think [the risk to the

resource] is more important than the risk to profits. So with climate change, we need to start being potentially overprotective as things change, and then come back and look at it later. (16Multiple)

- We have to try to figure out how we can incorporate climate change into the studies that we are doing. If we are not incorporating some of that based on some of the stuff we already know, we'll be spending millions of dollars on a study that will, because of climate change, be outdated almost as soon as that study gets completed. (29Policy)
- Climate change needs to be part of the AMP. We didn't know much about it when the first official report was done. … There's a thing called the six questions that comes out of every study. It's a summary of what was learned, what was not learned. There should be one that says, how will climate change affect these results? This is like the most solvable thing in the whole list, and it shouldn't even be controversial. (32Multiple)
- [You need to] take your focus away from looking backwards to looking at the present and try to anticipate changes. (41Multiple)

Many members of *Protect the Resources* saw the loss of institutional knowledge as a key underlying factor contributing to these issues. In fact, this group saw the loss of institutional knowledge as a higher priority than any other perspective (†17: 7):

- That's just training you need to have if people are sufficiently trained. We have the board manual that kind of tells you how to do it, but I think it falls short of actual instruction. (06Policy)
- I think [lack of shared understanding is] just a result of turnover. We have very few people who have been there from the beginning who understand what those original goals are. (28Policy)
- [When people retire] they need to start mentoring somebody to take their place so that they can share their experience, their knowledge. … I think it's all of the caucuses' responsibilities, not only for our own caucus members coming in, but to assist other caucuses to understand because initially we all went through this process of getting to know each other as new people came in. (29Policy)
- You can't train somebody in institutional knowledge. That's something you just acquire over time, based on hours and hours of being in those conversations and at those meetings and making those decisions. (40Multiple)
- The Board requires considerably more time than what they let on when they asked me to be on it. There's a lot of time, a lot of reading just to catch up, and even to stay current on the issues that we're working on now. So as we have Board turnover, and I think there's been four or five of us in the last couple of years, that getting up to speed on that history, even get familiar with the programs and acronyms that are used in forest practices that are a little unique compared to other forestry spaces, I think that's something they're just going to struggle with, and probably always will. (65FPB)

A common theme tying together many of *Protect the Resources*' highest priority concerns was the idea that increasing polarization has gotten different caucuses 'stuck' in their respective camps, and increasingly unwilling to talk with each other. Interestingly, although this group still ranked S35 ("The current polarization in our nation is exacerbating the issues in the AMP process today") as a low priority statement, they ranked it much higher than any other group in the priority sort (*S35: 32). This is noteworthy; a significant number of participants in this group believed that increasing polarization at the national level could be connected to, or at least mirrored by, increasing polarization (though not necessarily political polarization) within the program:

- It's an unconscious issue. There's not a lot of grace or magnanimity in the way we treat each other today in any manner. I think we're in a hyper-polarized world … it's very easy then in this world to be like, I'm in my camp, screw your camp. (08Policy)

- This comment is interesting because, yes, the polarization, but it's also the bad behavior of being really angry about something and people rushing to placate you. I think [that] is starting to show up. Or extreme news where they hinge on one piece of information, and it's not the whole picture, to mischaracterize the whole thing. I think it's creating a playbook that is getting repeated and it's actually causing more problems. (15CMER)
- The polarization, I think that's a contributing factor. I feel like everybody wants to see themselves as a victim. I see this as a general political problem, and I feel like I see that coming from people involved in this process. …Having that be such a pervasive mentality makes it really hard to work on decisions together and acknowledge other people's problems, which is what we're really supposed to be doing. (32Multiple)

Protect the Resources thus saw increasingly polarized divides in the program as a driver of other issues that they believed were high priorities in the program, such as lacking a shared understanding of the original goals and objectives (*S15: 4), perceptions on the risks of failing to achieve those goals (S25: 11), and difficulty balancing ecological and economic goals (S36: 8). Many in this group also tied the lack of a shared understanding to the difficulty of getting all individuals and groups in the program to agree on how to interpret the underlying science, and how that was connected to differing, polarized caucus priorities.

- I think the shared understanding is working on creating a knowledge base. They're working on some of this. Have a shared understanding that everyone goes through. Maybe it's more like the workshops we're doing in Policy with interest-based decision-making. (06Policy)
- That characterizes the struggle, that you're on one side or the other side. (15CMER)
- I don't think there's a lack of shared understanding. I just think the understanding and some caucus's views have changed. So I think we need to talk about it. Until we change the original goals, we've got to follow the original goals. And until some caucuses tell us that those original goals don't work for them anymore, I think they work if people are willing to be disciplined and follow them. And I just don't think that's happening with some caucuses. (29Policy)
- When TFW was agreed to … people had shared visions of a commitment to doing adaptive management and let the science lead. … They committed to this adaptive management [program] and [to] let the science lead. And now the science is saying one thing, and they're baulking at it. It seems that they're not following through on their commitment. (40Multiple)
- It seems like people have agendas with these, so I don't know that it's a risk of failing [to come to a shared understanding]. It's an intentional delay to maintain the status quo. (65FPB)

Protect the Resources also saw the increasing polarization between different caucuses as reflected in the lack of a 'give and take' spirit within the program (S19: 3). However, where other groups (like *Back to the Foundations*) argued the spirit of give and take had been lost over time, many members of this group questioned whether there had ever been a true spirit of give and take in the original TFW agreement to start with:

- I don't think there was a whole give and take, you scratch my back, I scratch yours [approach]. If someone says no to something, we don't come back with, why are you saying no and how can I address it. We just hunker down. (08Policy)
- I think we're kind of being unrealistic when we think that we're all going to help solve each other's problems. (16Multiple)
- The small forest landowners would throw this in our face a lot. My response eventually was that, yes, we can try to solve your problems. But at the same time, we cannot put more burden on the resources that we're trying to rebuild. And so what that does is if we agree to a 25 foot buffer on fish bearing streams that

aren't meeting habitat goals or temperature or anything else, then how are you going to solve our problem of rebuilding those stocks when you're actually putting even more impacts on those stocks? So it goes both ways. … They don't want to go in the other direction. They just want us to [help] them. We've offered up alternatives to their proposals and they just say no. (29Policy)

- Some of these things about the good old days are kind of ridiculous. (32Multiple)
- I think trying to facilitate conversations at Policy, enable people to speak more towards what their values are that are informing their policy positions and somehow facilitate negotiations. … [But] they didn't really want to talk about it. They wanted to have the conversation focus on how to make theirs better, not how to make ours better. I think there's a way for the AMPA [AMP Administrator] or somebody to force those kinds of conversations, as uncomfortable as they may be, instead of letting people just stay in their camps. (40Multiple)

Specifically, numerous *Protect the Resources* participants questioned the timber industry and small forest landowners' embrace of the spirit of give and take. In contrast with *Back to the Foundations* (P1), and similar to observations made by *The Problem is Conflicting Goals* (P4), this group argued that an unwillingness to define terms like 'economic viability' and associated lack of supporting evidence demonstrated that the timber industry and small forest landowner caucuses were violating the spirit of give and take.

- [Economic viability] has no definition anywhere, and so it's a struggle for us to understand what [the timber industry means]. I wish they'd defined it. … Are you talking about viability in the way that it was in 1999? What's our definition? It's pretty broad, in my view. (08Policy)
- If there were some more concrete metrics to show what success in each of the goals is, I think it would be easier to have those conversations or to decide that those conversations are no longer necessary. … I think small and large timber are more viable than they're saying they are, and they're not providing any evidence to the contrary, they're just not sharing. We're happy to show how much fisheries have declined, and nobody's sharing similar [data]. (15CMER)
- Trying to solve each other's problems is a good thing. But we need a first [understanding of] what the problems are. And we don't think that the timber industry is having a problem. A lot of them have had record profits lately, so we don't know where that problem is. (16Multiple)
- We've asked the question of, how do we define a viable timber industry? They don't want to go there. At least they haven't been willing to have that be a priority agenda item, a policy discussion that we spend any time on, so I'm assuming they don't want us to find out what that is. (29Policy)
- It's a big black box, this whole timber viability question. … The industry, they don't seem at all eager or willing to help define this. They just don't even want to talk about it. … I think if we can structure the conversations, come up with some effort at defining what a viable timber industry is. What does that really mean? That's sort of this big elephant in the room that we've never really talked about. (40Multiple)

Finally, similar to *Conflicts of Interest Come First* (P2), members of *Protect the Resources* expressed concern over what they perceived as the inadequacy of many current forest practices and regulations (S28: 9, S38: 10, S24: 12). They also were highly skeptical of the existing consensus process, largely seeing it as a major problem with the program's design that contributed to their highest priority issues (S6: 6):

- This idea of unanimous consent, this is a fantasy. I think it's a poison pill arguably designed in such a way as to yield just the outcome that we've got, which is almost no decisions in 30 years. (07Policy)
- I do think that there are a lot of cases where unpopular but necessary studies are stopped due to those dissenting voices. I think a majority-minority vote situation would change that, or even a consensus minus one. (15CMER)

- The qualifier on that is unanimous consent. Consensus is good. When somebody is not able to go along with the consensus process, it's good to pause and try to reach and achieve that and put all the effort in. If you still cannot reach it after due process, then if the process can move forward, that is good. (28Policy)
- There's a number of [topics] that will always be a bit problematic because of the make-up of the board. But again, I think that's intentional. You want to balance there. You want some people that are more impacted by changes to forest practices and people who are more impacted by a lack of regulation or what the environmental impacts are. And you let those people sit in a room and talk it out. How do you get to consensus? How do you get to a decision in a policy that does the best to benefit all of those things? That's what the intention of the board was. I think that's a worthwhile vision. And again it'll always be hard conversations, because these are hard issues, but the intent is still solid. (65FPB)

The main definition members of *Protect the Resources* gave for ranking statements as low priority was that they believed the statements were not based in fact:

- I think that the statements in the first [column] are mischaracterizations of problems. (15CMER)
- I think most of these are personal opinions of people. … Their comments are not well-grounded, or just seem to be more personal opinion. And so I find that hard to address and certainly not a priority to address. … The lower priority I felt were more opinion and not very tangible. (28Policy)
- Some I just don't think are quite accurate statements. (65FPB)

In many cases, *Protect the Resources* disagreed with statements or ranked them as low priority because they felt the statement did not align with the science, in keeping with their view that adhering to the best available science and research should be the backbone of the program. For example, participants ranked many statements relating to unfair burdens on the timber industry (S1: 40, S2: 38, *S22: 39, †S37: 33) as low priorities because they believed such statements were largely inaccurate.

- [Regulatory certainty is] not an objective of the program. I would say that is an objective for a caucus in the program, and that's fine. That makes sense. But that's not a written out objective of the program. …The second clause is "no longer being honored." Regulatory certainty doesn't mean perpetuity. 20 years without rule changes means you've got some damn certainty. (08Policy)
- No one questions the benefits of the forests, but they feel that an unregulated landscape would cause issues for the other resources on that landscape, which would not be protected simply by forestry for forestry with no regulation. (15CMER).
- The conversion to development, [I] don't necessarily buy into that. I think that there are other options. Like if timber harvest isn't occurring, there are impacts, but not always significant, where and when and how much. And I don't think that the other option is conversion or development. There are other alternatives for forest land if they're not in timber production, recreation being a large one, community forests. (28Policy)
- Our whole process is based on regulatory certainty, so it means that there won't be any new reckless regulations. But the certainty comes through the process of who those regulations are implemented, resulting from studies or research that we're doing and new best available science that comes into play to make those changes. (29Policy)
- The small forest landowners, they've been saying this for years. … It's kind of like this extortion thing. Nice little riparian ecosystem you have here. If you don't let us do what we want with it, shame if something happens to it. But I don't think that's accurate. The money involved in converting land to private development is always going to outweigh whatever forest practice you're going to get out of it, regardless of what level or fuels are engaged. (40Multiple)

Additionally, *Protect the Resources* argued that statements about the burdens placed on timber industry and small forest landowner caucuses were outside the scope of the program:

- Our program to effect change in those other environments doesn't exist unless timberland owners really want to stick their neck out and push for regulatory change lower down. I think politically, they have the biggest ability to sway of anyone. So that's outside the scope of what we do. (06Policy)
- Ag [sic "Agriculture"] is regulated federally, so the state has no say over what happens with them, and I agree with the unfairness that they have to do less. But I don't think the solution is to get no regulation for anybody. That doesn't solve the problem of clean water or fish streams or habitat protection or the other issues. (15CMER)
- This program is not designed to address other sectors of the economy. The big one, that's agriculture. It's probably the biggest negative impact on our habitats. But no one wants to touch that, the program isn't designed to touch it. It needs its own adaptive management program, but there's no political will to do that. (16Multiple)
- Other people need to share some of the burden, I certainly agree with that. It can't come from any single sector. But to say that the timber industry is unfairly being targeted, [I disagree]. (28Policy)
- We at Policy and the tribes, we have no authority. Where we have tried to deal with the conversion issues, we get pushback from mainly small forest. … Although it's true that keeping in forested land is a lot better than it being developed, we have no control over that. (29Policy)

Protect the Resources also ranked statements indicating that the program's processes of scientific research and analysis were not working well as low priority. For example, they disagreed that the CMER process needs more accountability and transparency (S7: 37), that decision-making is happening by uninformed people within the program and board (*S10: 29, S13: 31), or that CMER scientists are ignoring the firewall between policy and scientists (*S8:3). These rankings align with their overarching argument that the program - and specifically CMER - is producing the best available scientific knowledge, and that this knowledge should form the basis of the program's decisions.

- That's up to the caucuses. They may not be able to put somebody in there that has the time and knowledge to do it. … There's no accountability. … Maybe there needs to be some structured way in the committees to hold people accountable. (16Multiple)
- There needs to be periodic updates to Policy to keep us aware of where we're at in the process, the developments occurring. Not that we are going to say, okay, we need to change that, unless it comes from the science team saying, 'We need clarification on the way you asked this question.' … The science group needs to do their stuff without any influence from Policy and then at some point in time, come back, say here's where we're at, where we have consensus. (29Policy)
- There is a problem of people bringing their caucus perspective into CMER. … I think it's one of the less solvable problems. Unfortunately, the people that we report to, they don't ask us, are you helping to solve other organizations' problems? They're going to say, are you solving our problems, are you making them focus on what they need? That's what they want. The idea of the people that are committed to being good players and working collaboratively, those qualities, I don't think any of us are having that emphasized. [It's] who do you work for? (32Multiple)
- I don't think that's fair [to say members aren't prepared]. Voting members in my observation [at] Policy … People put in the time they're able. They have the knowledge that they have. I see real honest efforts by all. I think there is an honest effort by folks to do that, and to make that kind of blanket statement is just not fair to the kind of effort that I've observed. (40Multiple)

It is worth highlighting one specific example that *Protect the Resources* ranked as a low priority: the idea that AMP needs stricter, more rigorous membership requirements and standards (†21: 35). These participants strongly disagreed that the program - particularly CMER - did not have sufficiently qualified members. In fact, numerous members argued that limiting CMER

membership to members with PhDs and excluding practitioners would have a negative impact on the research quality. If anything, members of this group thought that TFW Policy, not CMER, might benefit from clearer membership standards.

- For Policy, the requirement should be [someone] that's interested in a collaborative working environment, that has an open mind. You've got to have a good grasp of rules and regulations. You have to have an understanding of that and what's trying to be done. (06Policy)
- There's a couple of people [in CMER] that might not have the qualifications, but have enough experience that they are a valuable member there. … But I don't know if there necessarily needs to be a list of qualifications that they have to meet. That can be detrimental to the tribes. Tribes don't have many resources to hire highly qualified people, [they] rely entirely on state participation funding, which isn't a lot. Whereas industry groups, they have the money to hire highly qualified people. It can become a way where it's controlling who's allowed at the table and disenfranchising groups that don't have as many resources. (16Multiple)
- [Qualifications] should be about the ability to have good faith and to work in an honest and transparent way and work towards the common goals rather than try to game the system. (32Multiple)
- I've heard this complaint from some folks that some of the people don't have the technical background to really engage in this level of research. And I don't think that's fair. It's kind of a cheap shot that some of the people with PhDs make against those who may not have PhDs. … I think requirements is a slippery slope. I think that somebody who has expertise and is a good team player, that should be enough, and not worry about some level of credentials. (40Multiple)
- You want balance there. So you want some people that are more impacted by changes to forest practices and people who are more impacted by a lack of regulation or what the environmental impacts are. And you let those people sit in a room and talk it out. (65FPB)

As seen above, several members noted disparities in access to resources between different caucuses - for instance, that large timber can afford more CMER scientists than the other caucuses. However, overall *Protect the Resources* disagreed with the idea that there is a conflict of interest with participants or groups benefitting from AMP decisions (S4: 36). A common theme among participants was that the caucus-based organization, which includes the regulated community, is an integral part of the program's design. Additionally, multiple participants noted that it could also refer to financial incentives to certain CMER members to pursue certain types of research, although most disagreed with that framing as well.

- That's kind of the nature of what we do. A landowner is going to be interested in protecting their investment. A regulatory agency is going to be interested in meeting its responsibilities to the state of Washington. That's just normal, and so I don't think it's something we would necessarily want to spend a lot of time focusing on. … If you want to fix it, then it's an entirely different system that we need to be working under. It's not going to be the Adaptive Management Program. (06Policy)
- I think there's an inherent conflict of interest as it's designed to have these Policy committee members, their self-interest aside, [working] for some greater good. … There are entities in the CMER committee, there are researchers who are doing some of the work while also making the decision to run the committee. So there are members of CMER who are also researchers, and so the idea is that they have a conflict of interest. … I don't know any evidence or any indication or any accusation that the actual data that's benign produced is somehow conflicted. It's simply that somehow the people doing the work are also the ones deciding what work gets done. (07Policy)
- Everybody has maybe not a conflict of interest as much as they have some biases in there, and they just need to separate that. And when it comes to scientists, each individual caucus member has their biases. But when you get in there, you're a scientist. I think initially that was done fairly well and was policed

> internally. … Policy, same way. We are going to have our biases and our positions, but to participate in this process, we have to stick to our ground rules. (29Policy)

3.2 Feasibility Q-sort

For the Feasibility phase of the study, we identified a solution with three distinct social perspectives. Each perspective is descriptively titled in a way to encompass the central objective or priority driving individuals aligned with that viewpoint:

1. *Easy Administrative Fixes* (F1)
2. *Coming to a Shared Understanding* (F2)
3. *Fix the Science* (F3)

(For a complete list of how each perspective ranked and sorted the statements, see Table A5).

From 63 sorts completed by 63 participants, 45 loaded significantly onto only one social perspective. Eleven participants did not significantly load onto any social perspective. Another seven participants were confounded, meaning they loaded significantly onto two or more social perspectives (Table A6).

In the following sections, we report our interpretations for these social perspectives with a narrative summarizing what each perspective viewed as the issues facing the AMP that were most and least feasible to resolve.

We decided upon a three-perspective solution as the most robust across our analysis criteria (for a full list of weighted decision criteria, see Figure A1.4 in Appendix 1).[7] It is important to note that this decision appears to be weak when judged based solely on variable-centered statistical methods. However, since Q-method is *person*-centered rather than variable-centered, it is common practice and considered more theoretically appropriate to use a more holistic approach to determining the most robust solution. Furthermore, the quantitative metrics and cut-offs which are considered robust for a Q-method study may actually be lower than for a more traditional statistical factor analysis. For an in-depth discussion of the differences between Q-

[7] Five of the 45 significantly loading participants were negatively loaded onto a perspective. As a result, two perspectives were considered 'bipolar' meaning that some participants *negatively* loaded on a significant level, indicating their perspective was opposite to the perspective captured in that factor. It is common practice to 'split' these perspectives in two, which in our case effectively created a five-perspective solution. We compared both the original three perspective solution and the solution with split bipolar perspectives in our second round of analysis, and found splitting the bipolar perspectives created two major issues. First, one of the resulting perspectives was not theoretically meaningful, meaning it did not appear to encompass a coherent shared viewpoint among the associated participants. Second, the split perspectives had few enough participants, and those participants were distinct enough in their program roles and caucus affiliations, that it would be possible to determine who those participants were, thus risking their confidentiality.

method/person-centered statistics and R-method/variable-centered statistics, please see Appendix Section A1.6: Comparing Q-methodology and R-methodology statistical analysis.

Part of the reason the three feasibility perspectives do not appear fully mathematically distinct is that there is a great deal of hidden consensus between them, discussed in greater detail in Section 4.3. However, the differences between these three perspectives are meaningful enough that we felt it both theoretically and ethically necessary to outline as many different viewpoints as possible in order to capture the fullest range of possible perspectives among AMP participants regarding the feasibility of addressing issues facing the AMP. Furthermore, even a small minority viewpoint can be highly consequential due to the AMP consensus-based voting structure, where a single dissenting vote can have a veto effect. For these reasons, we settled on the three-perspective solution as the best fit for the goals of this study.

Table 3: Summary of key criteria for each social perspective in the Feasibility study phase. For a full list of weighted criteria used to holistically assess each perspective, see Figure A4 in the Appendix.

	Feasibility Social Perspectives		
	F1 *Easy Administrative Fixes*	F2 *Coming to a Shared Understanding*	F3 *Fix the Science*
Variable			
Eigenvalue	14.12	5.68	4.51
Percentage of variance explained	18%	9%	12%
Number of defining sorts	19	9	17
Average relative coefficient	0.8	0.8	0.8
Composite reliability	0.987	0.973	0.986
Standard error of factor Z-scores	0.114	0.164	0.118

Figure 7: Feasibility social perspective affiliation by caucus. Numerical figures for each stacked bar section represent the caucus members affiliated with each perspective as a percentage of the total number of study participants from that caucus.

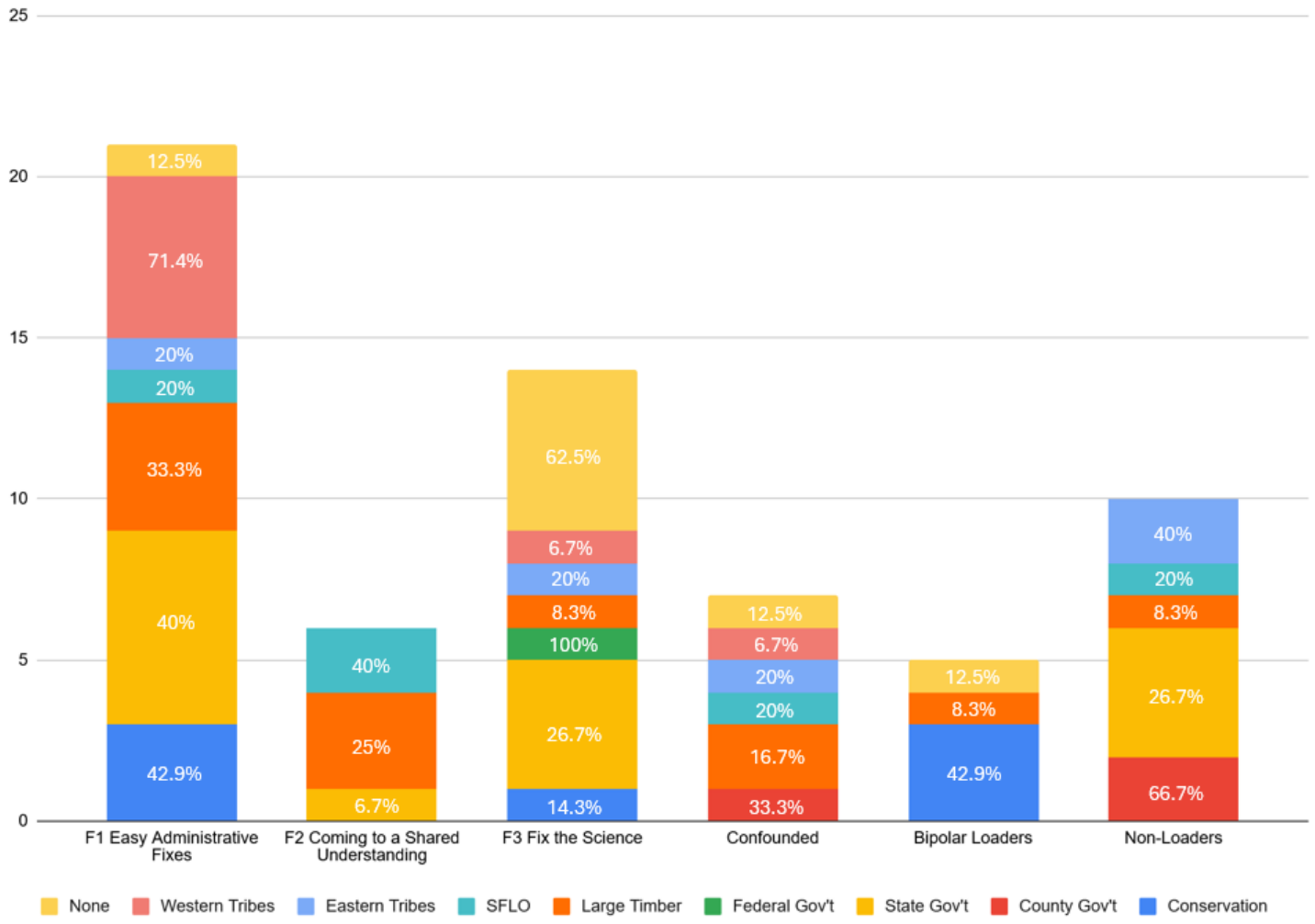


Figure 8: Feasibility social perspective affiliation by program role (CMER, TFW Policy, Forest Practices Board, or Admin/Other). Numerical figures for each stacked bar section represent the members in that program role affiliated with each perspective as a percentage of the total number of study participants from that role. Members with experience in multiple roles (e.g., both CMER and TFW Policy) have both roles represented; thus, the totals are greater than the number of participants.

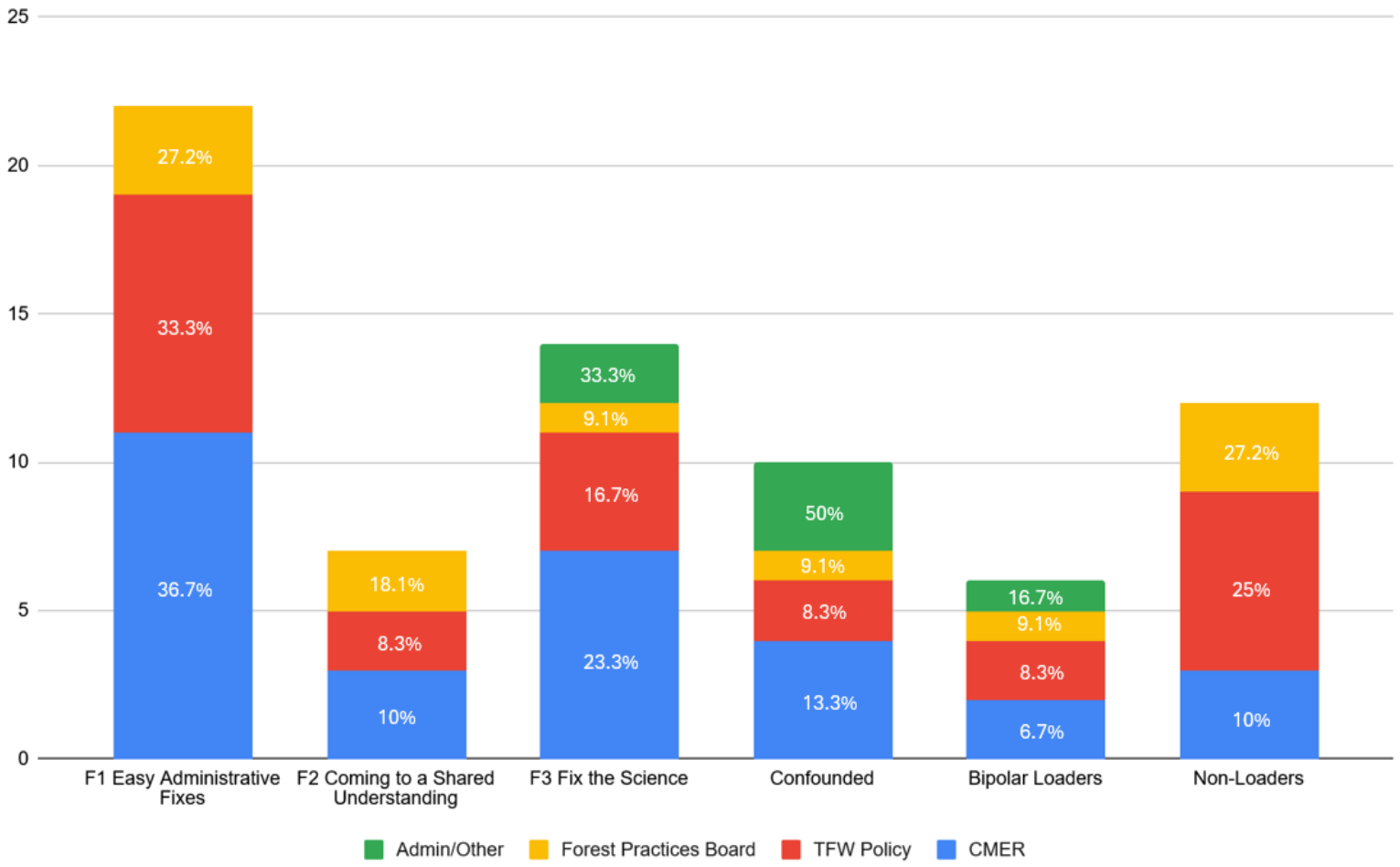
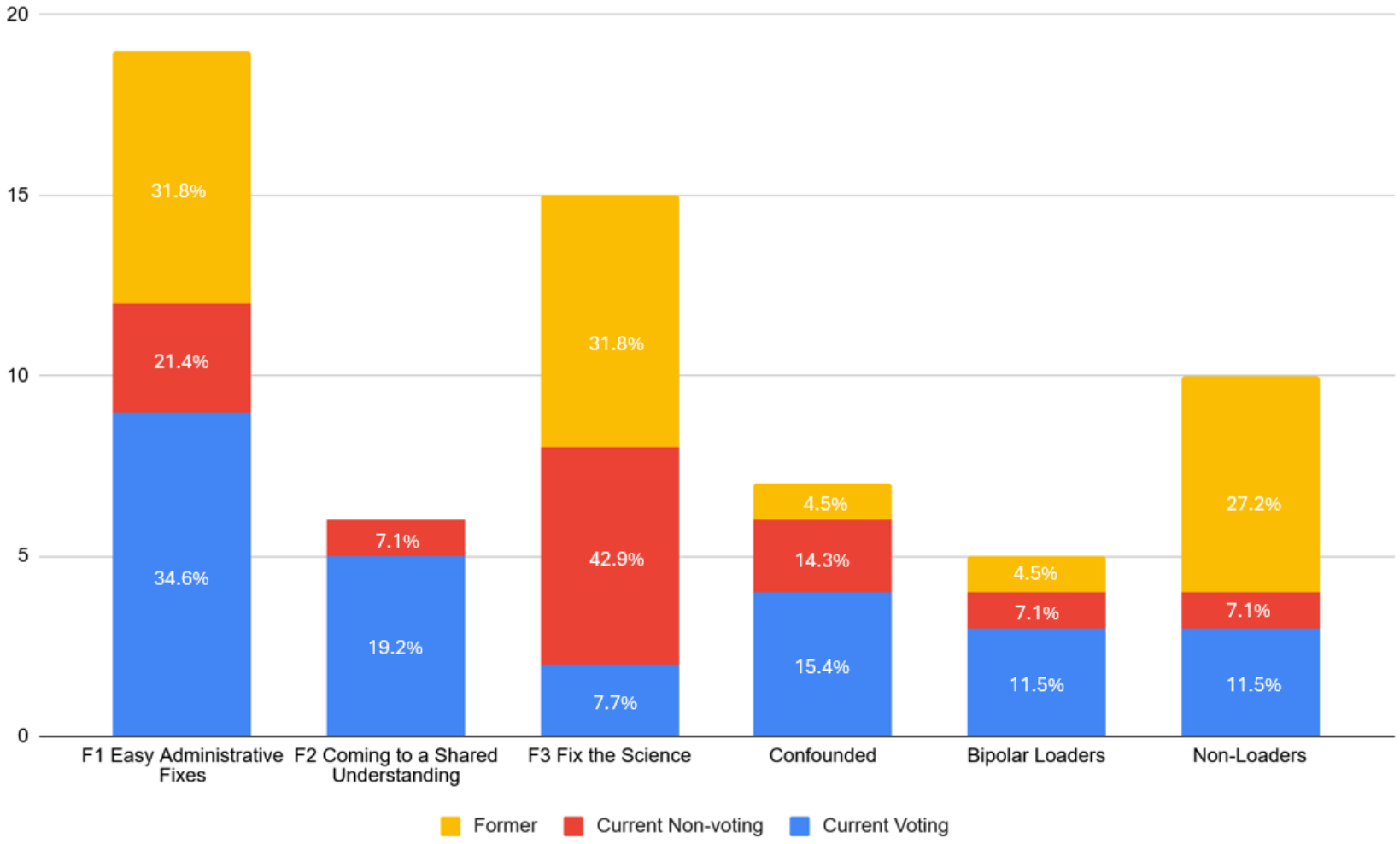


Figure 9: Feasibility social perspective affiliation by voting status. Numerical figures for each stacked bar section represent the members with that voting status affiliated with each perspective as a percentage of the total number of study participants associated with that voting status.



3.2.1 Easy Administrative Fixes (Feasibility 1)

Easy Administrative Fixes defined feasible statements as those with a clear action or plan allowing the problem to be resolved. For instance, they saw as most feasible statements related to problems able to be "solved, or at least diminished, with some education and training" (52CMER), such as retaining institutional knowledge despite turnover (S17: 3) or clarifying the AMPA (AMP Administrator) position responsibilities and scope (S27: 9). They also viewed problems relating to "being clear about goals [and] expectations" (28Policy) as feasible to resolve (†S15: 1, S20: 7), as well as administrative tasks like "spreadsheets work, planning, accountability and clarity" (51Policy), such as creating standards to clarify membership requirements (†S21: 4).

Relatedly, most *Easy Administrative Fixes* members saw creating predetermined TFW Policy responses to potential CMER results (*S11: 6) as highly feasible, both because of its clear administrative procedures and its alignment with current efforts to address the State Auditor's Office recommendations by implementing structured decision making:

- Policy could come down and decide where their trigger points for action are ahead of the data, and get some agreement on that when the data comes in. It may effect a change. Right now, I think they're reactive and not being proactive. (02CMER)
- As part of scoping the range of responses, that could be obtained to draw lines as far as what is appropriate as no change, or what is reasonable in amount of background noise, or what is effective, what is considered a neutral response to what is considered an actionable response. There can be recommendations on that based on this work done in scoping so that there is actual scientific justification for those calls. (15CMER)
- Implementing the SAO audit recommendations will go a long way to help [this one]. … Things like structured decision making, setting your performance targets up ahead of time, making sure when you're doing the study to begin with at the CMER or Policy process that we understand the questions we're trying to ask up front. (59Multiple)
- Having Policy people really lay out what the options would be, or what the policy changes would be ahead of time, that seems totally doable. I don't know that everyone's going to want it, agree on it. But it could certainly be someone's job to just [say], here are the options. It turns out that the study says this, then we're going to do this. (64FPB)

However, some outliers within this group expressed doubt regarding the feasibility of the structured decision making progress, noting that the solution might be structurally feasible to do yet more difficult to accomplish in reality:

- Some of these ideas of trying to make things more objective with set benchmarks or to have predetermined outcomes, while those are straightforward, I don't think they would be that feasible. I think they sound easy, but they wouldn't be. (32Multiple)
- I'm not sure this is possible. … I am thinking it will just give us something else to argue about. (47CMER)
- One of the [state auditor] recommendations was that there would be clarity on how the information [from studies] would be used to influence rule change. That was one of their recommendations, and I wholeheartedly agree with that. But so far that hasn't been incorporated. There's studies now going forward that have no clarity on that. … They should not fund or approve studies without that being spelled out in writing, and agreed to by everybody up front. It's not that difficult of a problem to solve. It's difficult [because] there's a reluctance to, in my view. (60CMER)

A second definition of feasibility related to statements that *Easy Administrative Fixes* members ranked as highly feasible because they did not see them as problems in the first place. One such example is the dispute resolution process (*S31: 8), which many members argued was on the way to being resolved as part of the response to the SEO audit recommendations.

- There has been a recent shift in how that process is perceived, in part because of one of the more recent audits where they actually recommended that we use that process more often. … I think it's a change in how all individuals view that process as a useful tool instead of a bad thing that you weren't able to come to some kind of resolution on your own. (01CMER)
- Dispute resolution, that is super easy. We're already halfway there. We're really just learning to change our mindset on what dispute resolution is. In the past, people saw it as some kind of bad punishment. We're trying to change that culture of thought, and I think it's highly feasible because we're working on it already with some success. (02CMER)
- We just need to convince people that it's a tool. I think people have already come around to that. (45Policy)
- Historically, I think many considered dispute resolution as a failure to reach consensus, thus were unwilling to use it. I see that reluctance fading, and if anything I think some are willing to initiate now on little issues. (47CMER)
- We've used the dispute resolution process in two years more than we had in the entire history of the program. (59Multiple)

Similarly, *Easy Administrative Fixes* members argued that problems relating to the complexity, transparency, and accountability of CMER statements were feasible (*S7: 11; S18: 12; *S23: 10) because they did not believe there was actually a problem to resolve, or that it had already been addressed.

- There is a tremendous amount of transparency and accountability in the process from the oversight of the project teams to the vetting through independent science review at the University of Washington. (01CMER)
- I don't think that the process is difficult to track. It takes a long time, and that's because of the stakeholders. There's a ton of transparency and accountability. (18CMER)
- As a board member, I don't see that as a real issue. I think that the public will get a little bit clearer understanding of how CMER works and how TFW Policy works when the dashboard is brought online. So I think that's a pretty easy one to fix, and the board is actually taking action at the current time trying to fix that. (39FPB)
- I don't see this as an issue. The information is there. It could be made easier, more accessible. But I haven't gotten the sense that there's been a lot of hiding the ball on the development and implementation of CMER studies. I don't mean to imply that it couldn't be done better…but I don't necessarily feel like these are the most important things to spend our time on. They just seem like the simplest to solve. (46CMER)
- It seems like an easy fix to me. It's a matter of spreadsheets and communication and a good CMER manager. So I don't think that's a big problem to fix, if, in fact, it is a problem. (51Policy)
- The adaptive management program and DNR staff is really committed to communication, transparency and improving processes…I think the struggle is going to be that the staff can only do so much. (59Multiple)

A final definition of feasibility applied by *Easy Administrative Fixes* related to structural program changes. However, this final theme resulted in some contradictory results, with participants noting a disconnect between identifying a solution that would be easy to implement *structurally*, but may be difficult to accomplish *politically*. Several members of this group reflected on this contradiction in their interviews:

- A lot of these are really willpower. If the group really wants to work together, I think we can fix a lot of the things that I had qualified as high feasibility to fix. It's really a matter of mindset and willingness to come back to the table, find shared goals, find shared risk and really understand that there's more in common

than disagreements. It's absolutely feasible if people are genuine and willing to come to the table. (02CMER)

- I think they're the most feasible because they seem to have almost solutions embedded into them. They note a very specific thing that is wrong. So it makes it the easiest thing to change in that you don't have to come up with a plan other than to address that specific item. (15CMER)
- I can see a policy that could fix these kinds of things. So the framework to make these things happen is doable. Getting to agree to the information that goes into that framework is the hard part. (33CMER)

Two statements in particular are illustrative of this disconnect: Statement 6, relating to the consensus process, and Statement 14, relating to incorporating climate change. Numerous *Easy Administrative Fixes* participants discussed the consensus process (*S6: 2) as an easy fix, administratively speaking. However, many also noted the difficulty in achieving this goal.

- If we see [consensus] as a problem, we could change that pretty easily. We could decide that we were no longer going to be a consensus based body. There are other ways to do it, that other folks do implement that still provide for that kind of democratic process, but that doesn't require absolute consensus for something to move forward, but that doesn't require absolute consensus for something to move forward. … I don't have strong opinions in terms of how that should happen, but it seems very doable. (01CMER)
- There's already talk about how to fix that problem, so I think that's feasible. Whether it'll be politically palatable, I don't know, but it's certainly not complicated. I think it's a pretty straightforward fix. (32Multiple)
- If the requirement for consensus is what's leading to delay and inaction, then providing an off-ramp like resolution or majority minority process is certainly feasible. If folks agreed that was an important step to take, then it seems to me that we could get there. Providing an outlet for majority minority decisions would address the baggage that comes with a consensus process. (46CMER)
- The consensus thing you can easily [change], or maybe not easily. But it would be feasible to turn that into a majority vote or consensus plus one. (54CMER)

Similarly, numerous *Easy Administrative Fixes* members noted the ease with which climate change (*S14: 5) could be addressed within the program, administratively speaking.

- I do believe it is something that our program should be more focused on. … But that's going to be really, really, really hard for us to come to a consensus on how we might do that. (01CMER)
- I think it's simply a statement or direction from the Forest Practice Board that thou shalt incorporate climate science and climate change into every study. (06Policy)
- I think [it's] really doable. I just don't think it's going to [happen]. … I think you [would] have to get rid of the stakeholders in CMER, or at least the power [that they have]. (18CMER)
- [Climate change] is easy. There's a thing called the six questions that comes out of every study. It's a summary of what was learned, what was not learned. There should be one that says, how will climate change affect these results? This is the most solvable thing in the whole list. (32Multiple)
- It's real easy to assign TFW to deal with climate change. That's an easy assignment. I don't know that it's easily accomplished. … It will be controversial. (47CMER)
- Climate change, that's totally doable. You could just include that. … [We] can start integrating climate change at CMER, start looking at what are the populations and how are they going to change under different climate scenarios. (64FPB)

In terms of low feasibility, *Easy Administrative Fixes* saw statements relating to 'external factors' (28Policy) as difficult to resolve (*S2: 35, S5: 36, *S37: 37, S35: 40). Of these external factors, they cited issues relating to participants' perceptions as the main issue impacting feasibility. Many, if not most, of the statements they ranked as having low feasibility relate to the

difficulty of overcoming participants' and/or caucus interests (*S16: 38; S26: 39; *S29: 35; *S12: 32; *S1: 30; *S22: 31; S30: 33; *S36: 29). The difficulty of overcoming AMP members' interests, values, and/or opinions was a common theme within their interviews:

- I don't know [if] you can change the nature of people's interests. (18CMER)
- The low feasibility ones [are] opinions and perceptions and others, and I would just communicate those are really hard to address and correct. From my experience in the natural resource arena, the relationship pieces are in between personal perception and personal choice. There's uncertainty here of science. … On the left [low feasibility] are more opinions and perceptions…it's really hard to fix those. And everything in the middle is related to some clarity on personal understanding or personal view on the work we do and the relationships we have. (28Policy)
- There is a problem on the feasibility scale at the low end, of the inability of people to put their agenda aside, and it's human nature and that's a hard thing sometimes to change. (60CMER)

A key point made by many *Easy Administrative Fixes* participants was the disconnect between feasibility and importance for many statements, with multiple participants noting that the statements they saw as highest feasibility were often not issues they considered particularly important or problematic:

- Some things when I was like, I don't really see it as a problem, but this should be easy to address, I ended up [sorting as high feasibility]. I don't see it as a problem, but if other people do, this seems like something we should be able to check off really easily. (01CMER)
- Some of these, I don't think are a priority, but they would be easy to solve. (16Multiple)
- I don't necessarily feel like these are the most important things to spend our time on. They just seem like the simplest ones to solve. (46CMER)
- I don't know if it's going to be a high impact…so that's my caveat on high feasibility. Pretty easy to do, may not be hugely impact[ful]. (51Policy)

Easy Administrative Fixes participants also pointed out that just because they ranked a statement as low feasibility, they did not want it to be ignored altogether. Several mentioned the importance of continuing to try to resolve high-priority problems, even (or especially) if they are difficult:

- I don't like to say there's some things that just aren't going to be feasible. But it's going to be a lot of work, right? (28Policy)
- If I'm saying it has low feasibility, that's not necessarily saying that I wouldn't recommend trying. (64FPB)

3.2.2 Coming to a Shared Understanding (Feasibility 2)

The major theme tying together what *Coming to a Shared Understanding* saw as the most feasible problems to resolve relates to whether AMP members can come to a shared understanding about the original TFW agreement. They saw this shared understanding as including the risks, gains and losses faced by differing caucuses (*S9: 2), the goals and objectives of the program (†S15: 1, *S12: 4), and the underlying 'give and take' philosophy of the original agreement (*S19: 3). *Coming to a Shared Understanding* argued that, should program members be able to come to a shared understanding about the agreement and its obligations, many (if not most) other disagreements would be quickly resolved:

- This just revolves around getting the people to the table and saying, here's what we're doing. We want harvestable levels of fish. We want economic viability for the timber industry. We want equity in the decision making process. That's the collective spirit. That will not take long to go, look at the documents. All these people who apparently don't have any time to understand the basic tenants can spend two hours and figure it out. That's low hanging fruit, in my opinion. (03CMER)
- If everybody knows, I'm not going to get into the other guy's pocket, and I know they're not going to get into my pocket, this changes the whole paradigm. People will now be focused on, if we really need some help over here, let's find trees in our current paradigm and move them over there and figure out a way to do it to make everybody happy or content or equal. All the conversations in TFW Policy would totally change. (12Policy)
- Until there's common shared goals, and they're believed by everybody, and there's no minority reports on that when you get further away from the principals, then you will have a successful adaptive management program. (43Multiplec)
- As we have more of the conversation about getting the big wins and big losses closer to the middle with each other, I think that this is possible. We can get to the place where the winners and losers are getting something smaller, and so the outcome of viability and ecological gains can be met. Is it a short term high feasibility? Maybe not. [But] I think that's something that we as a team can accomplish. (53FPB)

Coming to a Shared Understanding primarily defined feasibility as those statements capable of being resolved through a combination of improved education, communication, and leadership. They viewed education as a key method for addressing several interrelated issues within AMP (*S15: 1, *S9: 2, *S25: 5, S37: 6, *S17: 9, †S27: 12). Specifically, they argued that continuing education for program members can help members come together towards a better, shared understanding of the program and the underlying science:

- All that takes is a little bit of education. You go get the documentation, you sit everyone down and say, here it is. Do you see anything in the original documentation that got this whole thing going, that's ambiguous to you, that you don't understand? Because frankly, the rules are the rules. … A lot of people spent a lot of time documenting all of this. So if you don't get it, let's go back and remind ourselves. That is pretty easy to do, frankly. That is something you can do in a morning session. (03CMER)
- You just have to keep people informed. It's more of a public relations issue. … If you had some kind of information campaign that reached people, you'd probably solve some of the other problems about the uncertainties of the forest practices. (14Policy)
- There is a lot of work that can be done around supporting and training the AMP staff. We've had a lot of changes in the AMP staff. There's a lot of frustration that comes with people not being up to speed on what this is, and the history behind it... We can work to make it better for both the people that are working in that space as well as people that are new. (53FPB)
- Do people actually remember what's in the Forest and Fish agreement? Do we remember why it says what it says and what the intent was? All [of my 'most feasible' statements] have to do with education. (58Policy).

Coming to a Shared Understanding also saw education as a way to continue improving communication between members, caucuses, and different branches of the AMP, thereby improving shared understanding:

- I think there's a lot of mistrust and there's a lot of anger at this point, and because of that it's really hard to have good communication…All of the things I have [as highly feasible] are accomplishable if we fix some of those communications issues. But they can't be accomplished unless we find pathways to communicate better and identify options. … There could be more fluid conversation happening amongst [the caucuses]. We could get more than a 5 minute update from TFW Policy. We as a board can do a better job of talking

through why we're making decisions. We could do a better job of talking through options in the meetings leading up to a decision so people don't feel blindsided. (53FPB)

Finally, *Coming to a Shared Understanding* viewed leadership as both an important and feasible component for continuing education and improving communication (*S12: 4, S33: 13).

- If this is important, you'll change your schedule to be there…All it is, is a bunch of principals saying to organizations, hey, we all agreed to this. … This is a matter of leadership. If you're a principal, you speak for your caucus, you're the one who commits to the resources and the buy-in for these things. (43Multiple)
- The whole TFW agreement from 1987, the forest and fish agreement from 1999 – they came into effect because principles came together and said, hey, we have a problem here. We need to fix this, litigation is not the way to fix this. It's the principles that need to. They set up these four goals and [said] that we are going to work together, if any of the parties to this agreement are not satisfied with it, that somehow they didn't get what they needed as well. And so to me the solution is to bring the principles [together]. … The principles need to tell all the people down there what it is we're going to do, and then get it down to the troops. This is what we're going to do. We have agreed to this, and this is what we're going to do. You do not get to circumvent that. (43Multiplec)
- They've already set a table for principles. That's being worked on right now. (53FPB)

Coming to a Shared Understanding defined low feasibility in two ways. First, they ranked as low feasibility items which they did not think were a problem in the first place (S35: 38, *S23: 39, S24: 34, S28: 35, *S7: 36, *S31: 33, *S38: 32):

- I can't suggest that you can fix something that I don't think is a thing. (03CMER)
- [These] aren't things that I think are low feasibility because I think they can't be fixed. I think they are low feasibility because I don't think they're true. (58Policy)

Coming to a Shared Understanding sometimes disagreed that the problem encapsulated within the statement was even a problem to begin with. For instance, in the case of dispute resolution (*S31: 33), they viewed the statement as untrue, and therefore not feasible, because it had already been resolved. Similarly, they argued that the program already has excellent project management, tracking, and accountability (*S23: 39, *S7: 36), with some expressing frustration that anyone would believe otherwise. They also commented that certain statements critical of current regulations were fundamentally incorrect (S24: 34, S28: 35, *S38: 32), thus removing the statement as a problem in need of resolution.

The second class of low feasibility statements were those where *Coming to a Shared Understanding* felt the barriers were too high for change to occur. In some cases, this was due to structural issues which precluded easy or quick fixes (34: 29). In other cases (S6: 37, *26: 16, S4: 30, *5: 20[8]), they felt it was not worth the program's time to try and resolve deeply entrenched issues related to changing others' minds:

[8] S5 ("I am concerned about the impacts of external influences upon Forest Practices AMP decision-making processes.") falls in the middle of the board, and therefore seems to not be considered by *Coming to a Shared Understanding* as a feasible statement to resolve. However, it is considered a statistically distinguishing statement because they ranked it as more feasible than either of the other two groups, which ranked S5 as highly infeasible. Thus, this group sees S5 as far more feasible to resolve compared to the other two perspectives.

- I don't see that we are going to have constituents and their interests for the caucuses [to] change. They're still going to have their specific goals from the outset of what they like to accomplish in that space, and they're going to fight for it. So I don't see those as things we can really fix. (53FPB)
- People are playing caucus games when they shouldn't. I don't know how to stop that. In my mind [it's] the lack of trust…People are playing caucus games, and in the process of caucus games they're creating an environment of mistrust where people don't trust each other. (58Policy)

It is worth noting one statement in particular, which combines several of the definitions of low feasibility defined above. *Coming to a Shared Understanding* ranked S14, relating to incorporating climate change into the TFW/FFR agreement, as low feasibility to resolve for multiple and differing reasons (*S14: 40). Some respondents felt incorporating climate change was important, but politically difficult to accomplish due to divisions within the program:

- Do I think we can go back and amend the agreement on climate change? Probably not. … I can't even imagine that occurring in the current relationship space. We're a ways away from a space where we could talk about incorporating that as a component of the process. (53FPB)

Others fundamentally disagreed with the statement because they did not believe it was a problem to begin with:

- I don't know whether climate change is true or false. I don't know whether it's a factor at all, and I don't believe there's anything we can do about it. So it just would not ever make my cut. (12Policy)

Finally, some felt that addressing climate change simply falls outside the scope of the program:

- Climate change was not part of the [original TFW/FFR] deal. For me, it's that simple. … Within the terms of the agreement and the CPP that was signed with the US Fish and Wildlife Service, climatic instability is not a problem. Now, if people want to modify that HCP to include that, I think they probably should, but under the terms that we're working under, it's not an issue. (03CMER)
- The 'change' part of climate change kills me. Yeah, we destabilized our climate. But the timber industry didn't do that. And frankly, it's not anything we can fix either. … People need to focus on the parts of the deal that we all agree that aren't working. …We're solving common problems and start bringing forward solutions to these problems as opposed to more problems because we've got enough problems in our problem basket in the Adaptive Management Program. Piling more problems doesn't go anywhere. You've got to fix what's put in front of you. (03CMER)
- [Climate change is] way bigger than the adaptive management process. … I don't think we should bother having climate change as a focus. If we know that forest is growing well and the streams are healthy, then they will be as good as we can get with climate change. We don't need to do extra stuff for climate change from my point of view. (14Policy)

3.2.3 Fixing the Science (Feasibility Factor 3)

Although *Fixing the Science* defined feasibility in similar ways to both *Easy Administrative Fixes* (F1) and *Coming to a Shared Understanding* (F2), the problems they saw as most feasible to resolve were primarily related to knowledge and science. These included issues relating to CMER studies and processes, how scientific results are understood and used, loss of institutional knowledge, and lack of clarity and understanding about core program policies.

Fixing the Science defined many of its most feasible statements as "easy" wins, similar to *Easy Administrative Fixes*. They ranked problems as highly feasible that they saw as "easy to fix" (57CMER), or which created tools and systems that would be "easy to use" (19Policy). They also defined feasibility as "things that don't need funding or legislation" (09CMER) and "that the program has more direct control over" (56CMER). They defined these problems as those with "technical solutions" (25Policy), such as creating systems and rubrics for improving the complexity, transparency, and/or accountability of CMER processes (*S7: 2, *S23: 1), issues relating to membership requirements and training (S17: 3, S21: 7), or resolving conflicting messages about roles such as the AMPA (S27: 8). In some cases, members also noted that the program was already "taking measures now to address" them (20Policy).

- All these pieces around accountability have technical solutions, they have systems management solutions which means you can implement checks and balances, et cetera to identify what science needs to be done and then to be able to track fully with what the consequences are. That's just going to lead to more scientific questions, but I think the processes are in place. You can manage them or revise them to make those things workable. (25Policy)
- We should be able to recruit people in a way that we can transition people in as people retire and transition out. … We should be looking to recruit people who have been in the system for a long time but want to be able to move up, and then also require people that want to move out to stay long enough to make sure that they're really training up those people too. It just seems like we could set something up. That doesn't seem that difficult to me. (31FPB)
- We're working on dashboards and things, we have the tools to do it. … Training, that is feasible, and we have the budget for it too. Not a lot of obstacles. … [It's] in the works, it will be a continual improvement process and we will revisit it but we have the resources and ideas to work on it. It's a work in progress. (42Admin)
- There has been a lack of clarity and guidance for [AMPAs] on what exactly their role is, and a lot of misunderstanding about that. I think the process has also really failed to empower the position to effectively administer the program. There's a fix to that. The process could provide guidance, and that doesn't seem like that's a heavy lift. Except I think if the Policy group really engaged in that discussion, there would be a lot of disagreement in what the role should be, which is probably why there's a lack of guidance and continuing confusion about it. (56CMER)
- This [the need for more accountability and transparency in CMER] was a problem when we were using TWIGs. … Since we're not using that process anymore, I'm thinking a lot of this has probably been resolved. (57CMER)

Meanwhile, similar to *Coming to a Shared Understanding* (F2), the members of *Fixing the Science* saw continued education, training, and communication as useful methods of addressing several issues facing the program such as the loss of institutional knowledge (S17: 3), lacking clarity on how to define and measure AMP success (S20: 5), difficulty understanding and addressing scientific uncertainty and study results (*S10: 6, *S39: 9), and lacking a shared understanding of the original AMP goals and objectives (*S15: 11).

- I don't think people really understand exactly what we should be doing, including the Board. But a lot of that is simple education and understanding. … CMER can have more workshops. We're reinstituting the biannual CMER study conference, where they highlight all the results of their studies as well as the status of studies, so we get preliminary results and begin to understand some of the data that's been collected and see trends. So there are ways for us to provide more tools to Policy to fully understand what's going on and what the results of the studies are and have a better opportunity to make informed decisions. (20Policy)

- People have been [quantifying, measuring, and benchmarking success] for ages, for projects and programs. It can be done. Highly feasible. It's doable to quantify it, put metrics on it. … That discussion hasn't started, it needs to start, it requires some external expertise. I wouldn't leave it up to the AMPA or participants. I see a series of workshops leading up to a final document that is reviewed by everyone and endorsed. (42Admin)
- Education. … If there's a way to have some institutional knowledge that moves from person to person, not just within the group or caucus we represent, but some real institutional knowledge about how and why the AMP Forest and Fish came to be. It's changed over time, and maybe just being honest about some of the changes over time. (52Policy)
- There were several questions that related to scientific uncertainty and how that fits into the process. … That's something that could be addressed by education. That's more directed towards the Policy end of it, helping them be more educated and discerning consumers of the information that CMER's giving them, and have a little less rigid view about their expectations for black and white answers. (56CMER)

Yet while *Fixing the Science* saw education and training as useful tools that could resolve numerous problems, they also noted that a lack of time was a major barrier faced by many program participants:

- This question [is] lack of time. Time goes right along with knowledge. I know state agency people are really pressed for time. They often get put on these committees, they've tried to go to the meeting, but [don't really have] time to review documents that come through. … I'm guessing some of the private industry is the same way. (09CMER)
- I think that's probably where we deserve the most criticism, that the Board and TFW Policy don't necessarily have all the information to make informed decisions. Not that Policy doesn't have the information, but sometimes it's pretty hard to gather. We have to commit to reading it and studying it and talking within their own caucus and to each other, which is another thing we're working on. (20Policy)
- I think this is a really impossible element to fix, but the commitment of time. Not just how much in a person's work-week or month or year they committed, but having people stick around for over a year or two or three in positions is really challenging because of how much people are moving around between jobs. … You have to have people invested for a while, and I don't know how you get that kind of commitment. But at least onboarding and transition time and rotating membership would help. (44CMER)
- I actually [have] a little bit of hope that as Forest Practices Board, Policy, and CMER and all the participants go through this process of trying to redefine performance measures for the program that they will put some more time into it. I don't really know how feasible that is, but I would hope that instead of spending so much time spinning their wheels on process and fighting about results, that they actually get down to working on what ecological protection looks like, and what maintaining a viable forest products industry looks like. (52Policy)

A further definition of feasibility used by *Fixing the Science* was addressing problems that were the "least divisive" among different members and/or caucuses, such as "'structural' problems [which pose] no real threats to members' different and diverse value systems" (22Admin). Relatedly, they highlighted the importance of "the current atmosphere" in determining feasibility (19Policy). However, many of the members of this group described situations in which seemingly straightforward "structural" or "technical" solutions would actually be less feasible than they appear, due to issues such as a lack of trust, caucus divisions, existing and/or contradictory policies, or a lack of follow-through by participants:

- We really should make sure that we're asking the right questions, and we all agree on what the questions are that we're asking science to answer before they start the study. That would resolve [other problems] because at that point, we all agree on why we're doing this study and the questions that we want them to

answer. The other part of it, though, is whatever the findings are of the study, you have to adhere to them. I'm not sure a lot of caucuses want to do that. (20Policy)

- While it's ideal that the firewall should be there [to keep CMER and Policy separate], the reality is that there's hardly ever going to be where there is a firewall unless you separate the science completely, make it not a caucus-based science enterprise and make it completely independent. That's when you have a true firewall. But in the current arrangement it's futile to expect it. These folks have coordination meetings, they meet with other caucuses, it's unenforceable. They can make a commitment but that's not guaranteed. (42Admin)
- [What] underlies all of this is that it's just a real lack of trust, [between] participants individually as people, but also between the group that you represent at other groups [i.e. Policy, CMER] as well as between caucuses. There wasn't as much trust as there should be if you're going to have a collaborative process, and it's much easier to just do gotcha's. (52Policy)
- [Setting membership requirements] is an interesting and sensitive topic. A huge, broad range of people's backgrounds come into CMER. We obviously have a group of really highly educated, research-oriented scientists that participate in CMER. And then we also have people coming from more of the practitioner's [side], foresters and Tribal biologists that are out there on the ground. They may not have advanced degrees, but they're actually doing the activities that we're trying to study. So I think it would be really hard to actually define a set of criteria for CMER that wouldn't potentially exclude people that have things to offer to the process. (56CMER)

Finally, several members of *Fixing the Science* defined certain problems as feasible to resolve because they did not see them as problems to start with (*S8: 4, *S3: 12, S22: 10). Notably, this logic inverts that of *Coming to a Shared Understanding*, who tended to rate issues as infeasible precisely because they viewed them as deeply important but unlikely to gain consensus among other caucuses.:

- I don't think [CMER scientists incorporating policy] is an issue. … I disagree with that statement. I think that's easy to fix, because I am not aware of that happening to any great extent, or it's so small that if it's limited to one person on one project, then you know that could be fixed by talking to [them]. But I don't see this as a widespread problem. It could be easily fixed by being very clear about what the perceived problem is. (09CMER)
- The program is producing relevant and pertinent knowledge. It's functioning as intended. Folks are participating in it and not leaving the table. (42Admin)
- I just think that's really wrong. The real litmus test is trying to find common understanding about what's acceptable and what's not acceptable in terms of the effects of forest practices. I really hate the idea that the sole value of the adaptive management program being judged on the number of rule changes, because it undermines the utility and the benefits of the adaptive management program that I do not think have been articulated as well as they could be. (67CMER)

Fixing the Science defined low feasibility in three ways. First, they ranked items under low feasibility that they believed were actually subjective opinions, feelings, and/or emotions of individual participants, rather than true problems facing the program (S28: 29, S24: 24, *S38:36, S34: 29, S4: 30, S30: 31). In such cases, they often argued that the opinion being represented was incapable of being fixed because it was fundamentally incorrect to begin with:

- I don't even know if they're an issue. (19Policy)
- In some cases, they're things we can't address anyway. They're just projecting feelings, and people have to change their own feelings. It's not something that we can institutionalize or create a process. (20Policy)
- [A lot of these require] people to change their mind. We can't require people to change our minds. Not just our minds as individuals participating, but our minds as a community, as a caucus that's participating. I'm

not actually saying that any of that mind changing is feasible, because people are not really interested in finding solutions. (25Policy)

This was particularly evident in cases where participants felt the underlying science of the statement was being misrepresented or misunderstood. For example, *Fixing the Science* questioned the underlying assumption of one statement that the program was "not meeting its HCP and Clean Water Act requirements" (*S38: 36):

- The Clean Water Act has got a lot of stuff in it to test. Every single one [of these rules] would take years and years and years and a lot more money than CMER's got or what it could really handle. That's not the purpose of this program. It prioritized areas or different topics that needed study. It was based on a risk assessment. We went through several rounds of that early in the 2000s, and those were the studies that were focused on. … We've dealt with the highest priorities to the extent we could with the resources we had. (09CMER)
- To me, this is a judgment statement. … It's an opinion, it's a position. If people feel that way, it doesn't seem feasible that we'll have them change their perception. (20Policy)
- I think we're meeting our HCP requirements. But if we didn't at some point in the future, that would be high risk and that would be bad. … But the program doesn't not meet those requirements. It's not true at present. (42Admin)
- I'm not really aware of any risks of litigation. In a way, the whole program was set up to avoid potential litigation, so I don't really see that as a high risk, or that there's a lot of evidence that the program is not meeting the HCP or Clean Water Act requirements. (56CMER)

Similarly, *Fixing the Science* disagreed with the premise that "current forest practices regulation is inadequate to protect fish, wildlife, and critical habit" (S28: 39). They argued that the underlying data did not back up this claim:

- I don't agree [that current forest practices regulations are inadequate]. We're doing way better than almost anywhere else in the country. (25Policy)
- There's not so much truth to that one. (31FPB)
- I just don't agree with that statement. I think that forest practices in Washington State are probably more stringent than just about any other state in the Union, with the possible exception of California where they basically are not able to log very much at all. (52Policy)
- I think there's misunderstanding, there's unrealistic expectations in the Forest and Fish agreement that are being misinterpreted. There are other HCPs that exist in Washington State that have lower standards than this one does. This one seems like it's much more open to interpretation about what the goals are, and whether or not current forest regulations are going to be acceptable, maybe because the definition of 'protect fish, wildlife, and critical habitat' are largely undefined. (67CMER)

Fixing the Science's second definition of low feasibility related to problems that they saw as driven by competing caucus interests, priorities, or divisions (*S12: 38, S26: 40, *S14: 35, S34: 29, S4: 30, S6: 32).

- [Caucuses protecting their constituents' interests] is a money-based, political issue. There's caucuses or members of caucuses that are paying a lot of money to make sure the rules don't change, and if they do, they don't change in a way that potentially conflicts with their interests. I don't see that one changing ever. (19Policy)
- I really can't envision a participant or group agreeing to step out of a process whose outcomes could impact them directly. Eliminating conflicts of interest would at a minimum possibly entail membership issues on both the Board of Natural Resources and Policy. (22Admin)

- I've seen in the CMER and the committee work that certainly participants of all stripes are affected by their affiliation with their caucuses and their understanding of the potential implications of decisions and research on their caucuses. And that just kind of comes with the way that we've set this up by not saying they're bad people or anything, but it's just kind of the way the world works. (56CMER)
- Caucuses protect the interests of their constituents. That is their job at the Policy table and the Forest Practices Board. … I don't think there's anything we can do to change that. That's how it is. You're paid by somebody, to some degree you're always beholden to them. (57CMER)
- Part of the problem with feasibility [is] in order for anything to change, all the caucuses will have to agree to it. It's easy to imagine at least one caucus disagreeing with anything that would [have] any changes that would lead to improvements. (66Policy)

One illustrative example of this definition relates to revising the TFW/FFR agreement to incorporate climate change into adaptive management processes (*S14: 35). While members of *Fixing the Science* differed on whether they thought this would be a good idea, they agreed that doing so would not be feasible due to divisions among the caucuses:

- To open up this agreement now and try to incorporate climate change into it, particularly when most people, certainly landowners would view any change for climate change as harmful to their interest, that's going to be a non-starter. (09CMER)
- The adaptive management program already has so many contentious issues that this would just be one more issue causing the program to bog down. (22Admin)
- When you add measures in for climate resiliency, the timber industry is immediately going to blow a gasket. (31FPB)
- I don't think it's necessarily feasible to change part of the TFW/FFR Agreement. … Putting climate change in, you have to open up the TFW/FFR Agreement, and if you did that there would be a lot more things that a lot of the caucuses would want to change. I think it's better left alone. (52Policy)

Fixing the Science's third and final definition of low feasibility related to issues built into the program's structures. In a few instances, some members of the group believed that certain problems were systemic issues that were built into the program. For example, some participants saw issues related to power imbalances between caucuses (S26: 40, S4: 30, S30:31) as an effect of the program's design, noting that "the program is designed for caucuses to use their power to serve their interests" (42Admin). However, in most cases these were problems that this group argued stemmed from misunderstandings about the program and how it is supposed to work - for instance, the idea that a lack of rule changes was evidence of the program's failure (S24: 34), or the belief that the program's design did not work as intended (S34: 29).

- I have a difficult time envisioning a significantly better adaptive management structure than that of the AMP. The full "ideal" adaptive management components are in play. It is rare when research results go back to "final" decision makers to consider if improvements to rules should be made. I would hope that people could clearly articulate what it is about the process and structure that they don't believe works as intended. Would everybody agree on those and/or would everybody agree on how it should be changed? (22Admin)
- Slow process of change is just built into the system. It takes years to do studies, to agree on the inferences from the studies and then how that actually translates to different rules and where. (23Policy)
- I think that statement goes against the intent of the adaptive management program. Change is not guaranteed. There is certainty that change will come, but it doesn't always lead to change. The program has completed 52 or more research papers, they have led to two or more rule changes. These studies take time but if they meet the merit and follow the process, change will happen. The goal is to keep the environment

stable as well. They shouldn't expect the program to change everything all the time. It's a slow deliberative process that has many objectives embedded in it. It has produced a lot of knowledge and information over the last 20 years. (42Admin)

- I don't see it as a guess about what might work. I actually thought it was a pretty rigorous structure. … I have used the adaptive management program as an example in my career as to what I think a rigorous adaptive management program looks like. So to me, it doesn't feel like a guess. (44CMER)

An illustrative example of a problem that *Fixing the Science* saw as not feasible to resolve due to issues with and/or misunderstandings of the program's structure relates to the consensus process. While they acknowledged that the consensus process did slow down AMP processes, they argued that the consensus process worked as it should and was an important part of the AMP's structure:

- We're set up as complete consensus for good reason, and I know industry would never accept a supermajority. We actually have a process in place to deal with this, the dispute resolution process. (20Policy)
- We would not agree to getting rid of it. … We need to make sure that our voices are there. That is the one lever that can bring people to the middle. It's also used as a weapon all the time, so it's problematic. It might make the system work a lot better if we just had majority vote. But then what you've done is essentially tossed out the whole idea that there are four goals. You've said, whoever has the most power gets to make all the decisions, and we really don't give a damn about the other goals that may not as important to that caucus. (25Policy)
- Dispute resolution [as a part of the consensus process] is a negotiated thing, it's a tool, it works for everyone, I don't think it's possible to change it unless there's a broader possible change to the program. It's not necessarily veto power but akin to a filibuster of sorts, enables people to be meaningfully part of the decision-making process. (42Admin)
- I know there's been a lot of talk over the years about getting rid of that. But I think that the consensus process is the only way that any of the minorities on the on the in policy are able to actually make a difference in moving things forward and coordinate. I know that it's a really big barrier to wholesale changes with the rules, but it forces the parties to talk …. I know my former caucus would never give that up. And the reason why is because at different times each caucus finds itself in a minority position and forcing discussion is really important, even if it means that things are slow going now. (52Policy)
- In the CMER process, we see that the consensus process does give a lot of power to all of the individual members in the consensus, and that definitely slows the process down. … And while we all over the years have complained endlessly about the inefficiency of our process, it's really hard baked into the structure and design of the adaptive management process. It's there for a reason. (56CMER)

4. Discussion

4.1 Caucus Affiliation, Program Roles, and Voting Status

A major question driving our research was: to what degree does caucus affiliation shape participants' positions on AMP-related issues? Our results were mixed: we would argue that **caucus affiliation plays a strong role in shaping or overriding members' individual values, but is not necessarily the sole determinant of participants' perceptions on AMP priorities**.

As Figures 4 and 7 illustrate, none of the social perspectives were fully aligned with any single caucus. In other words, there were no cases where *all* members of a caucus were affiliated with

the same social perspective. However, there were noticeable patterns where certain perspectives appeared to be more heavily aligned with certain caucuses than others.

Priority

The relationship between caucus affiliation and perspective alignment was most evident in the Priority phase of the study (Figure 4), and was more evident with some caucuses than others, particularly in cases where higher numbers of participants made patterns more visible (Table 4). For example:

- 50% of the large timber caucus (6 out of 12 participants) and 60% of the SFLO caucus (3 out of 5 participants loaded onto *Back to the Foundations* (Section 3.1.1)
- 50% of the conservation caucus (4 out of 8 participants) and 40% of the Eastside Tribes caucus (2 out of 5 participants) loaded onto *Conflicts of Interest Come First* (Section 3.1.2)
- 50% of the Westside Tribes caucus (4 out of 8 participants) and 40% of the Eastside Tribes caucus (2 out of 5 participants) loaded onto *Protect the Resources* (Section 3.1.5)

While these data do illustrate a relationship between caucus affiliation and perspectives on what should be the AMP's highest and lowest priorities, that relationship is not completely cut and dry. First, while some perspectives are associated with a fairly high proportion of study participants from certain caucuses (e.g., *Back to the Foundations* and large timber/SFLO caucuses, *Conflicts of Interest* and conservation caucus, *Protect the Resources* with Westside Tribes caucus), there were no cases where all participants from a caucus were affiliated with the same social perspective.[9]

Another pattern of interest was the degree to which caucuses were *not* affiliated with certain perspectives or overlap with other caucuses. For instance, *Back to the Foundations* did not include any members of the conservation, state government, or Westside Tribes caucuses. *Conflicts of Interest Come First* and *Protect the Resources* did not include any timber industry-affiliated (large timber/SFLO) caucus members. Relatedly, there were no cases where large timber/SFLO caucus members loaded onto the same factors as conservation or Westside Tribes caucuses, highlighting the division noted by many interviewees between the economic and environmental aims of the program. (However, one Eastside Tribes caucus member did load onto *Back to the Foundations*, which had the highest proportions of both large timber and SFLO caucuses).

[9] The exception is the Federal Government caucus, where only one former AMP member participated in the study.

Table 4 (overleaf): Priority perspective affiliation by caucus, program role, and voting status. Percentages are relative to the total number of each group.

		*n**	P1	P2	P3	P4	P5	Confounded	Bipolar†	Non-loading
Caucus	Conservation	8	0% (0)	50% (4)	0% (0)	0% (0)	12.5% (1)	25% (2)	0% (0)	12.5% (1)
	County Gov't	3	33.3% (1)	0% (0)	0% (0)	0% (0)	0% (0)	33.3% (1)	0% (0)	33.3% (1)
	State Gov't	15	0% (0)	0% (0)	20% (3)	20% (3)	26.7% (4)	13.3% (2)	13.3% (2)	6.7% (1)
	Federal Gov't	1	100% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
	Large Timber	12	50% (6)	0% (0)	25% (3)	8.3% (1)	0% (0)	16.7% (2)	0% (0)	0% (0)
	Small Forest Landowner	5	60% (3)	0% (0)	0% (0)	0% (0)	0% (0)	20% (1)	0% (0)	20% (1)
	Eastside Tribes	5	20% (1)	40% (2)	0% (0)	0% (0)	40% (2)	20% (1)	0% (0)	0% (0)
	Westside Tribes	8	0% (0)	12.5% (1)	0% (0)	25% (2)	50% (4)	0% (0)	0% (0)	12.5% (1)
	None	8	25% (2)	25% (2)	12.5% (1)	25% (2)	0% (0)	0% (0)	0% (0)	12.5% (1)
Program Role‡	CMER	30	26.7% (8)	16.7% (5)	13.3% (4)	13.3% (4)	10% (3)	10% (3)	3.3% (1)	6.7% (2)
	TFW Policy	26	19.2% (5)	3.8% (1)	3.8% (1)	7.7% (2)	30.8% (8)	26.9% (7)	3.8% (1)	7.7% (2)
	Forest Practices Board	13	23.1% (3)	15.4% (2)	0% (0)	23.1% (3)	15.4% (2)	7.7% (1)	0% (0)	15.4% (2)
	Admin/Other	6	33.3% (2)	16.7% (1)	33.3% (2)	0% (0)	0% (0)	0% (0)	0% (0)	16.7% (1)
Voting	Current voting	22	31.2% (7)	9.1% (2)	13.6% (3)	4.5% (1)	22.7% (5)	9.1% (2)	0% (0)	9.1% (2)

		*n**	P1	P2	P3	P4	P5	Confounded	Bipolar†	Non-loading
Status	Current non-voting	16	12.5% (2)	18.8% (3)	0% (0)	12.5% (2)	12.5% (2)	12.5% (2)	12.5% (2)	18.8% (3)
	Former	23	17.4% (4)	17.4% (4)	17.4% (4)	13% (3)	8.7% (2)	21.7% (5)	0% (0)	4.3% (1)

*Number of participants who completed the Priority Q-sort

†Bipolar participants are those who negatively loaded above the $p < 0.01$ significance threshold onto a social perspective, indicating they believe the opposite of that viewpoint.

‡Members with experience in multiple roles have both roles counted; thus, the totals are greater than the number of participants.

Another way of viewing these patterns is by averaging together the correlations of individual caucus members' loadings with each social perspective (Table 5). One notable finding is that some caucuses appear to have more coherence across their membership than others. For example, the Conservation, County Government, Large Timber, SFLO, and Eastside Tribe caucuses do meet the significance threshold for certain perspectives at $p < 0.01$, which is 0.41. This indicates that, when averaged together, many members of these caucuses are more likely to share a similar perspective regarding issues facing the AMP. However, the State Government and Westside Tribe caucuses, as well as those participants who were unaffiliated with a caucus, do not meet the significance threshold for any of the five social perspectives. This may indicate a wider range of viewpoints within each caucus that is less likely to cluster around a particular viewpoint.

Table 5: Average correlation of AMP members with each Priority social perspective by caucus affiliation. Averaged perspectives that meet the threshold for statistical significance at $p < 0.01$ are highlighted in blue.

	Caucus	P1	P2	P3	P4	P5
Caucus	Conservation	-0.1910	0.4587	-0.12345	-0.0234	0.3082
	County Government	0.4646	0.111	0.1396	0.1488	-0.1181
	State Government	0.1573	0.0656	0.1594	0.1365	0.3292
	Federal Government	1	0	0	0	0
	Large Timber Industry	0.4829	-0.0744	0.2181	0.1003	-0.0643
	Small Forest Landowners	0.5188	-0.0398	0.2560	0.164	0.2248
	Eastside Tribes	0.1119	0.439	0.0154	0.2039	0.195
	Westside Tribes	0.0624	0.1156	-0.0797	0.19375	0.3493
	Other/None	0.198	0.1853	0.2328	0.1789	0.0871

Some of the diversity of viewpoints within caucuses may be explained by members' program roles (Figure 5) and voting status (Figure 6). Unlike caucus affiliation, there do not appear to be strong relationships between members' perspectives on AMP issue priority and these variables. However, there are a few patterns worth noting when looking more closely at the individual social perspectives.

While we are cautious about over-interpreting these patterns, a few observations are worth noting. First, the lack of Forest Practice Board and current non-voting members in *Focus on Procedural Issues* may indicate that these participants were less familiar with the procedural details of how the AMP operates.

Second, the relatively high proportion of TFW Policy members in *Protect the Resources* (34.6% of all Policy-affiliated members, 61.5% of participants in this perspective) may be connected to their overarching belief that TFW Policy recommendations should be grounded in the best available science from CMER.

Finally, the lack of TFW Policy members in *Conflicts of Interest Come First*, and higher proportion of CMER-affiliated members (55% of participants in this perspective), may suggest that participants were more likely to perceive conflicts of interest playing out in CMER rather than TFW Policy, and/or were more sensitive to ways in which scientific data might appear to be selectively used in service to caucus interests.

Feasibility

For the feasibility phase of the study, the relationship between caucus affiliation and factor loading was far less overt than in the priority phase (Figure 7, Table 6).

However, some patterns associated with caucus membership do emerge. Both *Easy Administrative Fixes* (F1) and *Fix the Science* (F3) had broad agreement across the AMP membership, with representation from nearly all caucuses. In contrast, *Coming to a Shared Understanding* (F2) was composed almost entirely of large timber and SFLO caucus members (5 out of 6 participants). Of these, four participants had previously loaded onto P1 *Back to the Foundations*, which as discussed above was the social perspective from the Priority Q-sort most closely affiliated with the large timber and SFLO caucuses.

Although *Coming to a Shared Understanding* has fewer affiliated participants in terms of absolute numbers, all six associated members were current participants at the time of data collection, and 83.3% (5 out of 6) participants were current voting members in CMER, TFW Policy, or the Forest Practices Board. Thus, despite being a minority view in terms of percentage of total participants, the AMP structure (particularly considering unanimous consent processes) gives even a potentially less-dominant perspective like *Coming to a Shared Understanding* considerable power to shape the program's agenda and forward momentum.

Program role (Figure 8) and voting status (Figure 9) appear to have little influence in how participants perceive the feasibility of addressing issues in the AMP, although there is one pattern worth noting. There were no members in administrative program roles affiliated with *Easy Administrative Fixes* or *Coming to a Shared Understanding* - only *Fix the Science* included members in administrative roles. The three administrative members who were confounded between multiple perspectives were all confounded between *Easy Administrative Fixes* and *Fix the Science*. Thus, 83.3% (5 out of 6) participants in administrative roles were associated with *Fix the Science* at $p < 0.01$ or higher (Table A6). One potential explanation is that, while *Easy Administrative Fixes* overlapped in key ways with *Fix the Science*, administrative personnel may

have been less likely than *Easy Administrative Fixes* to rank more divisive issues such as the AMP consensus process (S6) or incorporating climate change into the TFW/FFR agreement (S14) as feasible to resolve.

Table 6: Feasibility perspective affiliation by caucus, program role, and voting status. Percentages are relative to the total number of each caucus, program role, or voting status.

		*n**	F1	F2	F3	Confounded	Bipolar†	Non-loading
Caucus	Conservation	7	42.9% (3)	0% (0)	14.3% (1)	0% (0)	42.9% (3)	0% (0)
	County Government	3	0% (0)	0% (0)	0% (0)	33.3% (1)	0% (0)	66.7% (2)
	State Government	15	40% (6)	6.7% (1)	26.7% (4)	0% (0)	0% (0)	26.7% (4)
	Federal Government	1	0% (0)	0% (0)	100% (1)	0% (0)	0% (0)	0% (0)
	Large Timber Industry	12	33.3% (4)	25% (3)	8.3% (1)	16.7% (2)	8.3% (1)	8.3% (1)
	Small Forest Landowner	5	20% (1)	40% (2)	0% (0)	20% (1)	0% (0)	20% (1)
	Eastside Tribes	5	20% (1)	0% (0)	20% (1)	20% (1)	0% (0)	40% (2)
	Westside Tribes	7	71.4% (5)	0% (0)	6.7% (1)	6.7% (1)	0% (0)	0% (0)
	Other/None	8	12.5% (1)	0% (0)	62.5% (5)	12.5% (1)	12.5% (1)	0% (0)
Program Role‡	CMER	30	36.7% (11)	10% (3)	23.3% (7)	13.3% (4)	6.67% (2)	10% (3)
	TFW Policy	24	33.3% (8)	8.3% (2)	16.7% (4)	8.3% (2)	8.3% (2)	25% (6)
	Forest Practices Board	11	27.3% (3)	18.2% (2)	9% (1)	9% (1)	9% (1)	27.3% (3)
	Admin/Other	6	0% (0)	0% (0)	33.3% (2)	50% (3)	16.7% (1)	0% (0)
Voting Status	Current voting	26	34.6% (9)	19.2% (5)	7.7% (2)	15.4% (4)	11.5% (3)	11.5% (3)
	Current non-voting	14	21.4% (3)	7.1% (1)	42.9% (6)	14.3% (2)	7.1% (1)	7.1% (1)
	Former	22	31.8% (7)	0% (0)	31.8% (7)	4.5% (1)	4.5% (1)	27.3% (6)

*Number of participants who completed the Feasibility Q-sort. Two participants who completed the Priority phase did not complete the Feasibility phase.

†Bipolar participants are those who negatively loaded above the $p < 0.01$ significance threshold onto a social perspective, indicating they believe the opposite of that viewpoint.

‡Members with experience in multiple roles have both roles counted; thus, the totals are greater than the number of participants.

Implications

A major question driving our research was: to what degree does caucus affiliation shape participants' positions on AMP-related issues? Our results were mixed: we would argue that caucus affiliation plays a strong role in shaping or overriding members' individual values, but is not necessarily the sole determinant of participants' perceptions on AMP priorities.

The role of caucus affiliation in shaping participants' views on both the priority and feasibility of issues facing the AMP is complex. Some alignment between individual and group is to be expected in any deliberative setting, particularly in a case like the AMP where decision-making is structured along caucus votes. The AMP's consensus-driven structure means that individual participants with voting power in CMER and TFW may be required to vote according to caucus interests, even if those interests are counter to their personal viewpoints. It is worth noting that Q-method's confidential, individual sorting process is specifically designed to capture personal viewpoints rather than publicly performed caucus positions. While we cannot fully rule out the possibility that some participants sorted strategically, the private nature of the Q-sort combined with the fact that participants were sorting opinions rather than casting formal votes creates conditions more conducive to authentic individual expression than the AMP's formal deliberative setting (Watts and Stenner 2012).

The patterns identified in the study results indicate that there is a higher level of individual variability in terms of personal viewpoints than might be expected from the AMP's caucus structure and voting history. However, qualitative data from the interviews illustrate that even when participants experience private ambivalence toward their caucus' position, or even agreement with ideas their caucus does not formally support, they ultimately conform to caucus-aligned voting. For example, one participant cited an example of a member who had their decision reversed by caucus leadership, highlighting potential friction between individual viewpoints and caucus interests:

- Every caucus should have a right to put forward who they think should be put forward. But they also need to understand that those people need to be able to make decisions. And I don't think that's the case with all the other caucuses. We've seen that with the Department of Natural Resources, where their policy rep made a decision and worked on something for a really long time, only to have their leadership back out at the very last minute and kind of put them in a position where now we don't necessarily trust that they can make a decision or not. (16Multiple)

The dominance of caucus affiliation in shaping responses suggests that individual-level variation may be systematically suppressed in the AMP context. This has major implications for how the program functions. If positions are not primarily shaped by personal judgment but by a sense of caucus loyalty or strategic alignment, then processes aimed at building consensus or surfacing shared values may be constrained from the outset—regardless of the underlying compatibility of individual views.

These insights - namely, that caucus affiliation plays a strong (though not deterministic) role in shaping individual members' values and perceptions - presents both a challenge and an opportunity for the AMP moving forward. On one hand, this dynamic poses a challenge for the program's collaborative model. Much of the program's structure relies on the assumption that deliberation and shared learning across caucuses can lead to joint understanding and collective action. But if participants are operating primarily through the lens of caucus identity - due to internal expectations, accountability structures, or concerns about political signaling - then the effectiveness of deliberation is likely to be limited. This may also discourage participants from expressing more nuanced or divergent views within their own caucus, further entrenching binary or adversarial positions. In this context, strategies that focus solely on building individual relationships or uncovering personal values may have limited impact unless they are paired with a more explicit focus on caucus-level dynamics and decision-making cultures. In short, good-faith engagement at the individual level may not be enough to shift outcomes if the real drivers of behavior lie within group norms and institutional incentives.

On the other hand, recognizing the strength of caucus affiliation opens new pathways for designing more effective and targeted interventions. One potential approach would be to engage caucuses separately in structured processes that help reveal internal diversity, identify shared goals, and clarify the criteria by which positions are developed within each caucus. This could take such forms as:

- Facilitated internal caucus dialogues and/or workshops to reflect on alignment, dissent, and strategic flexibility (Froude and Zanchelli 2017)
- Participatory research methods such as group concept mapping (Kane and Rosas 2017) or intra-caucus Q-sort exercises to measure and compare caucus members' perspectives, followed by structured discussion

Another strategy would be to explore mechanisms that allow individuals to participate in limited contexts outside their formal caucus roles. Such examples could include:

- Confidential discussion groups to facilitate cross-cutting discussion across caucuses and/or roles (Lee et al. 2013, Cook-Sather 2015)
- Scenario planning exercises to model organizational responses and decision-making to potential future conditions (Kahane 2012, Chermack 2022)
- Structured role-playing simulations to better understand and consider alternative caucus positions and interests (Hill and Whittington 2014)

These tools, while not panaceas, could create new opportunities for learning and perspective-taking that do not threaten caucus coherence. They could also help build trust in a process where formal alignment often constrains open conversation. Ultimately, acknowledging caucus identity not as an obstacle but as a central feature of AMP politics may offer more realistic and

constructive avenues for improving program function. This dynamic would become even more consequential if the AMP were to move away from its consensus requirement toward majority-based voting, in which case the number of representatives per caucus, which varies considerably, would directly determine program outcomes.

Beyond its practical implications, this finding also points to important avenues for future research. For instance, it raises questions about how caucus identities are formed, reinforced, and transmitted within the AMP - especially as new participants enter the process with less historical connection to the original agreements. It also invites deeper exploration into the relational, organizational, and political dynamics that lead individuals to subordinate personal values to group norms.

Understanding these dynamics could help inform not only AMP reform, but also the design of other collaborative initiatives in similarly polarized or high-stakes policy arenas. More broadly, it challenges the notion - common in both academic and applied settings - that identifying individual values alone is sufficient to generate shared understanding or support for change. In the AMP, as in many institutionalized collaboratives, group affiliation is a central force that must be understood and engaged directly.

4.2 Tensions and Tradeoffs Between Economics and Environment: Clarifying Risk, Uncertainty, and Success

Risk

Another key finding of the study is the close relationship between caucus affiliation and how different individuals and groups define and perceive risk. For example, members of the large timber and SFLO caucuses defined risk largely along economic lines, in terms of risk to their economic viability. Many participants cited the “not one more tree” pledge, a slogan cited by large timber and SFLO members arguing that changes in state forest regulations which reduce the amount of timber harvest (e.g., due to increased riparian buffer width) would have a direct and negative impact on landowners’ bottom lines. These caucuses also argued that risk was not shared equally across the caucuses, since they experienced the bulk of the financial risk. Conversely, members of other caucuses - particularly the tribal and conservation caucuses, as well as some in the state government caucus - defined risk in terms of risks to the resources themselves (i.e., salmon stock and riparian habitat).

A further way in which risk was perceived differently along the tension between economic profitability and environmental protection related to how much risk was considered acceptable before action must be taken. For instance, some perspectives in the Priority Q-sort cited climate change as one of their highest priority concerns. Their reasoning in large part was based on the

perception of potential risk that climate change poses to resources AMP is designed to manage, such as timber, riparian habitats, and salmon stocks. For these perspectives, their risk threshold concerning the potential for harm to these resources is low, necessitating preventative measures be taken within the program to incorporate climate change within CMER studies and TFW policy recommendations. Conversely, other members had a much higher risk threshold regarding their perceptions of climate change, with members arguing that existing forest practices sufficiently address the potential impacts of climate change on forest resources and habitats. In another example, some Priority social perspectives had much lower risk thresholds in relation to perceived financial risks to the timber industry, while others argued that the timber industry (particularly larger companies) could easily absorb small reductions in profit.

As these examples illustrate, the tension between economic profit and environmental protection is one of, if not the primary, central divisions within the program. To some extent, this is by design. Many participants noted the importance of bringing people with diverse viewpoints and experiences together to talk through thorny issues. Although the ability to resolve this tension is well outside the scope of the AMP, continuing to structure discussion and debate among and between caucus members with diverging viewpoints may help the program continue to understand and measure how risk is being defined and experienced across multiple dimensions by different individuals and groups.

Scientific Uncertainty

The division between economic profitability and ecological protection further shapes how individuals and groups in the AMP perceive and define scientific uncertainty. Although scientists are trained in objective analysis, differing caucus interests may shape the level of scientific uncertainty they are comfortable with, as well as what components they see as most important across study design, analysis, and interpretation. This is certainly true of their affiliated Policy counterparts - however, as numerous participants pointed out, Policy members are there to represent their caucus interests by design.

In contrast, CMER scientists are supposed to observe a ‘policy-science firewall’ by not allowing potential policy implications to color their interpretation. Although the interview data show that all CMER scientists believe they are objective analysts of the data, the study results do not show a strong affiliation between program role (Figure 3) and factor affiliation (Figure 4) for the Policy Q-sort (see also Table 3 and Table 4). In other words, each perspective includes members with CMER experience, indicating that caucus affiliation plays a stronger role than scientific training and/or background in shaping what participants see as the highest and lowest-priority problems within AMP (see also Section 4.1).

The Type N experimental buffer studies (McIntyre et al. 2022) and resulting November 2022 Forest Practice Board decision were cited by numerous participants as an example of how

analysis and interpretation of scientific uncertainty comes to be shaped along caucus lines. The Forest Practice Board voted in November 2022 to widen riparian buffers following the results of an experimental buffer treatment study (Forest Practices Board 2022b). TFW Policy did not reach consensus on their policy recommendations following the completion of this study, and submitted a majority-minority report to the Board at the August 2022 meeting (Forest Practices Board 2022a). The majority report recommended widening riparian buffer requirements based on the study results. However, members who submitted the minority report based many of their critiques of the study on the question of scientific uncertainty, as summarized in the following qualitative interview excerpts:

- Some of the studies really don't answer questions … the [hard rock] water quality study, the results from the study were essentially there need to be bigger buffers almost everywhere. But when you actually go down into what the data said, I think it was two or three out of the sites that they used were completely trashed during the 2008 landslides, before they even really started the study. … Several caucuses weren't even willing to talk about the implications of having landslides [a year] prior to the time that you're just going to want a quality study. (52Policy)
- My caucus plays a bunch of these games. They really do play the 'if we don't like the science, it's bad science' game, and that gets very, very tiresome … [but] some of the statements they're making are fair. It was a very, very specific study designed to look at amphibians. It was not meant to change rules in response to any new temperature changes that incidentally don't appear to be biologically significant. (58Policy)
- [We need] things like structured decision making, setting your performance targets up ahead of time, making sure when you're doing the study to begin with, [can help] the CMER or Policy process so that we understand the questions that we're trying to ask upfront, so we're not using studies like Type N for temperature when it's really an amphibian study and had a completely different design and purpose and in scope of operational inference. (59Multiple)

In contrast, some participants from other caucuses were more likely to view these arguments as driven by caucus interests rather than an objective understanding and analysis of the science. They pointed out that the hard and soft rock studies were thoroughly vetted and reviewed, with consensus-driven decision making at every stage:

- There's ten years of research that is vetted through a very intensive internal review process at both CMER and Policy and then through an independent science review process at the University of Washington. All of that has been vetted, and everybody has to agree with every single word that is in those reports. But when it comes to Policy submitting their findings to the board, they can say whatever they want. They can extract findings. One of the reports was taking their own dive into the data and making statements about those data that were not reviewed in any way whatsoever. It seemed very outside our standard review and stamp of approval process. (01CMER)
- A couple of the processes that we're dealing with right now are actually one of the rule making that we had consensus all the way through, even to when the findings came in front of Policy where we had to make the decision. Is there action, [do we] need it or not? And it was consensus that, yes, there is action based on the findings of that study. And so our recommendation to the Forest Practices Board was that, and then the Forest Practices Board then sent it back to us and said, okay, what's the action? That's when we started talking about it. And then a caucus came forward, saying we don't think we need to do anything. When it

> starts really comes down to actually making a rule change to protect the resource that the study says that we weren't meeting a specific standard. (29Policy)

Importantly, participants across caucuses noted that many, if not all, caucuses have interpreted scientific data in line with their interests at different points in the program history, indicating that this is not a problem specific to any specific caucus, but rather a structural issue transcending caucus affiliation.

One solution cited by some participants is to remove caucus affiliation from CMER as a way to lessen the potential impact of caucus interests on the design, analysis, and interpretation of scientific studies. This approach could also address potential concerns about breaches to the 'firewall' between CMER and TFW Policy, by lessening the possibility that CMER members would be centering their caucus's interests and potential policy implications in their work. However, some participants who forwarded this solution also noted the potential difficulty in achieving consensus for this approach.

Additional solutions forwarded by various members include methods of improving and increasing training to better understand and interpret scientific uncertainty. Examples cited by study participants include:

- Increased science training and workshops for TFW Policy members
- Continuing to run the annual CMER conference presenting study updates and results for ongoing studies
- Further incorporating third-party independent review of AMP studies/documents
- Continuing ongoing efforts to develop and implement structured decision making
- Ensuring the online AMP dashboard is accessible and kept up-to-date

Success

Individuals and groups within the AMP also view and define program success in different ways. These divergent perceptions of success are in part tied to the four goals of the WA Forest Practices Habitat Conservation Plan which guide the program:

1. Provide compliance with the Endangered Species Act (ESA) for aquatic and riparian dependent species
2. Restore and maintain riparian habitat to support a harvestable supply of fish
3. Meet the requirements of the Clean Water Act (CWA) for water quality
4. Keep the timber industry economically viable in the state of Washington

Some individuals, groups, and caucuses are more impacted by more goals than others. State government caucus members (e.g., DNR and Department of Ecology) are responsible in some ways for ensuring compliance with the ESA and CWA. Tribal members, particularly Westside

tribes, are more impacted by the presence or absence of harvestable cultural resources like salmon. Large timber and SFLO caucus members have a strong economic motive tied to keeping the timber industry economically viable. These divisions were clear in how different factors ranked issues in the Priority stage of the study. Statements relating to risk of litigation due to HCP non-compliance (S38) or the effectiveness of current forest practice regulations (S28) were highly divisive, with different factors disagreeing on whether or not such statements were even true. Additionally, many participants pointed out that success is contingent on meeting *all* FFR goals - for instance, the timber industry having a profitable year while tribal fishermen "sit on the bank" (29Policy) should thus not be considered a success, or vice versa.

Many participants across perspectives and caucuses agreed that it would benefit the program to have clearer definitions of success and come up with associated metrics associated with each goal:

- What are the standards for the goals being met? And can you provide that information? … If there were some more concrete metrics to show what success in each of the goals is, I think it would be easier to have those conversations or to decide that those conversations are no longer necessary. (15CMER)
- That discussion hasn't started, it needs to start, it requires some external expertise. I wouldn't leave it up to the AMPA or participants. I see a series of workshops leading up to a final document that is reviewed by everyone and endorsed. (42Admin)

However, numerous participants noted the obstacle of defining 'economic viability' for the timber industry. While many participants saw this as deliberate obfuscation by timber caucus members, others noted the difficulty of having a single, shared definition or metric due to the widely differing contexts of individual companies and forest landowners (e.g., transnational corporations vs. small scale forest landowners).

A further division in defining success emerging from the study data was whether CMER studies result in regulatory change. Numerous members noted the lack of attention paid to cases where CMER studies show the efficacy of existing forest practices. Relatedly, many participants argued that the majority of TFW Policy decisions were achieved through consensus, but that many members focus on a relatively small number of cases where consensus could not be reached:

- Completing studies that show the rules are effective are just as much or maybe even more of a success than studies showing where they're not. If we focused on that, it would really go a long way to send a positive message to the industrial landowners or landowners in general, acknowledging that they're not villains. I think they often get vilified. (06Policy)
- There have been successes within the adaptive management [program], and I think we should take more time to find those and point them out and show, if you test the effectiveness of the rule, most studies come to Policy and Policy will come forward to the Board recommending that no action be taken as a result of the study. That should not be seen as a failure. That should be seen as a success and verification that the rule is effective, and I don't think we're doing it enough. (20Policy)
- I think the program has done a pretty successful job of lowering uncertainty and increasing people's faith for the rules working in many contexts. (40Multiple)

Such “hidden successes” could be more clearly highlighted and communicated to program participants and affiliated stakeholders through the online AMP Dashboard and regular summaries/reports to the Forest Practices Board.

To summarize, solutions suggested by study participants to better define and publicize success include:

- Multi-day workshops and dedicated working groups, run by independent third-party facilitators, to define, create, and clarify metrics and benchmarks for each of the FFR goals
- Identifying and communicating forms of program success that are often “hidden” or that lack general awareness (e.g., consensus votes to keep rules as-is, examples of successful program outcomes, data on voting trends, lessening scientific uncertainty, etc.)

4.3 Hidden Consensus: Identifying “Low-Hanging Fruit” For Change

To determine which issues have the highest likelihood of widespread agreement among study participants, we focused on the Feasibility study phase (Section 3.2). This phase examined which issues participants saw as most and least feasible for the AMP to resolve. It is worth noting that the Priority Q-sort identified only one consensus statement across the five social perspectives (Table A3): Statement 13, which holds that when TFW Policy fails to reach consensus, the Forest Practices Board is forced to take on an analytical burden it was not designed for. All five perspectives ranked this statement similarly, placing it toward the lower-middle of the board, suggesting broad, if muted, agreement that this is a real but not urgent problem. The near-absence of consensus in the Priority phase stands in notable contrast to the Feasibility phase, and suggests that while participants may share some views on how the AMP fails structurally, they diverge sharply on what problems matter most.

One tool commonly used in Q-method to indicate areas of agreement between social perspectives are *consensus statements*. These are statements ranked similarly across all social perspectives in a Q-study, meaning they are statistically insignificant at $p > 0.05$. Consensus statements are interpreted as indicating shared views or values across otherwise divergent perspectives, and which may point to areas of potential agreement or common ground. To maximize divergence between social perspectives, researchers generally seek to minimize the total number of consensus statements where possible.

The Feasibility study phase identified only two consensus statements across the three social perspectives (Table 7). Both statements were sorted towards the middle of the board by all three perspectives, indicating the statements were seen as neither highly feasible nor infeasible to resolve.

Furthermore, the correlations between the three social perspectives (Table 8) appears to indicate low agreement, particularly between *Easy Administrative Fixes* (F1) and *Coming to a Shared Understanding* (F2) which are negatively correlated.

However, there is more agreement between the three social perspectives than is immediately apparent on the surface based on the numerical results. Although several statements appear to be areas of major disagreement between the three perspectives, with some ranking them as highly feasible and some as not feasible to resolve, in reality members of the three perspectives often agreed on these statements. Data from the qualitative interviews demonstrate that participants defined feasibility differently, resulting in these discrepancies. As a result, there are numerous cases of "hidden consensus" among participants in the Feasibility phase.

Table 7: Feasibility Q-Sort Consensus statements. All listed statements are non-significant at $p < 0.01$. Those flagged with an asterisk (*) are also non-significant at $p < 0.05$.

	F1 *Easy Administrative Fixes*		F2 *Coming to a Shared Understanding*		F3 *Fixing the Science*	
Statement	Rank (Column)	Z-Score	Rank (Column)	Z-Score	Rank (Column)	Z-Score
*32 A major cause underlying contention is different perceptions regarding what is acceptable in terms of various levels of scientific uncertainty.	5	-0.061	6	0.149	5	0.1
40 It's an expensive and incremental process to reduce scientific uncertainty, so you have to be comfortable with some level of uncertainty in science.	5	-0.14	6	0.33	5	0.26

Table 8: Correlations between social perspectives for the Feasibility study phase.

	F1 *Easy Administrative Fixes*	F2 *Coming to a Shared Understanding*	F3 *Fixing the Science*
F1 *Easy Administrative Fixes*	1	-0.128	0.3694
F2 *Coming to a Shared Understanding*		1	0.1076
F3 *Fixing the Science*			1

For example, some participants saw problems that were in the process of being resolved as 'highly feasible,' while others ranked these as not feasible. The dispute resolution process exemplifies this discrepancy: *Easy Administrative Fixes* (F1) saw this as highly feasible to resolve (S31:7) while *Coming to a Shared Understanding* (F2) ranked it under low feasibility (S31: 3). Meanwhile, *Fixing the Science* (F3) ranked it towards the middle of the feasibility spectrum (S31:6) because some individual members ranked it as highly feasible and some as low feasibility, resulting in averaging out towards the middle.

Another illustrative example included statements relating to the complexity, transparency, and accountability of CMER processes. Both *Easy Administrative Fixes* (S7:7, S23: 7) and *Fixing the Science* (S7:9, S23: 9) ranked these as highly feasible, while *Coming to a Shared Understanding* (S7:2, S23:1) ranked them under low feasibility because they did not see them as problems to begin with.

In some cases, social perspectives (or individuals within them) ranked statements as low feasibility for very different reasons but still agreed they would be difficult to resolve, despite their differing logics. For example, *Easy Administrative Fixes* saw statements critical of current regulations (e.g., S24, S28, S38) as difficult to resolve due to caucus divisions and politics within the program. Meanwhile, *Coming to a Shared Understanding* and *Fixing the Science* saw such statements as fundamentally incorrect and ranked them as low feasibility either because they did not think they even existed as a problem to begin with, or because they didn't believe it would be feasible to address the underlying misconceptions of the science.

Another apparent area of major divergence between the perspectives that actually were areas of agreement related to the consensus process (S6) and incorporating climate change into the program (S14). While *Easy Administrative Fixes* ranked both of these problems as highly feasible to resolve (S6: 9, S14: 8), interview data revealed that they saw these statements as easy to fix administratively, but difficult politically. In other words, they felt the structural solution was simple, but getting buy-in across the different caucuses would be less feasible. Meanwhile, both *Coming to a Shared Understanding* (S6: 2, S14: 1) and *Fixing the Science* (S6: 3, S14: 2)

ranked both statements under low feasibility. In short, while the three perspectives diverged sharply in their reasoning, they converged on a shared set of items viewed as feasible to resolve. Problems amenable to education, training, and administrative improvement were seen as tractable across the board, while deeper structural and political conflicts were not. This convergence, modest as it is, may represent the most realistic near-term foundation for progress within the AMP.

All three social perspectives also shared similarities in their definitions of what they considered feasible and not feasible to resolve, and the potential solutions for doing so. In terms of high feasibility, all three perspectives highlighted statements that they believed could be addressed through education and training. All three perspectives also agreed that problems that were currently being addressed, especially those related to improved or more efficient administrative processes, were resolvable.

Chapter 2: Recommendations

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1. Introduction

We present our recommendations in a tiered format, on a spectrum from potential solutions seen as "easiest" to "most difficult" to implement according to study participants.

We base our recommendations in this section on two main sources of information: (1) suggestions made by study participants in the qualitative interviews, and (2) published scholarly literature on best practices for supporting collaborative teamwork environments and negotiations involving diverse stakeholders. We have taken care not to insert our own positions or opinions into these recommendations, but rather to report on the themes and findings shared by participants throughout the research process. We cite relevant papers and studies where appropriate. If there is no citation, the suggestion originated with study participants via qualitative interviews.

We encourage these recommendations to be considered as suggestions. Some may be outdated due to the delay between data collection and publication of our findings. In other cases, some may not be seen as a high priority in the present context. Availability of certain resources (whether related to time, knowledge, or finances) may also constrain which recommendations make the most sense to pursue.

1.1 Tier 1 Recommendations: Processes Already Underway

Our recommendations for this tier are based on those issues that all three Feasibility perspectives agreed upon as highly feasible. Overall, participants agreed that improved, more efficient administrative processes were highly feasible to address - in some cases, because they were already underway. Many participants cited State Auditor recommendations as examples of this category. As a result, our recommendations here concern efforts and solutions that were already underway at the time of data collection.

Dispute Resolution

- Continue clarifying, formalizing, and normalizing the use of dispute resolution to further improve its effectiveness in navigating conflict, achieving consensus, and reducing stigma associated with its application.
- Ensure protocols for triggering and conducting dispute resolution are clear and accessible for all AMP members.

- Bring in third party licensed facilitators when appropriate, and consider providing licensed facilitator training for interested AMP parties.

Structured Decision Making

- Continue developing and refining a transparent, well-documented procedural framework (e.g., structured decision-making) that outlines how findings are evaluated, what constitutes sufficient certainty, and what actions are triggered under different circumstances.

Online AMP Dashboard

- Continue to update and refine the online AMP dashboard.

1.2 Tier 2 Recommendations: Clarification and Continued Training

Our recommendations for this tier include issues and suggestions that are widely seen as feasible to accomplish by AMP participants, but which had not yet been implemented at the time of data collection. We have organized these recommendations by their related issues, with recommendations specific to each issue collated beneath.

Clarifying the original AMP goals and expectations

- Convene workshops and/or working groups for members to revisit, clarify and provide targeted training on AMP goals, processes, and expectations, especially for new or rotating members, to reduce procedural confusion and build institutional memory. Note that while this recommendation focuses on substantive goal-setting and procedural clarity, recommendations related to broader member onboarding and training infrastructure are addressed separately in Section 5.3.

Developing definitions, standards, and benchmarks for program success

- Revisit and reaffirm the original goals of the TFW/FFR Agreement. Convene workshops and/or working groups to develop clear criteria for measuring and benchmarking each of the four FFR goals. Facilitate a cross-caucus dialogue or statement of shared purpose to reestablish commitment to the four foundational goals, including economic viability and shared risk.
- Collect and report data to program members and other interested parties on “invisible” program successes (e.g., annual summaries of votes including consensus votes not to change rules determined to be effective). Identify methods of communicating these successes to program participants and interested parties (e.g., publish on the AMP dashboard, submit a quarterly or annual report to the Forest Practices Board, etc.)

Ensuring clear protocols for program operations and procedures

- Create and implement a TFW Policy manual similar to the CMER Protocol Standards Manual to improve clarity and transparency, reduce procedural confusion, and build institutional memory.
- Improve alignment and communication between CMER and Policy. Clarify protocols for ensuring an effective firewall between CMER and TFW Policy, including for related working groups, Science Advisory Groups, etc. Regular joint briefings, early-stage coordination on study designs, and shared interpretations of uncertainty could help improve the communication of scientific results to TFW Policy, and reduce potential bias from both CMER and TFW Policy members.
- Develop and implement clear enforcement procedures for program protocols (i.e., processes and repercussions when individuals or groups violate AMP guidelines).
- Create clearer protocols for responding to and elevating a minority-majority decision to the Forest Practices Board in cases where consensus is not achieved (e.g., templates for majority/minority summaries and recommendations, guidance for appropriate use of scientific results and data, Forest Practice Board processes for addressing non-consensus results, etc.)
- Clarify all AMP roles and responsibilities, including non-voting members who may yet hold influential positions within individual caucuses. Clarify the AMPA position responsibilities and scope. Ensure expectations are clear for future members.

Continuing education for understanding study results and scientific uncertainty

- Develop training and educational materials for TFW Policy members (and, potentially, Forest Practices Board members) to understand the scientific foundations required for interpreting CMER studies. Consider offering continuing education materials in multiple delivery modes for increased accessibility and flexibility (e.g., asynchronous online educational modules on scientific concepts and principals for members to complete and review on their own time, in-person workshops on time-sensitive topics related to upcoming meetings, etc.)
- Continue convening the annual CMER study review conference to keep program members up to date on CMER study design, progress, and results.

1.3 Tier 3 Recommendations: Membership, Turnover, and Institutional Memory

The recommendations in this section relate to issues associated with AMP membership. Creating membership requirements was ranked as highly feasible by all three social perspectives. However, data from the Priority Q-sort introduces additional nuance and complexity to this discussion. Some participants argued it would be simple to create membership requirements, particularly for CMER, by restricting participation to individuals with PhDs and evidence of a robust research agenda (e.g. published research in peer-reviewed scholarly journals, evidence of grant funding, conference activity, etc.). Others argued that such standards were too narrow and

risked excluding important perspectives, such as field technicians and practitioners with extensive on-the-ground experience. Several members also noted the difficulty of certain caucuses to hire qualified scientists for the program due to financial and other resource constraints.

Additionally, while most participants discussed membership requirements in relation to CMER, several also noted the lack of comparable requirements for TFW Policy members, who are proposed by caucuses and affirmed by the Forest Practices Board. Several members expressed a desire for a requirement that members have experience with, or at least be interested in, pursuing shared wins and supporting caucus goals outside of their caucus interests. However, many also noted the difficulties in creating the culture change necessary for caucuses to prioritize a "collaborative working environment" (06Policy).

Developing CMER membership requirements

- Develop flexible yet robust membership requirements for different types of CMER membership (e.g., "traditional" scientific credentials vs. years of field experience). For illustrative examples of how comparable adaptive management programs have structured membership requirements and collaborative training, see the Grand Canyon Dams Adaptive Management Program (https://gcdamp.com), which has developed formal protocols for balancing scientific and stakeholder expertise across its diverse membership.
- Appoint paired CMER caucus members: e.g., one with "traditional" scientific credentials (e.g., PhD, research / study design and analysis experience, scholarly publications, etc.) alongside a member with applied/field experience.

Developing TFW Policy membership requirements

- Develop flexible yet robust TFW Policy membership requirements for participants with different yet equivalent forest practices and policy experience (e.g., advanced education in natural resource policy, governance, and/or management; on-the-ground experience in policy analysis/development; etc.), as well as demonstration of ability and interest in contributing to a collaborative working environment.
- Offer TFW Policy member training in conflict resolution, shared interests, or related skills applicable for collaborating across caucus divides.

Two further issues related to membership are developing improved participant onboarding and addressing the loss of institutional program knowledge. Both of these topics were also seen as feasible to resolve across all three social perspectives.

While these two problems may be individually feasible to address, they both stem from a larger issue that may be harder to fix: program turnover. Increased program turnover is related in part

to broader economic and socio-cultural changes, where individuals are less likely to stay long-term in the same geographic location or career. While this problem falls outside the scope of the AMP to address, participants identified other contributing influences.

All interviewed participants agreed that staying up-to-date with program materials involves a significant amount of time and effort to do well. Time management has been shown to have a moderate impact on individual job performance and personal wellbeing (Aeon et al. 2021). While factors differed on how high a priority they found the issue of time management, the significant workload associated with AMP positions was cited as a significant barrier by many. Additionally, participants also cited a pervasive sense of distrust and negativity that could contribute to some members' decisions to leave the program. Together, the significant time demands and the emotional toll of a distrustful program environment were cited by participants as key factors contributing to member burnout and turnover.

Preserving institutional knowledge

- Create an accessible, centralized digital repository for materials relevant to preserving institutional AMP knowledge (e.g., training and educational materials, program protocols and procedures, etc.). This may be different from the AMP Dashboard, i.e., only available to AMP members.
- Hire or partner with a third-party researcher to conduct oral histories to preserve institutional knowledge and AMP history, particularly for participants involved in the program's development, inception, and early years.

Developing AMP participant onboarding and training

- Develop and implement clear, comprehensive onboarding for new and/or rotating AMP members. Consider funding for a workforce development and training program consultant to develop onboarding materials.
- Create a mentorship program pairing new and experienced members; prioritizing cross-caucus pairings may help reduce caucus silos and build trust.
- When possible, overlap outgoing and incoming AMP members to ease transitions and aid new member onboarding (e.g., for a minimum of one program cycle).

Addressing participant barriers contributing to program turnover

- Fund additional participation grants for under-resourced and underrepresented caucuses, particularly in CMER.
- Develop and make available training in time management interventions and best practices (e.g., time logs, priority setting, planning and scheduling tools, etc.) to program members to improve time management skills, job performance, and wellbeing. (Mountain 2020)
- Prioritize (e.g., led by the AMP Administrator or relevant committee chairs) responsibilities ahead of meetings for members, specifying what tasks/materials they

should spend the most time on and/or understand most thoroughly, what can they skim, etc. (Nichols 2022)

1.4 Tier 4 Recommendations: Building Trust and Consensus on Divisive Topics

Our recommendations for this tier involve topics seen as divisive across study participants, but are also viewed as necessary for the program to function at its best and to its fullest capacity.

Study participants across all perspectives referred to the erosion of trust within the AMP, and how this has reduced program functionality over time. Members report that the lack of trust further exacerbates other divisive issues, widening divides on such topics as perceptions of misbehavior, caucus politics, conflicts of interest, and the "weaponization" of the unanimous consensus process. Helping program members rebuild trust in one another and in the program is perhaps the most foundational element to building the AMP's capacity to functionally approach divisive topics and make difficult decisions in the future.

At the time of data collection, the current AMPA received praise from virtually all perspectives regarding her organized, timely, and thorough implementation of the State Auditor's recommendations to the AMP. The transparency and accountability of this process provides a blueprint for how AMP leadership can continue to build trust in the AMP structures and processes. Additionally, continuing to address "low-hanging fruit" such as the State Auditor recommendations, as well as those summarized in Tiers 1 and 2, are also likely to help continue building participant confidence in the program's leadership and functionality.

The following suggestions are informed by the scholarly literature on collaborative teamwork environments and conflict resolution, particularly for supporting collaborations across diverse stakeholders including government, researchers, and private industry (see especially Nichols 2022). While not comprehensive, these suggestions aim to summarize some of the best practices and recommendations in this literature that align with the study findings.

Building trust in AMP processes

- Continue clarifying program protocols for building increased accountability and transparency within AMP processes. (Nichols 2022)
- Incorporate regular (annually, biannually, or quarterly) responsive feedback focus groups (e.g., Anieto et al. 2023) with experienced third-party facilitation to provide space for participant feedback on effective and ineffective program processes. Create and share a plan for responding to participant feedback in a reasonable time frame. (Nichols 2022)

- Ensure effective and responsive leadership by making available, or requiring, personnel management training for CMER/TFW Policy chairs to build management skills and effectiveness. (Kraczla and Wziątek-Staśko 2024)
- Review program communication to ensure clear, timely, structured delivery of key information and materials to the appropriate personnel. (Nichols 2022)

Addressing cross-caucus divisions and mistrust

- Continue supporting the use of dispute resolution to promote reaching consensus.
- Create spaces for cross-caucus interactions in both formal and informal settings to reduce caucus silos and build personal connections across groups such as facilitated focus groups, workshops, mentorship programs, etc. (Froude and Zanchelli 2017)
- Develop mechanisms for individuals to explore beyond formal caucus roles such as confidential cross-role discussion groups, scenario planning exercises, structured role-switching sessions, etc. (Kahane 2012, Lee et al. 2013, Hill and Whittington 2014, Cook-Sather 2015, Chermack 2022)
- Create and implement an anonymous peer feedback mechanism to provide anonymous feedback and collect data on both individual and team performance, particularly regarding effective collaboration. (Nichols 2022)
- Examine intra-caucus understanding of decision making and voting behaviors. Understanding how caucus positions are formed, and how individual participants experience internal pressures, could clarify barriers to compromise and learning using approaches such as group concept mapping (Kane and Rosas 2017) or intra-caucus Q-sorts.
- Pursue third-party research to diagnose caucus or other group silos and develop improved strategies for cross-group connection and information sharing. Consider funding or partnering with an independent, third-party researcher to conduct a systematic review of published research on conflict resolution best practices within organizational settings. (See Froude and Zanchelli for an illustrative example)

Tackling divisive topics and issues

- Address imbalances of influence across caucuses and caucus imbalance concerns in CMER and TFW Policy. Develop mechanisms (e.g., rotating facilitation, caucus-level accountability, third-party observation, power-based negotiation, etc.) to reduce perceptions of strategic obstruction and power asymmetry (Barsky 2017, Nichols 2022). Establish a working group to examine caucus access to resources (financial, time, knowledge, etc.) and how this shapes AMP participation.
- Develop program-specific definitions to clarify contested concepts such as risk and uncertainty. Participants across divergent perspectives called for stronger accountability within caucuses themselves. This includes better preparation and internal consistency, as

well as increased scientific literacy, which are distinct from inter-caucus conflict and rarely emphasized in prior evaluations.

- Clarify the role of the AMP in addressing climate change. While views differ, the AMP should determine whether and how climate adaptation fits within its mandate, especially in relation to monitoring, study design, and rule evolution. While not central in prior reports, our findings show that some participants view climate change as outside the program's scope, while others see its exclusion as a serious oversight. This tension reflects broader debates about mandate creep, legitimacy, and scientific relevance. While many participants agree that it would not be feasible to re-open the original TFW/FFR agreement to add in climate change, numerous participants noted that procedures such as the CMER 'six questions' (a standardized set of questions from the CMER/Policy Interaction Framework used to structure how scientific findings are communicated to TFW Policy ahead of rule change decisions) could be easily revised to include a question about potential climate change impacts.

2. Implications for Adaptive Management

Adaptive management has been viewed as an essential framework for managing natural resources amid uncertainty. By pairing iterative scientific learning with responsive policy-making, it aims to produce decisions that are both evidence-based and adaptable over time. In practice, adaptive management also entails significant demands on institutions, requiring not just robust science but durable trust, transparent procedures, and mechanisms for coordinated action across diverse values and interests (Lee 1993; Schultz & Nie 2012). The AMP represents a notable effort to institutionalize adaptive management, which integrates scientific inquiry and multi-stakeholder governance, for the regulation of private, commercial forestlands. In many respects, it has been a national example of adaptive management in practice.

As this and prior evaluations show, the AMP has faced challenges in implementation and meeting objectives. These challenges reflect specific issues described above, but also offer broader lessons for adaptive management design and implementation. The AMP has produced substantial scientific research, but its ability to translate findings into policy has been limited. Participants report frustration not only with technical delays or unclear processes, but with deeper issues of legitimacy, accountability, and mutual understanding. These challenges are not unique to Washington. Across settings, adaptive management efforts often falter when the institutional scaffolding needed for collective learning is absent or eroded (Gregory et al. 2006; McFadden et al. 2011). The AMP thus serves as a case study in both the promise and the difficulty of making adaptive management work on the ground.

One of the most notable findings from this study is the pattern of disagreement on causes (priorities) but alignment on solutions (feasibility). While participants diverge in how they

interpret the AMP's core problems, citing scientific bias, governance breakdown, or lack of leadership, they nonetheless agree on potential ways to address some of those problems. These include clarifying decision rules, enhancing transparency, and improving the integration of science and policy. This pattern suggests that progress may be possible without full consensus on the diagnosis of underlying issues, as long as participants can work toward pragmatic reforms that address widely recognized limitations.

These findings reinforce the understanding of adaptive management as not merely a technical framework but also as a process embedded within and shaped by social, cultural, and institutional conditions. Participants do not enter any adaptive management program as blank slates. They carry with them diverse worldviews, histories of engagement, and expectations about how collaboration should function. As prior work has shown, efforts to implement adaptive management without attending to these contextual factors are unlikely to succeed (Chaffin et al. 2014; DeCaro et al. 2017). In the AMP, unresolved tensions over what constitutes credible evidence, how precaution should be applied, and whose values matter have compounded technical and logistical challenges that come with any process, especially one expecting unanimous consensus around divisive issues.

Examples of governance in other places emphasize the role of coalition-building in bridging such divides. In the Blackfoot Challenge in Montana, stakeholders with divergent priorities, including ranchers, conservationists, agency staff, have sustained long-term cooperation around carnivore coexistence by identifying shared values such as respect, place-based knowledge, and stewardship. The success of this program has depended not on shared beliefs, but on institutional arrangements that created space for conflict, learning, and incremental agreement (Blackfoot Challenge 2013; Nie & Fiebig 2010). The AMP could benefit from a similar emphasis on building coalitions around shared concerns, even if fundamental disagreements persist.

The Murray–Darling Basin Plan in Australia provides another instructive example. There, deep value conflicts around water allocation were addressed through governance reforms that emphasized legitimacy and process integrity rather than consensus alone. The approach involved iterative negotiations, adaptive rule-making, and recognition of diverse worldviews, including those of Indigenous communities and marginalized users (Crase 2012, Cosens and Chaffin 2016). Rather than masking differences, the process sought to manage them through clarity of roles, flexible institutions, and procedural fairness. In the AMP, deliberative reforms that acknowledge and manage conflict may offer a pathway to improved adaptive capacity.

Research on rural environmental values in the United States further underscores the importance of latent alignment. A 2020 study by the Duke Nicholas Institute found that rural Americans, often portrayed as anti-environmental, in fact express strong conservation values when engaged on their own terms. These include intergenerational responsibility, connection to land, and

concern for future livelihoods. However, participants may disengage or resist policy processes that appear dismissive or unrepresentative, or that are delivered or administered by groups whose worldviews or value systems are considered substantially different (Bonnie et al. 2020). In the AMP, several participants expressed similar concerns that their perspectives were discounted, that technical decisions were perceived as political, and that institutional norms favored certain voices over others.

These examples raise critical questions about the role of consensus, as discussed in Section 5.5. While the AMP's commitment to consensus decision-making reflects a desire for fairness and shared ownership, it may also contribute to strategic obstruction and chronic stalemate. In the collaborative governance literature, for example, consensus is increasingly viewed as a double-edged sword. While it is valuable for ensuring inclusivity, it may also be paralyzing in polarized or high-stakes contexts (Peterson et al. 2005; Leach & Sabatier 2005). Alternatives such as supermajority thresholds, rotating caucus facilitation, or decision rules tied to time-bound deliberation can preserve legitimacy while enabling forward movement. Such mechanisms also align with adaptive management's emphasis on experimentation and revision over time.

Crucially, the success of any such reforms depends on transparency and public trust of the surrounding institutions. Coalition-building is not merely a matter of identifying shared interests, it requires creating and maintaining forums where differences can be expressed without retaliation, where procedural expectations are clear, and where there is some assurance that learning will lead to action. Scholars have emphasized that trust-building, procedural justice, and long-term relational work are essential conditions for adaptive governance (Dietz et al. 2003; DeCaro et al. 2017). Without these, even well-designed processes are unlikely to achieve their goals. Though trust building may seem far removed from the day-to-day implementation of management, it plays a critical role in the long-term success of efforts like these.

The AMP remains a nationally consequential effort in applied adaptive management. This study suggests that progress is most likely where reform efforts invest in both surface-level process fixes and address the institutional conditions that shape participation, interpretation, and decision-making. Greater alignment on the program's core purpose would reduce confusion, improve expectations, and help participants evaluate progress on more consistent terms. In parallel, the AMP could invest in structured opportunities for cross-caucus dialogue to clarify divergent definitions of risk, uncertainty, and precaution; pilot alternative decision rules in cases of persistent deadlock; and build procedural safeguards that enable coalition-building even amid disagreement.

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Appendix 1: Methodology

A. Glossary

Table A1 provides a glossary with short definitions of terms commonly used in Q-methodology, which are used in the methodology description below. The main body of the report aims to use language that is more accessible to those unfamiliar with Q-method.

Table A1 (overleaf): Q-methodology glossary

Term	Definition
Concourse	A collection of interrelated subjective (opinion) statements that encompasses the breadth of the domain of study representatively and comprehensively. Q-method concourses generally seek to incorporate as wide a variety of possible opinions as possible. Statements are frequently sampled from such sources as interviews with relevant stakeholders, media accounts, document review, and scholarly literature.
Q-set	A representative subset of statements drawn from the concourse, generally averaging between 30-50 statements.
P-set	The participant pool for a Q-method study, typically purposively selected to sample the widest possible diversity of individuals whose experiences, affiliations, etc. are relevant to the domain of study.
Q-sorts	The process by which participants rank-order the Q-set statements onto a forced choice distribution board (Figure 1) which contains spaces equivalent to the number of statements. Each statement is printed on, or digitally represented by, a separate card. The forced choice distribution board forces participants to sort the statements along a spectrum according to the study's condition of instruction. As the name implies, participants can only sort a predetermined number of cards under each column.
Condition of instruction	A research question or directive which guides how participants complete their Q-sort. Frequently, participants are asked to sort the Q-set statements along a spectrum from "most like their view" (furthest column to the right) to "most unlike their view" (furthest column to the left). In our study, we asked participants to sort the statements according to two different conditions of instruction: first, from "highest priority" (Column 9) to "lowest priority" (Column 1); and second, from "most feasible to resolve" (Column 9) to "least feasible to resolve" (Column 1).
Factors	The shared social perspectives extracted using dedicated statistical software packages. Factors comprise individual Q-sorts that share a statistically significant level of similarity, and are interpreted by researchers as comprising shared social perspectives on the domain of study.
Factor Array	A representation of the 'idealized' Q-sort representing each factor, created by weighting and averaging together all of the individual Q-sorts that load significantly onto that factor. Factor arrays are produced by dedicated software packages and are the foundation for interpreting the study results.

Term	Definition
Distinguishing Statements	Statements ranked significantly differently ($p < 0.05$) by one factor compared to the other factors.
Consensus Statements	Statements ranked similarly across all factors which are statistically insignificant ($p > 0.05$).
Confounded Q-sorts	Q-sorts which load significantly onto more than one factor.
Insignificant Q-sorts	Q-sorts which did not load significantly onto any factor.

B. Study Design

The research team used established Q-methodology protocols to complete all stages of study development, deployment, and analysis (Sneegas et al. 2021). First, we developed the **concourse**, a collection of subjective statements that encompass and represent the breadth of the topic being studied. We sampled three previously published reports and audits of the AMP (Meridian 2018, Madden 2020, and SAO 2021) for opinion statements about perceived problems with the program. Each of these reports incorporated direct quotes from interviews conducted with various program members. This process resulted in an initial selection of over 1000 statements.

From these statements, and in conversation with AMP collaborators, we iteratively developed 9 core themes used to organize the statements and ensure representative coverage of key issues:

- **Broader Issues and Concerns**: Issues outside the direct scope of the AMP but which influence its process and/or results
- **Caucus relations**: Issues relating to inter- or intra-caucus relationships; can also include problems associated with interpersonal relationships
- **Goals, Objectives, and Guidelines**: Issues relating to AMP goals, objectives, and/or guidelines including how they are defined, interpreted, and implemented
- **Leadership**: Issues relating to leadership within the AMP, e.g. the role(s) of caucus principals, CMER / TFW Policy Committee / SAG co-chairs, AMPA, etc.
- **Membership**: Issues relating to AMP membership of individuals, organizations, and/or caucuses
- **Risk and Uncertainty**: Issues relating to the definition, perception, interpretation, and/or influence of risk and/or uncertainty across such domains as ecological / environmental, socio-cultural, economic, political, and legal / institutional
- **Rules and Regulations**: Issues relating to rules and regulations at both state and federal scales
- **Science**: Issues relating to the AMP "science enterprise" including the production, interpretation, and implementation of scientific research and knowledge; relates particularly to the role of CMER within the program
- **Structure and Process**: Issues relating to AMP's structures and/or processes, including consensus requirements, dispute resolution, CMER / Policy / Board roles and interactions, etc.

We removed statements that were repetitive, did not relate closely enough to the program, were not related to problems with the program, and/or were not good candidates for the Q-sort exercise for other reasons. Applying these exclusion criteria resulted in a final concourse of over 300 statements. We used the online collaborative whiteboard Miro Board application (Miro 2025) to organize the statements by theme (Figure A1). Over multiple iterative passes, we

reduced the concourse to a final representative Q-set of 40 statements. We piloted the final Q-set among research team members to make final adjustments improving statement clarity and length.

C. Participant Selection

To obtain Q-sort participants, we used purposive and snowball sampling methods. Our aim was to ensure the most diverse possible set of viewpoints within the AMP. We used a selection matrix (Figure A2) to select participants across caucus affiliation, decision-making role within the program (CMER, TFW Policy, Forest Practices Board, and Administrative/Other; Voting vs. Non-Voting), and time of participation in the program's history (Current, Former, or Future member). Due to the end of federal participation in the AMP, we were only able to include one former federal caucus member. All other caucuses and roles were represented by at least one participant.[10]

In total, we contacted 80 current and former AMP members to request their study participation. Of these, seven did not respond to multiple email requests. Another eight declined or were unable to participate. One expressed interest in participating, but did not respond to subsequent scheduling requests. Of the 67 individuals who did participate, two declined to complete Q-sorts and opted to be interviewed only; another two only completed the first Q-sort (Priority) but were unable to schedule a time for the second Q-sort (Feasibility).

[10] In three cases, we did not include former "early generation" program members either because the currently serving caucus members had been in their positions for so long, or because they were still involved in the program in another role.

Figure A1: Screenshot of Q-set development using Miro Board application. Each ‘post it note’ is color coded to represent a different theme. The screenshot demonstrates a point where the research team had, over multiple iterations, decreased the original concourse of 317 statements to a final Q-set draft containing 36 statements. Unused statements have been moved to the bottom of the board. Speech bubble icons indicate collaborative comments added by research team members during the iterative statement reduction process.

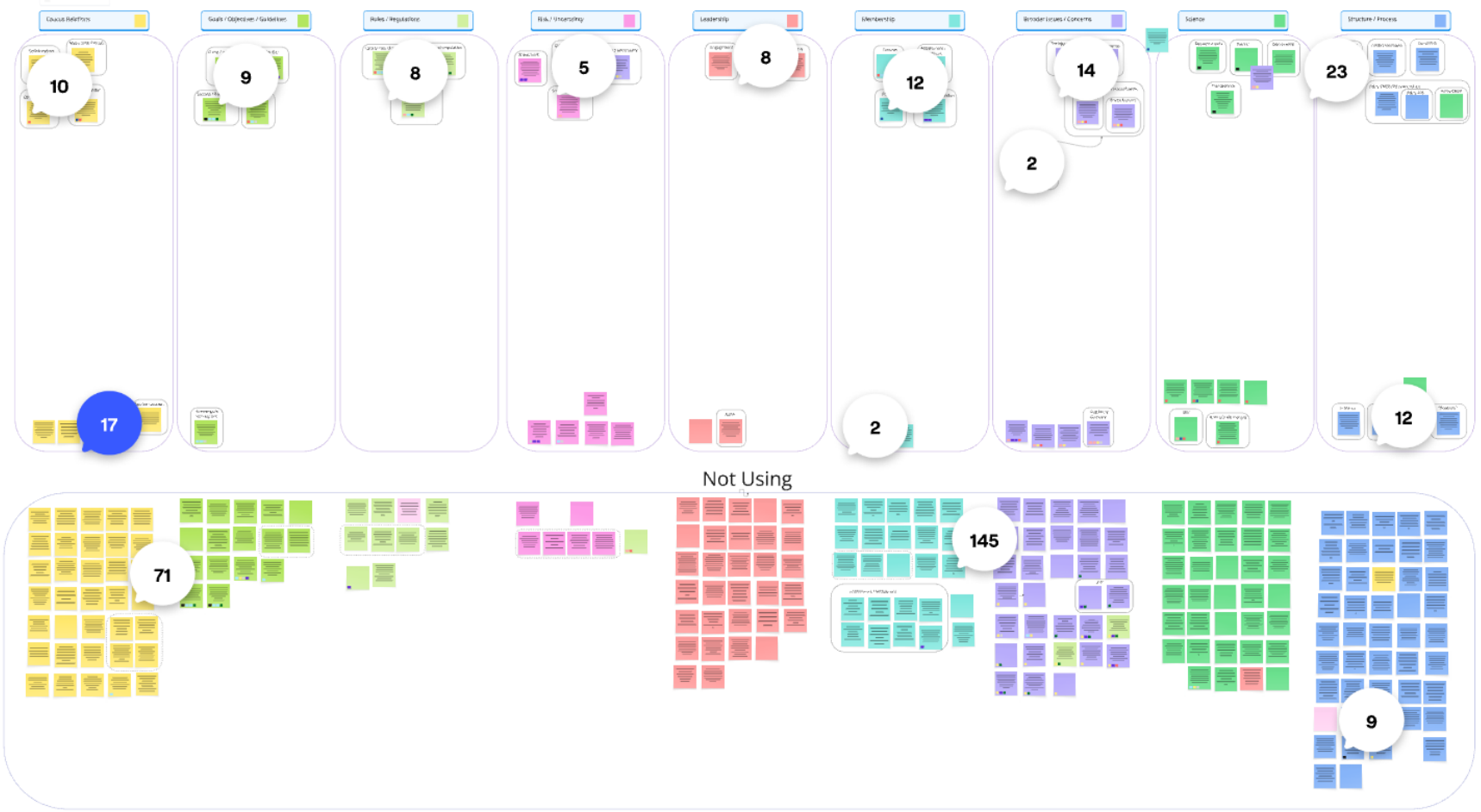

Figure A2: Participation selection matrix used to ensure maximum AMP member participation

AMP Role	Experience	*Conservation*	*County Gov't*	*Federal Gov't*	*State Gov't*	*Large Timber Industry*	*Small Forest Landowners*	*Eastern Tribes*	*Western Tribes*	*No Caucus / Unsure*	TOTAL:	TOTAL (All):
Policy	"Early Generation" members	Non-voting member Non-voting member	Former voting member		Former voting member Former voting member Former voting member Non-voting member	Former voting member Former voting member Former voting member		Former voting member	Former voting member Former voting member		12	25
	Current / "Later Generation" members	Current voting member	Current voting member		Current voting member Current voting member Current voting member Current voting member	Current voting member	Current voting member Current voting member Non-voting member	Current voting member	Current voting member Non-voting member		13	
CMER	"Early Generation" members			Former voting member	Former voting member Non-voting member	Non-voting member Non-voting member	Current voting member	Current voting member	Former voting member	CMER Scientist CMER Scientist CMER Scientist	10	25
	Current / "Later Generation" members	Current voting member Non-voting member	Current voting member		Current voting member	Current voting member Current voting member Non-voting member Current voting member	Current voting member	Current voting member	Current voting member Current voting member	CMER Scientist CMER Scientist CMER Scientist	15	
Other (Admin, etc)	"Early Generation" members	Forest Practices Board Forest Practices Board				Former voting member				Admin / Management	3	15
	Current / "Later Generation" members	Forest Practices Board			Forest Practices Board Forest Practices Board Forest Practices Board	Forest Practices Board Forest Practices Board	Forest Practices Board	Forest Practices Board	Forest Practices Board	Admin / Management Admin / Management	12	
	TOTAL:	8	3	1	12	13	6	5	8	9		

D. Data Collection

We conducted **Q-sorts** between January-April 2023. Study participants completed Q-sorts by rank-ordering the Q-set statements onto a forced choice distribution board (Figure 1). We used online EQ Web Sort Q-method software (EQ Web Sort 2025) to conduct the Q-sorts. Participants conducted the Q-sorts while on Zoom with a research team member, sharing their screen to provide technical support. Participants were asked to complete two separate Q-sorts with the same set of statements:

- **Priority**: First, participants ranked statements from those they saw as the "highest priority" issues (Column 9) to those they saw as the "lowest priority" issues (Column 1) facing the program
- **Feasibility**: Second, they ranked the statements from those they saw as the "highest feasibility" issues for the program to resolve (Column 9), to those they saw as the "least feasible" for the program to resolve (Column 1).

In both cases, participants were first asked to complete a 'rough sort' of the 40 Q-set statements into three piles: 1) highest priority/feasibility, 2) neutral/unsure, and 3) lowest priority/feasibility. Then, participants were asked to complete the detailed rank-ordering, starting with the highest priority/feasibility pile and working their way down the forced choice distribution board.

After each Q-sort, the researcher conducted a short interview with the participant to explain their rationale for their Q-sorts. Each Q-sort took an average time of 1 hour to complete, for a total of 2 hours on average to complete both Q-sorts and interviews. Due to time constraints, some participants completed the second feasibility Q-sort on their own time, and provided written answers to the interview questions.

The online Q-sorts and post-sort interviews were recorded electronically pending participant permission, which were later transcribed. In cases where participants declined to be recorded, the research team took notes manually. All notes and transcripts, including any written comments submitted by study participants, were later coded using MAXQDA qualitative coding software (MAXQDA 2025). These qualitative data were used to provide additional detail during factor interpretation.

E. Analysis

We analyzed the Q-sorts using KADE software (KADE 2025) to intercorrelate individual Q-sorts and apply by-person factor analysis, with each factor representing a shared perspective among participants who sorted the statements in a similar pattern. We first compared solutions produced using Principal Component Analysis (PCA) and centroid factor analysis. There is a long-standing debate about which extraction method - PCA or centroid - is preferable, which

largely comes down to the fact that PCA is not actually considered a form of factor analysis. As Watts and Stenner (2012) state, "PCA will resolve itself into a single, mathematically *best* solution" that maximizes the difference between the different components, which Q-method treats as factors.

In practice, however, both PCA and centroid factor analysis are widely used and accepted in Q-method, and will typically provide similar results. Both approaches create a correlation matrix, which intercorrelates every individual Q-sort with each other to provide "a measure of the … relationship between any two Q-sorts," demonstrating the extent of their similarity or difference (Watts and Stenner 2012). To ensure that we included as many potential solutions as possible in our analysis, we analyzed both phases of the study using PCA (8 unrotated factors) and centroid factor analysis (7 unrotated factors).

We compared the results of both sets of solutions (PCA and centroid) for both the Priority and Feasibility Q-sorts across two stages. The initial analysis examined eigenvalue, explained variance, and number of significantly loading participants to create a short-list of four potential solutions for both Q-sorts. For the second round, we used a combination of weighted criteria drawn from the Q-method literature (Webler et al. 2009, Watts and Stenner 2012; for applied examples, see Brannstrom et al. 2021, Sneegas et al. 2021) to determine the strongest solution for each Q-sort. The holistic criteria included mathematical criteria (e.g., eigenvalue, explained variance, number of associated participants) and qualitative criteria (e.g., represents a theoretically meaningful perspective, preserves participant confidentiality).

For both the Priority and Feasibility study phases, we went with the solution with the highest score across weighted criteria as the strongest potential solution in each case. Table A2 defines the objective of the holistic criteria used in our analysis. Figures A3 and A4 show how we calculated the weighted criteria scores for each study phase.

Table A2: Summary of holistic criteria to determine factor inclusion

Criterion	**Description**
Eigenvalue	Eigenvalue of each factor is greater than 1.0
Explained Cumulative Variance	Extracted factors together explain at least 50% of total variance
Explained Individual Variance	Each factor explains at least 10% of total variance
Humphrey's Rule 1	Each factor has at least two significant loadings

Criterion	Description
Meaning	Each factor's subjective interpretation is meaningful and theoretically relevant
Scree plot	Change in slope indicates mathematically preferable number of factors
Clarity	The number of significant loaders on each factor is maximized where possible
"Non-loaders" / Insignifiant Q-sorts	Minimize the number of insignificant Q-sorts (i.e., non-loading onto any factor) where possible
"Confounders" / Confounded Q-sorts	Minimize the number of confounded Q-sorts (i.e., significantly loading onto 2+ factors) where possible
Distinctness	Minimize correlation between factors where possible to reduce similarity and increase difference between factors
Simplicity	Minimize total number of factors where possible - i.e., if two potential solutions are equivalent in other ways, the solution with fewer factors is preferred
Stability	Participant clusters remain consistent across factor solutions
Confidentiality	Results do not breach participant confidentiality, i.e., by containing sufficient identifying information to determine participant identity
Humphrey's Rule 2	Cross-product of highest two loadings on each factor should be greater than 2 - 2.5 standard error, using the lowest cross-product
Consensus Statements	Minimize total consensus statements where possible to reduce similarity and increase difference between factors

Figure A3: Priority Q-sort factor solution comparison using weighted criteria, following Sneegas et al. 2021 and Brannstrom et al. 2021. "Value" refers to the value of the criterion variable for each factor solution (e.g., smallest factor eigenvalue for "Kaiser-Guttman," number of factors for "Simplicity"), as described in Table A1.2. "Rank" refers to which ranking category is applied to each criterion, as described in Column 2. The "Total" column is the product of Rank x Weight for each criterion.

Criteria	Ranking	Weight	PCA - 5 factor			PCA - 6 factor			Centroid - 4 factor			Centroid - 5 factor		
			value	rank	total	value	rank	total	value	rank	total	value	rank	total
Kaiser-Guttman	0 (no) or 1 (yes)	4	3.4	1	4	2.9502	1	4	3.2905	1	4	2.9397	1	4
Cumulative Variance	0 (no) or 1 (yes)	4	49	0.5	2	54	1	4	39	0	0	44	0	0
Individual Variance	0 (no) or 1 (yes)	1	N	0	0	N	0	0	N	0	0	N	0	0
Humphrey's rule 1	0 (no) or 1 (yes)	4	Y	1	4	Y	1	4	Y	1	4	Y	1	4
Meaning	0 - 3	5	(++)	3	15	(+)	2.25	11.25	(++)	3	15	(++)	3	15
Scree plots	0 (no) or 1 (yes)	3	N	0	0	N	0	0	N	0	0	N	0	0
Clarity	0 - 3	3	49	2.5	7.5	44	2	6	44	2	6	45	2.5	7.5
Insignificant sorts	0 - 3	1	8	2	2	5	2.5	2.5	14	1	1	12	1.5	1.5
Confounded sorts	0 - 3	1	8	2	2	16	1	1	7	2	2	8	2	2
Distinctness	0 - 3	2	0.3736	2	4	0.4847	1.25	2.5	0.4769		0	0.4395		0
Simplicity	0 - 3	3	5	2	6	6	1	3	4	3	9	4	3	9
Confidentiality	0 (no) or 1 (yes)	3	Y	1	3	Y	1	3	Y	1	3	Y	1	3
Humphrey's rule 2	Rank: 0 (no), .5 (2 SE only), 1 (both yes); 2 SE = 31.6; 2.5 SE = 39.5	1	0.3989	1	1	0.2363	0	0	0.3825	0.5	0.5	0.4016	1	1
Consensus	0 - 3	1	0	1	1	0	1	1	1	3	3	0	1	1
					51.5			42.25			47.5			48

Figure A4: Feasibility Q-sort factor solution comparison using weighted criteria, following Sneegas et al. 2021 and Brannstrom et al. 2021. "Value" refers to the value of the criterion variable for each factor solution (e.g., smallest factor eigenvalue for "Kaiser-Guttman," number of factors for "Simplicity"), as described in Table A1.2. "Rank" refers to which ranking category is applied to each criterion, as described in Column 2. The "Total" column is the product of Rank x Weight for each criterion.

Criteria	Ranking	Weight	2 factors (0.41)			3 factor (.41)			3 factor (.41, bipolars split)			5 factors (.41)		
			value	rank	total	value	rank	total	value	rank	total	value	rank	total
Kaiser-Guttman	0 (no) or 1 (yes)	4	5.68	1	4	4.51	1	4	4.51	1	4	3.01	1	4
Cumulative Variance	0 (no) or 1 (yes)	4	32	0	0	39	0	0	39	0	0	45	0.25	1
Individual Variance	0 (no) or 1 (yes)	1	9	0.5	0.5	7	0.25	0.25	7	0.25	0.25	5	0	0
Humphrey's rule 1	0 (no) or 1 (yes)	4	Y	1	4	Y	1	4	Y	1	4	Y	1	4
Meaning	0 - 3	5	(+++)	2	10	(+++)	3	15	(+)	1	5	(+)	1	5
Scree plots	0 (no) or 1 (yes)	3	Y	1	3	N	0.5	1.5	N	0.5	1.5	N	0	0
Clarity	0 - 3	3	46	3	9	45	2.75	8.25	45	2.75	8.25	43	2.25	6.75
Insignificant sorts	0 - 3	1	15	0	0	10	1	1	10	1	1	14	0	0
Confounded sorts	0 - 3	1	1	3	3	7	1.5	1.5	7	1.5	1.5	6	2	2
Distinctness	0 - 3	2	0.43	2.5	5	0.37	3	6	0.46	2	4	0.47	2	4
Simplicity	0 - 3	3	2	3	9	3	2	6	5	0	0	5	0	0
Confidentiality	0 (no) or 1 (yes)	3	Y	1	3	Y	1	3	N	0	0	N	0	0
Humphrey's rule 2	Rank: 0 (no), .5 (2 SE only), 1 (both yes); 2 SE = 31.6; 2.5 SE = 39.5	1	0.4486	1	1	0.4401	1	1	0.324	0.5	0.5	0.3874	0.5	0.5
Consensus	0 - 3	1	11	1.5	1.5	2	2.5	2.5	1	0.5	0.5	2	2.5	2.5
	Weighted sum:				53			54			30.5			29.75

F. Interpretation

The Q-methodology analysis software weighted and averaged together all individual Q-sorts associated with each factor. Each factor represents an 'ideal-type' perspective shared to some degree by all individual participants associated with it. However, it's important to note that while each factor represents an ideal-type perspective, individual study participants will have varying degrees of similarity in relationship to that perspective.

We relied on statistically significant ($p < 0.05$) and highly significant ($p < 0.01$) 'distinguishing statements' to determine what was unique about the perspective captured within each factor. Distinguishing statements are those statements sorted by a factor in a different position from any other factor, demonstrating how that perspective differs from other perspectives in a statistically significant way. We also incorporated the statements each factor placed in the highest (highest priority/feasibility) and lowest (lowest priority/feasibility) columns when completing the interpretation. Finally, we incorporated qualitative interview data from participants affiliated with each factor to further enrich our interpretation and provide more nuance and detail.

G. Comparing Q-methodology and R-methodology statistical analysis

It is important to note some key differences between the structure and goals of Q-method as compared to traditional "R-method" statistical approaches to factor analysis.[11]

Traditional R-method studies measure and analyze the correlations between variables across a very large sample of individuals, with the goal of explaining a substantial portion of the variance (i.e., 60 to 80%, if not more). In Q-method, however, the factor analysis is inverted: the *people* are the variables. Q-method analyzes correlations between the Q-sorts completed by individual participants, as described above (see Appendix 1, Section E). The goal and structure of Q-method is focused instead on identifying distinct yet shared viewpoints within a relatively small group of participants, rather than explaining behavior across a large population. As a result, Q-method studies typically have fewer participants than Q-set statements (although this is not required). This is the inverse of most R-method studies, where the number of participants - the study's *n* - far exceeds the number of variables.

This is why Q-method results are *not* generalizable across larger populations. Unlike variable-centered statistical approaches, Q-method is highly case specific, focusing on and describing the specific population under study. Although Q-method uses PCA and other statistical tools in this pursuit, its purpose is divergent from an R-method approach by seeking to identify patterns of similarity and difference among the limited pool of participants who complete the Q-sort.

[11] The name "Q-method" itself is a play on the conventional idea of R-method and r^2 values.

These differences often lead to confusion when statisticians trained in R-method approaches seek to apply the same levels of validity to a Q-method study. For example, a typical PCA study will view components or factors with an individual variance of less than 15% as invalid. While this is true in a study aiming to identify generalizable patterns across a population containing hundreds or thousands of participants, in a Q-study a smaller explained variance is much less concerning due to the much smaller sample size. As a result, Q-method researchers view 10% as an appropriate cut-off for validity that can still represent a clear, coherent, and meaningful result (Brown 1980, Watts and Stenner 2012).

In other words, Q-method is not trying to maximize the explained variance in the dataset overall. Rather, Q-method seeks to identify distinct, interpretable, and theoretically meaningful shared viewpoints among participants. Because people are the variables, and because the number of participants in a Q-study can be quite small[12], explained variance tends to be more evenly distributed than in a conventional R-method study. A factor explaining 10% of variance, particularly one supported by other criteria such as a high number of defining sorts and theoretical coherence, is one that the Q-method literature would consider meaningful and robust. Although 10% of explained total variance seems low from a traditional statistical viewpoint, in Q-methodology it is an accepted threshold.

Furthermore, Q-method researchers do not necessarily approach the criteria summarized in Table A1.2 as hard rules. Q-method studies human subjectivity, which is inherently messy, complex, and contradictory. It is a feature, not a bug, of Q-method that it seeks to incorporate the inherent messiness of human subjective perceptions by applying these criteria holistically as heuristic guidelines, not as hard cut-offs. This is a large part of why criteria like explaining 10% of total variance are not only widely accepted in the literature, but are treated by Q-method researchers as just one *potential* criterion (Brown 1980). For instance, Watts and Stenner (2012) discuss a case study where the quantitative criteria frequently relied on in R-method (e.g., eigenvalues, total explained variance, individual variance, scree plots) indicated a four-factor analysis as the strongest solution. However, the authors determined there were important theoretical reasons to include a fifth factor, due to the study focus on deaf and hard-of-hearing children - a frequently marginalized group where the authors felt it was important to highlight as many perspectives as possible.

[12] Sneegas et al. 2021 found in their systematic review of published Q-method research an average of 41.6 participants and a mode of 24.

Appendix 2: Study Results

To conserve space, we have moved longer tables that are conventionally presented when publishing Q-method results to the appendix. The following tables include information about the Priority and Feasibility Q-method analysis.

Table A3: Statement ranking (R), column (C), and Z-scores (Z) for each Priority social perspective. Distinguishing statements for each social perspective are indicated for $p < 0.01$ (*) and $p < 0.05$ (†). Consensus statements are indicated for $p > 0.05$ (‡). Z scores are in standard deviations.

	P1 *Back to the Foundations*		P2 *Conflicts of Interest Come First*		P3 *Focus on Procedural Issues*		P4 *The Problem is Conflicting Goals*		P5 *Protect the Resources*	
Statement	R (C)	Z	R (C)	Z	R (C)	Z	R (C)	Z	R (C)	Z
1. Regulatory certainty for forestland owners as an objective is no longer being honored by TFW/FFR stakeholders.	†9 (7)	0.85	39 (1)	-1.95	16 (6)	0.27	21 (5)	-0.08	40 (1)	-1.92
2. The resistance to cutting trees for commercial forestry is facilitating negative environmental impacts - there will be an increasing likelihood of forestland conversion to development, resulting in less forestland in Washington state.	*17 (6)	0.42	35 (2)	-1.42	†32 (3)	-0.8	†24 (4)	-0.17	38 (1)	-1.65
3. Years of scientific research have yielded solid evidence regarding rule effectiveness, but program members view rule change as the sole criteria of success.	18 (5)	0.28	21 (5)	0.12	*5 (8)	1.14	23 (5)	-0.14	24 (4)	-0.33
4. There is a conflict of interest in committees where the participants and/or groups benefit directly and often financially from decisions.	35 (2)	-1.17	*1 (9)	2.12	33 (3)	-0.8	*8 (7)	0.89	36 (2)	-1.15
5. I am concerned about the impacts of external influences upon Forest Practices AMP decision-making processes.	25 (4)	-0.45	*5 (8)	1.09	20 (5)	0.05	16 (6)	0.2	28 (4)	-0.59
6. The consensus process gives a single dissenting voice undue power to prevent a decision or recommendation from moving forward.	*38 (1)	-1.58	9 (7)	0.73	6 (8)	1.09	5 (8)	1.28	6 (8)	1.16

	P1 *Back to the Foundations*		P2 *Conflicts of Interest Come First*		P3 *Focus on Procedural Issues*		P4 *The Problem is Conflicting Goals*		P5 *Protect the Resources*	
7. There needs to be significantly more accountability and transparency in how CMER studies are developed and implemented.	29 (3)	-0.68	37 (2)	-1.79	36 (2)	-1.04	*19 (5)	0.18	37 (2)	-1.43
8. One of the reasons the adaptive management process is so slow is that CMER scientists are now thinking about policy in addition to science; they aren't distinguishing their science role from policy.	24 (4)	-0.23	23 (5)	0.1	7 (8)	1.09	4 (8)	1.37	†30 (3)	-0.7
9. Several decisions or proposals violate the principle of 'shared risk,' with potential gains and losses no longer equitable among stakeholders.	*4 (8)	1.43	†33 (3)	-1	15 (6)	0.37	14 (6)	0.33	†26 (4)	-0.52
10. Voting members across CMER, Policy, and the Board lack time, knowledge and autonomy, with the result that decisions come down to uninformed people voting along caucus lines.	†6 (8)	0.99	†12 (7)	0.5	*3 (9)	1.73	*39 (1)	-1.68	*29 (3)	-0.66
11. The lack of predetermined, acceptable TFW Policy responses to potential scientific results prior to conducting CMER studies is an obstacle to forward progress.	8 (7)	0.95	15 (6)	0.39	10 (7)	0.94	*37 (2)	-1.5	17 (6)	0.34
12. Achieving the goals of the TFW/FFR is no longer the most important motivation of all stakeholders.	3 (9)	1.43	13 (6)	0.49	*26 (4)	-0.64	2 (9)	1.68	19 (5)	0.2
13. When TFW Policy committee fails to provide consensus decisions, the Forest Practices Board is forced to take on the burden of analysis it was not designed for.	‡26 (4)	-0.46	‡30 (3)	-0.51	‡34 (2)	-0.82	‡26 (4)	-0.34	‡31 (3)	-0.77
14. Climate change should be part of the TFW/FFR agreement - it is not being adequately considered in the adaptive management structure and processes.	32 (3)	-0.91	*6 (8)	0.97	28 (4)	-0.65	32 (3)	-0.68	*1 (9)	2
15. There is a lack of shared understanding of the original goals and objectives of the Forest Practices AMP.	*1 (9)	1.86	25 (4)	-0.05	†29 (3)	-0.67	20 (5)	-0.06	*4 (8)	1.29

	P1 *Back to the Foundations*		P2 *Conflicts of Interest Come First*		P3 *Focus on Procedural Issues*		P4 *The Problem is Conflicting Goals*		P5 *Protect the Resources*	
16. Entities like state agencies and the Forest Practices Board often avoid tough discussions because they are unwilling to make decisions which may be unpopular to some.	31 (3)	-0.86	*2 (9)	1.62	31 (3)	-0.77	35 (2)	-0.96	*22 (5)	-0.08
17. The Forest Practices AMP is driven by institutional knowledge, so turnover results in a loss of program understanding and purpose - if new participants are not sufficiently trained, that understanding will be lost.	15 (6)	0.49	14 (6)	0.42	*24 (4)	-0.4	13 (6)	0.54	†7 (8)	0.98
18. TFW Policy members see lots of preliminary and preparatory CMER studies but few results that actually inform policy discussion about rule change, fueling mistrust and frustration.	33 (3)	-0.91	32 (3)	-0.63	*2 (9)	1.81	25 (4)	-0.25	21 (5)	-0.07
19. We are missing the collective spirit of "give and take" that was embodied in the original TFW agreement where caucuses tried to help solve each other's problems.	2 (9)	1.76	17 (6)	0.32	12 (7)	0.6	3 (9)	1.53	3 (9)	1.45
20. There is a lack of clarity on how to quantify, measure, and benchmark Forest Practices AMP success.	12 (7)	0.71	*31 (3)	-0.56	4 (8)	1.16	11 (7)	0.72	14 (6)	0.61
21. There are no real membership requirements - there should be standards and rigor to the appointment process.	21 (5)	-0.04	20 (5)	0.14	*1 (9)	1.9	†38 (1)	-1.62	†35 (2)	-1.12
22. Stakeholders are not focused on the ecological benefits of commercial forests writ large, such as their contribution to various ecosystem goods and services.	20 (5)	0.22	†34 (2)	-1.06	19 (5)	0.19	†27 (4)	-0.55	*39 (1)	-1.73
23. The full process for conducting CMER studies is difficult to track, as it has become too complex and broad in scope.	†37 (2)	-1.43	†38 (1)	-1.84	23 (5)	-0.35	31 (3)	-0.64	27 (4)	-0.57
24. Slow process of change through adaptive management is acceptable, but no change for 20 years is unacceptable.	†34 (2)	-1.11	8 (7)	0.92	†39 (1)	-1.58	15 (6)	0.31	12 (7)	0.72

	P1 *Back to the Foundations*		P2 *Conflicts of Interest Come First*		P3 *Focus on Procedural Issues*		P4 *The Problem is Conflicting Goals*		P5 *Protect the Resources*	
25. Stakeholders lack a common understanding of the risks of failing to achieve the four FFR goals and uncertainties associated with those risks.	7 (8)	0.99	11 (7)	0.62	14 (6)	0.45	18 (5)	0.19	11 (7)	0.78
26. The main measure of success for caucuses is protecting the interests of their constituents.	16 (6)	0.46	10 (7)	0.72	27 (4)	-0.64	29 (3)	-0.59	13 (6)	0.69
27. The AMP administrator position is extraordinarily challenging, especially with conflicting messages about what it is meant to do or should be.	*28 (4)	-0.61	22 (5)	0.11	9 (7)	0.98	12 (7)	0.71	15 (6)	0.52
28. Current forest practices regulation is inadequate to protect fish, wildlife, and critical habitat - the objectives toward fish and wildlife recovery and habitat restoration are not being met.	†40 (1)	-1.88	4 (8)	1.11	†30 (3)	-0.7	†36 (2)	-1.32	9 (7)	0.89
29. TFW/FFR/HCP is a diminished priority among caucuses because of other higher or more urgent priorities.	11 (7)	0.73	18 (5)	0.22	35 (2)	-0.95	34 (2)	-0.93	23 (5)	-0.13
30. There is significant imbalance of power between caucuses, with some caucuses using their power to serve their interests.	23 (5)	-0.21	*3 (9)	1.31	38 (1)	-1.4	30 (3)	-0.6	34 (2)	-1.07
31. The dispute resolution process is viewed as a choice that carries penalties and risks rather than as an extension of cooperative decision-making.	27 (4)	-0.5	27 (4)	-0.11	17 (6)	0.26	*7 (8)	1.23	16 (6)	0.47
32. A major cause underlying contention is different perceptions regarding what is acceptable in terms of various levels of scientific uncertainty.	13 (6)	0.68	16 (6)	0.36	21 (5)	0.03	22 (5)	-0.08	*5 (8)	1.23
33. In the early days the real principals were at the table. Today, it's a problem when members cannot make decisions for their caucuses because they aren't vested with authority.	19 (5)	0.27	28 (4)	-0.46	18 (5)	0.2	33 (3)	-0.75	18 (5)	0.28
34. The initial design of the AMP was a guess about what might work, but the process and structure don't work as intended.	36 (2)	-1.25	26 (4)	-0.11	37 (2)	-1.22	17 (6)	0.2	20 (5)	0.07

	P1 *Back to the Foundations*		P2 *Conflicts of Interest Come First*		P3 *Focus on Procedural Issues*		P4 *The Problem is Conflicting Goals*		P5 *Protect the Resources*	
35. The current polarization in our nation is exacerbating the issues in the AMP process today.	39 (1)	-1.81	36 (2)	-1.48	40 (1)	-2.48	40 (1)	-2.47	*32 (3)	-0.92
36. There is a continual struggle to ensure ecological goals are fulfilled while ensuring small and large timber remain viable.	14 (6)	0.51	19 (5)	0.15	13 (6)	0.47	*1 (9)	1.8	†8 (7)	0.95
37. The need to address larger landscape level problems is unfairly being targeted on the timber industry - the TFW/FFR goals cannot be met by contributions from any single sector of the economy.	5 (8)	1.14	*40 (1)	-2.07	†25 (4)	-0.57	6 (8)	1.28	†33 (3)	-1.07
38. If the program will continue not meeting its HCP and Clean Water Act requirements, it puts Washington at risk for litigation to ensure compliance.	*30 (3)	-0.86	7 (8)	0.94	*22 (5)	-0.08	10 (7)	0.76	10 (7)	0.82
39. TFW Policy is poorly equipped to understand the role of scientific uncertainty, and so views rule change, rather than the reduction of uncertainty, as the only successful outcome of science.	10 (7)	0.82	29 (3)	-0.49	8 (7)	1.05	28 (4)	-0.55	25 (4)	-0.5
40. It's an expensive and incremental process to reduce scientific uncertainty, so you have to be comfortable with some level of uncertainty in science.	22 (5)	-0.04	24 (4)	0.05	11 (7)	0.77	9 (7)	0.77	*2 (9)	1.55

Table A4: Priority Q-sort participant correlations and affiliations with the extracted factors. Defining sorts (individual Q-sorts loading onto each factor, weighted and averaged together to create an ideal-type factor array) are indicated at 41% or higher (*). Confounded sorts (individual Q-sorts loading onto more than one factor, not included in the weighted and averaged factor array) are indicated at 41% or higher (†). Non-loading sorts (individual Q-sorts that do not load onto any factor) are indicated at 40.9% or lower (‡).

Respondent ID	P1 *Back to the Foundations*	P2 *Conflicts of Interest Come First*	P3 *Focus on Procedural Issues*	P4 *The Problem is Conflicting Goals*	P5 *Protect the Resources*
01CMER	0.2338	0.3787	0.4232*	-0.0178	0.4065
02CMER	0.5365†	-0.0174	0.6382†	-0.008	-0.2482
03CMER	0.5799*	-0.0507	0.03	0.0242	-0.0911
04CMER	-0.0071	0.716*	-0.241	0.2262	0.2646
05CMER	0.2946	-0.0102	0.6253*	0.2503	-0.0694
06Policy	0.2783	0.1887	0.2459	-0.0462	0.6546*
07Policy	-0.1807	0.1271	0.1034	-0.0329	0.6322*
08Policy	0.1067	0.3267	-0.1107	-0.3831	0.4958*
09CMER	0.614*	0.1972	0.0816	0.1561	0.2819
10Policy	0.5478*	-0.072	0.1207	-0.0538	0.1804
11CMER‡	0.3691	0.3374	0.178	0.2671	0.0017
12Policy	0.6536*	-0.0016	-0.1005	0.4062	-0.0086
13Policy	0.1406	0.7629*	0.0385	-0.1626	0
14Policy	0.345	-0.0717	-0.008	0.5651*	-0.246
15CMER	-0.0958	0.3267	-0.3696	0.2814	0.5118*
16Multiple	0.1038	0.4073	-0.0686	0.1177	0.5847*
17CMER	-0.1207	0.3945	0.4009	0.5*	-0.0435
18CMER	-0.084	0.578*	0.0605	-0.0255	0.0417
19Policy	-0.123	0.5847*	0.1478	0.2732	-0.1196
20Policy	0.0582	-0.1561	0.6132*	-0.0283	0.1098
21CMER	-0.0664	0.2462	0.4406*	-0.0039	0.1952

Respondent ID	P1 *Back to the Foundations*	P2 *Conflicts of Interest Come First*	P3 *Focus on Procedural Issues*	P4 *The Problem is Conflicting Goals*	P5 *Protect the Resources*
22Admin	0.2803	0.1266	0.555*	0.1622	-0.0508
23Policy	-0.5194†	0.5434†	-0.2122	-0.0513	0.2483
24Other	-0.2104	-0.3688	0.4553*	-0.0814	0.0669
25Policy	0.2485	-0.2549	0.3863	0.0258	-0.4722*
26Multiple	0.7996*	-0.1555	0.2207	-0.1933	-0.0048
27Policy‡	0.1089	0.0156	0.1752	0.3381	0.1819
28Policy	-0.0728	0.257	0.0935	0.1166	0.5608*
29Policy	0.1749	0.0247	0.0674	0.1249	0.4948*
30Multiple	0.5039*	0.2269	0.0862	0.4068	0.003
31FPB‡	0.2959	0.1797	-0.1606	0.0734	0.253
32Multiple	0.0298	0.2434	-0.3741	-0.1557	0.545*
33CMER	-0.0904	0.5144*	0.1719	-0.06	0.2909
34Multiple	-0.1987	0.2807	0.2288	0.4114*	0.2395
35Policy	0.477†	0.0676	0.1202	0.2332	-0.5365†
36Admin	0.1331	0.4664*	0.0579	-0.0631	0.1924
37CMER	0.7209*	-0.0266	0.3779	-0.0652	-0.1202
38Multiple	0.5826†	-0.2566	0.4617†	-0.0899	0.149
39FPB	0.426†	0.2664	-0.1378	0.4922†	-0.4753†
40Multiple	0.1492	0.037	0.012	0.3803	0.5337*
41Multiple	0.0569	0.0671	0.1158	0.3103	0.6912*
42Admin‡	0.1937	-0.1552	0.2413	0.1103	0.3245
43Multiple	0.5742*	-0.1691	0.1894	0.1487	0.2445
44CMER	0.6009*	-0.1047	-0.2042	0.2129	0.2239
45Policy	0.0589	-0.1302	0.072	0.4698*	0.1264
46CMER	-0.145	0.5738*	0.0251	-0.1868	0.189
47CMER	-0.0237	-0.2707	-0.0565	0.4358*	0.0384

Respondent ID	P1 *Back to the Foundations*	P2 *Conflicts of Interest Come First*	P3 *Focus on Procedural Issues*	P4 *The Problem is Conflicting Goals*	P5 *Protect the Resources*
48FPB‡	-0.0993	-0.1575	-0.3527	0.3884	0.2578
49Policy	-0.3977	0.5126†	0.2315	-0.1373	0.4141†
50Multiple	0.5073†	0.2415	-0.2897	-0.135	0.436†
51Policy	0.4537†	0.271	-0.0668	0.1228	0.4403†
52Policy	0.8211*	-0.1433	-0.1025	0.0577	-0.0531
53FPB	0.2339	0.1179	-0.1541	0.5948*	0.278
54CMER	0.0918	0.204	0.6211*	0.0217	0.0389
55FPB	0.1789	-0.129	-0.1995	0.4368*	0.3378
56CMER	-0.0212	0.008	0.0972	0.5569*	-0.0235
57CMER	0.589	-0.1331	0.3679	0.034	-0.0258
58Policy	0.6136*	-0.0588	0.2093	0.1798	0.2451
59Multiple	0.6604*	-0.2058	0.2744	0.049	-0.2939
60CMER	0.7908*	-0.0412	-0.0326	-0.0719	-0.0384
61FPB	-0.2358	0.6592*	-0.2427	0.0488	0.2959
64FPB	-0.2306	0.4954*	-0.0842	-0.092	0.2997
65FPB	-0.066	0.2134	-0.127	0.3843	0.5068*
66Policy‡	0.3352	-0.2353	0.1156	0.2698	0.3573
67CMER	0.2931	-0.4163*	0.3347	0.0231	0.0709

Table A5: Statement ranking (R), column (C), and Z-scores (Z) for each Feasibility social perspective. Distinguishing statements for each factor are indicated for $p < 0.01$ (*) and $p < 0.05$ (†). Consensus statements are indicated for $p > 0.05$ (‡). Z scores are in standard deviations.

	F1 *Easy Administrative Fixes*		F2 *Coming to a Shared Understanding*		F3 *Fix the Science*	
Statement	R (C)	Z	R (C)	Z	R (C)	Z
1. Regulatory certainty for forestland owners as an objective is no longer being honored by TFW/FFR stakeholders.	30 (3)	-0.86	15 (6)	0.22	18 (5)	0.41
2. The resistance to cutting trees for commercial forestry is facilitating negative environmental impacts - there will be an increasing likelihood of forestland conversion to development, resulting in less forestland in Washington state.	35 (2)	-1.2	31 (3)	-0.54	24 (4)	-0.06
3. Years of scientific research have yielded solid evidence regarding rule effectiveness, but program members view rule change as the sole criteria of success.	28 (4)	-0.52	22 (5)	-0.04	12 (7)	0.65
4. There is a conflict of interest in committees where the participants and/or groups benefit directly and often financially from decisions.	25 (4)	-0.35	30 (3)	-0.5	30 (3)	-0.83
5. I am concerned about the impacts of external influences upon Forest Practices AMP decision-making processes.	36 (2)	-1.23	20 (5)	0.04	33 (3)	-1.18
6. The consensus process gives a single dissenting voice undue power to prevent a decision or recommendation from moving forward.	2 (9)	1.46	37 (2)	-1.39	32 (3)	-1.03
7. There needs to be significantly more accountability and transparency in how CMER studies are developed and implemented.	11 (7)	0.85	36 (2)	-1.32	2 (9)	1.62
8. One of the reasons the adaptive management process is so slow is that CMER scientists are now thinking about policy in addition to science; they aren't distinguishing their science role from policy.	19 (5)	-0.06	19 (5)	0.06	4 (8)	1.26
9. Several decisions or proposals violate the principle of 'shared risk,' with potential gains and losses no longer equitable among stakeholders.	23 5)	-0.17	2 (9)	2.09	27 (4)	-0.55
10. Voting members across CMER, Policy, and the Board lack time, knowledge and autonomy, with the result that decisions come down to uninformed people voting along caucus lines.	26 (4)	-0.38	24 (4)	-0.09	6 (8)	1.09
11. The lack of predetermined, acceptable TFW Policy responses to potential scientific results prior to conducting CMER studies is an obstacle to forward progress.	6 (8)	1.32	7 (8)	0.71	16 (6)	0.44

	F1 *Easy Administrative Fixes*		F2 *Coming to a Shared Understanding*		F3 *Fix the Science*	
12. Achieving the goals of the TFW/FFR is no longer the most important motivation of all stakeholders.	32 (8)	-0.88	4 (8)	1.57	38 (1)	-1.48
13. When TFW Policy committee fails to provide consensus decisions, the Forest Practices Board is forced to take on the burden of analysis it was not designed for.	18 (5)	0.13	27 (4)	-0.32	19 (5)	0.31
14. Climate change should be part of the TFW/FFR agreement - it is not being adequately considered in the adaptive management structure and processes.	5 (8)	1.41	40 (1)	-2.19	35 (2)	-1.39
15. There is a lack of shared understanding of the original goals and objectives of the Forest Practices AMP.	1 (9)	1.66	1 (9)	2.13	11 (7)	0.69
16. Entities like state agencies and the Forest Practices Board often avoid tough discussions because they are unwilling to make decisions which may be unpopular to some.	38 (40)	-1.4	21 (5)	-0.02	15 (6)	0.44
17. The Forest Practices AMP is driven by institutional knowledge, so turnover results in a loss of program understanding and purpose - if new participants are not sufficiently trained, that understanding will be lost.	3 (9)	1.45	9 (7)	0.69	3 (9)	1.45
18. TFW Policy members see lots of preliminary and preparatory CMER studies but few results that actually inform policy discussion about rule change, fueling mistrust and frustration.	12 (7)	0.59	26 (4)	-0.17	14 (6)	0.44
19. We are missing the collective spirit of "give and take" that was embodied in the original TFW agreement where caucuses tried to help solve each other's problems.	21 (5)	-0.11	3 (9)	1.95	28 (4)	-0.65
20. There is a lack of clarity on how to quantify, measure, and benchmark Forest Practices AMP success.	7 (8)	1.26	25 (4)	-0.09	5 (8)	1.23
21. There are no real membership requirements - there should be standards and rigor to the appointment process.	4 (8)	1.42	28 (4)	-0.36	7 (8)	1.03
22. Stakeholders are not focused on the ecological benefits of commercial forests writ large, such as their contribution to various ecosystem goods and services.	31 (3)	-0.88	8 (7)	0.69	10 (7)	0.71
23. The full process for conducting CMER studies is difficult to track, as it has become too complex and broad in scope.	10 (7)	0.98	39 (1)	-1.59	1 (9)	2.11
24. Slow process of change through adaptive management is acceptable, but no change for 20 years is unacceptable.	24 (4)	-0.27	34 (2)	-1.13	34 (2)	-1.21
25. Stakeholders lack a common understanding of the risks of failing to achieve the four FFR goals and uncertainties associated with those risks.	13 (6)	0.5	5 (8)	1.39	21 (5)	0.13

	F1 *Easy Administrative Fixes*		F2 *Coming to a Shared Understanding*		F3 *Fix the Science*	
26. The main measure of success for caucuses is protecting the interests of their constituents.	39 (1)	-1.72	16 (6)	0.22	40 (1)	-1.62
27. The AMP administrator position is extraordinarily challenging, especially with conflicting messages about what it is meant to do or should be.	9 (7)	0.99	12 (7)	0.36	8 (7)	0.85
28. Current forest practices regulation is inadequate to protect fish, wildlife, and critical habitat - the objectives toward fish and wildlife recovery and habitat restoration are not being met.	17 (6)	0.21	35 (2)	-1.31	39 (1)	-1.61
29. TFW/FFR/HCP is a diminished priority among caucuses because of other higher or more urgent priorities.	34 (2)	-1.13	11 (7)	0.38	26 (4)	-0.45
30. There is significant imbalance of power between caucuses, with some caucuses using their power to serve their interests.	33 (3)	-1.07	23 (5)	-0.06	31 (3)	-0.99
31. The dispute resolution process is viewed as a choice that carries penalties and risks rather than as an extension of cooperative decision-making.	8 (7)	1.22	33 (3)	-1.04	17 (6)	0.43
32. A major cause underlying contention is different perceptions regarding what is acceptable in terms of various levels of scientific uncertainty.	20 (5)	-0.06	17 (6)	0.15	22 (5)	0.1
33. In the early days the real principals were at the table. Today, it’s a problem when members cannot make decisions for their caucuses because they aren't vested with authority.	15 (6)	0.47	13 (6)	0.34	25 (4)	-0.36
34. The initial design of the AMP was a guess about what might work, but the process and structure don't work as intended.	14 (6)	0.48	29 (3)	-0.38	29 (3)	-0.67
35. The current polarization in our nation is exacerbating the issues in the AMP process today.	40 (1)	-1.88	38 (1)	-1.52	37 (2)	-1.43
36. There is a continual struggle to ensure ecological goals are fulfilled while ensuring small and large timber remain viable.	29 (3)	-0.85	10 (7)	0.5	23 (5)	-0.01
37. The need to address larger landscape level problems is unfairly being targeted on the timber industry - the TFW/FFR goals cannot be met by contributions from any single sector of the economy.	37 (2)	-1.26	6 (8)	0.88	13 (6)	0.53
38. If the program will continue not meeting its HCP and Clean Water Act requirements, it puts Washington at risk for litigation to ensure compliance.	16 (6)	0.41	32 (3)	-0.68	36 (2)	-1.4
39. TFW Policy is poorly equipped to understand the role of scientific uncertainty, and so views rule change, rather than the reduction of uncertainty, as the only successful outcome of science.	27 (4)	-0.41	18 (5)	0.08	9 (7)	0.72

	F1 *Easy Administrative Fixes*		F2 *Coming to a Shared Understanding*		F3 *Fix the Science*	
40. It's an expensive and incremental process to reduce scientific uncertainty, so you have to be comfortable with some level of uncertainty in science.	22 (5)	-0.14	14 (6)	0.33	20 (5)	0.26

Table A6: Feasibility Q-sort participant affiliations and correlations with the extracted factors. Defining sorts (individual Q-sorts loading onto each factor, weighted and averaged together to create an ideal-type factor array) are indicated at 41% or higher (*). Confounded sorts (individual Q-sorts loading onto more than one factor, not included in the weighted and averaged factor array) are indicated at 41% or higher (†). Non-loading sorts (individual Q-sorts that do not load onto any factor) are indicated at 40.9% or lower (‡).

Respondent ID	F1 *Easy Administrative Fixes*	F2 *Come to a Shared Understanding*	F3 *Fixing the Science*
01CMER	0.593*	-0.0083	0.338
02CMER	0.5377*	0.1633	0.1575
03CMER	0.2284	0.5956*	0.1334
04CMER	0.252	0.2189	-0.5011*
05CMER	0.5045†	-0.0292	0.543†
06Policy	0.5915*	0.2051	0.1261
07Policy	0.6299*	0.0025	0.167
08Policy	0.7112*	0.1497	0.098
09CMER	0.3151	0.0109	0.536*
10Policy	0.4975†	0.6235†	0.1779
11CMER‡	-0.0702	0.3235	0.1119
12Policy	-0.1538	0.7058*	0.1242
13Policy‡	0.3547	0.0769	0.3655
14Policy	-0.3625	0.6058*	0.2848
15CMER	0.7458*	0.033	-0.2045
16Multiple	0.6864*	-0.3436	0.054
17CMER	0.2885	-0.4353*	0.2268
18CMER	0.5119*	-0.1718	-0.1392
19Policy	0.2042	-0.3588	0.4749*
20Policy	0.2717	0.034	0.4163*
21CMER‡	0.2943	0.1753	-0.0824

Respondent ID	F1 *Easy Administrative Fixes*	F2 *Come to a Shared Understanding*	F3 *Fixing the Science*
22Admin	0.3244	-0.0512	0.5469*
23Policy	0.114	0.2283	0.5239*
24Other	0.4863†	-0.079	0.575†
25Policy	0.1773	0.0636	0.6537*
26Multiple	0.2172	-0.5659*	0.235
27Policy‡	-0.2507	-0.2415	0.065
28Policy	0.7222*	-0.021	0.2011
30Multiple	0.4743†	-0.0897	0.4548†
31FPB	-0.0438	-0.2124	0.7429*
32Multiple	0.7236*	-0.1285	0.144
33CMER	0.462*	-0.0586	0.0971
34Multiple‡	0.0888	-0.1811	0.0939
35Policy‡	-0.0397	-0.3272	-0.0143
36Admin	0.6783†	0.0176	0.4266†
37CMER	0.5175†	0.5118†	0.0734
38Multiple‡	0.2208	-0.0144	0.2009
39FPB	0.5651*	-0.3014	0.1908
40Multiple	0.4246†	-0.4401†	0.2282
41Multiple	0.5205*	0.1475	0.1673
42Admin	0.1426	0.2271	0.4889*
43Multiple	0.346	0.5282*	0.0182
44CMER	0.2635	0.0377	0.4734*
45Policy	0.4087	-0.0443	0.4164*
46CMER	0.6626*	-0.0173	0.2372
47CMER	0.4154*	-0.0965	0.2828

Respondent ID	F1 *Easy Administrative Fixes*	F2 *Come to a Shared Understanding*	F3 *Fixing the Science*
49Policy	0.3592	-0.5749*	0.1722
50Multiple‡	0.0701	-0.3996	0.3736
51Policy	0.5193*	0.2459	0.2338
52Policy	-0.0869	0.1038	0.5994*
53FPB	0.0971	0.5571*	0.2343
54CMER	0.6144*	0.1145	0.2401
55FPB‡	0.3386	0.3722	0.1975
56CMER	0.3994	0.2957	0.4378*
57CMER	0.3331	0.1641	0.5569*
58Policy	0.1543	0.4312*	0.1593
60CMER	0.5864*	-0.1088	0.1882
61FPB	0.4026	0.0388	-0.6466*
64FPB	0.6515*	-0.134	0.1467
65FPB‡	0.3131	-0.2676	-0.0021
66Policy	0.1506	0.3194	0.4194*
67CMERf	0.0759	0.3308	0.6228*