

THE WILLIAM D. RUCKELSHAUS CENTER

Situation Assessment for the Long-Term Management of the Spirit Lake/Toutle-Cowlitz River System

Conducted for the United States Forest Service
By the William D. Ruckelshaus Center

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Situation Assessment for the Long-Term Management of the Spirit Lake/Toutle-Cowlitz River System

DISCLAIMER

The following report was prepared by the William D. Ruckelshaus Center, a joint effort of the University of Washington and Washington State University, whose mission is to act as a neutral resource for collaborative problem solving in the State of Washington and the Pacific Northwest. University leadership and the Center's Advisory Board support the preparation of this and other reports produced under the Center's auspices. However, the key themes contained in this report are intended to reflect the opinions of the interviewed parties, and the findings are those of the Center's assessment team. Those themes and findings do not represent the views of the universities or Advisory Board members.

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of the Spirit Lake/Toutle-Cowlitz River System*

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I. EXECUTIVE SUMMARY

Commissioned of the William D. Ruckelshaus Center (the Center) by the Gifford Pinchot National Forest, this assessment of Spirit Lake and the Toutle-Cowlitz River system revealed a complex set of intertwined issues with dozens of interested and involved parties. The need for a long-term approach to sediment management and related issues of this system, potentially using a multiparty governance approach, has garnered high-level interest among relevant federal departments with involved agencies: U.S. Departments of Agriculture, Defense, and the Interior. a

35 interviews with 51 individuals from multiple levels of public, private, tribal, and nonprofit entities revealed challenges related to public safety, sediment management, recovery of fish species, economic development, and recreational opportunities. Almost unanimously, these individuals with deep understanding of the Spirit Lake/Toutle-Cowlitz River system expressed support for multiparty, systemwide collaboration toward a long-term approach to address issues.

The assessment revealed reason for optimism despite the litany of challenges: several areas of agreement can provide a starting point for collaborative dialogue to coordinate steps forward. Participants in the assessment see shortcomings in what they perceive to be the status quo of ad-hoc management and relatively short-term solutions. The lack of a long-term approach, coupled with multiple outstanding stressors, generates motivation to pursue a long-term, systemwide approach. Nearly all interviewees support a multiparty collaborative effort to develop prioritized actions, conduct monitoring and adaptive management, and intentionally craft solutions toward political and economic viability.

II. INTRODUCTION

Managing sediment and related issues throughout the Spirit Lake/Toutle River system presents a set of complicated public policy challenges: multiple organizations and individuals with differing and passionate views and priorities; a set of local issues weighted with history; multiple levels of government agencies with diverse management responsibilities; and sediment processes exacerbating natural environmental pressures. These system-wide complexities are compounded by the highly dynamic nature of the region and the lack of coordination among the parties that are taking management actions in the system.

At the request of the Gifford Pinchot National Forest unit of the U.S. Forest Service (USFS), the William D. Ruckelshaus Center (Center) assessed this complicated situation through a series of comprehensive interviews to:

- synthesize the viewpoints on sediment management and related issues,
- analyze the prospects for a collaborative process, and
- recommend specific next steps to address long-term sediment management and related challenges.

This report supplies background information on the assessment process, shares common themes from structured interviews, then provides findings and recommendations. Sections III-VIII contain valuable context in understanding the recommendations in Section IX.

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III. ASSESSMENT PROCESS

A. OVERVIEW

The 1980 eruption of Mount St. Helens (MSH) caused a massive debris avalanche, blocking Spirit Lake's natural outflow under hundreds of feet of volcanic material. This debris blockage backs up water in the lake, and it is unknown how much pressure it can withstand. This presents the threat of catastrophic failure and flooding. The USFS manages the region outside of Spirit Lake, including MSH. If high water levels in Spirit Lake breach the debris blockage, extensive flooding would hit the Toutle and Cowlitz Rivers, impacting the 90,000¹ residents located downstream of Spirit Lake and the Columbia River (see Appendix A). Under a presidential emergency declaration to address the threat of flooding, the Federal Emergency Management Administration (FEMA) enlisted the U.S. Army Corps of Engineers (USACE) to bore a tunnel through the ridge to the north of the debris avalanche to serve as the drainage outlet for Spirit Lake. USACE completed the drainage tunnel in 1985 and it remains the Lake's sole outflow. Since its creation, the Spirit Lake outflow tunnel has at times required cost- and labor-intensive maintenance.

In 2015, as a response to budget requests for millions of dollars for updates and repairs to the Spirit Lake tunnel and sediment retention structure (SRS), the relevant members of Washington State's Congressional delegation (Representative Jaime Herrera Beutler, Senator Patty Murray, and Senator Maria Cantwell) requested that the USFS (with the USACE and USGS) seek out a long-term plan for management of the Spirit Lake and Toutle River system (Beutler et al, 9/28/15), described in NASEM Chapter 1:

*"We request that the U.S. Forest Service fund and develop a report in cooperation with the U.S. Army Corps of Engineers and U.S. Geological Survey that will review and analyze an array of options for a long-term plan that removes the threat of catastrophic failure of the [Spirit Lake] tunnel and takes the unstable nature of the surface geology into account."*²

The USFS contracted the National Academies of Science, Engineering, and Medicine (NASEM) to "recommend a framework for technical decision making related to long-term management of risks related to the Spirit Lake and Toutle River system." An important NASEM recommendation was to create a system-level entity or consortium of agencies "that can plan, program, create incentives, and seek funding to implement management solutions focused on the entire Spirit Lake and Toutle River system."³ NASEM specified that such a broad-based planning and decision-making consortium should function as a collaborative process, in which stakeholders come together as a group to share perspectives, define issues, identify interests and common ground, generate options for addressing issues, and seek agreement.

¹ The populations of incorporated Castle Rock, Kelso, and Longview total approximately 51,990; the populations of unincorporated Castle Rock, Kelso, and Longview total approximately 39,695, with the combined incorporated and unincorporated communities totaling approximately 91,685. For more information, see the OFM 2018 population estimates found at:

https://www.ofm.wa.gov/sites/default/files/public/dataresearch/pop/april1/ofm_april1_poptrends.pdf

² <https://www.murray.senate.gov/public/index.cfm/newsroom?ID=3C017EDD-52C6-4A4B-9618-E89C1BC5490A>

³ *A Decision Framework for Managing the Spirit Lake and Toutle River System at Mount St. Helens*, report by National Academies of Sciences, Engineering, and Medicine, available at <http://nap.edu/24874>, page 20. Hereafter referred to as "NASEM Report"

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As a first step to enact NASEM's recommendation of creating a system-level entity or consortium of entities, the USFS asked the Ruckelshaus Center to conduct a situation assessment examining the prospects for—and, if appropriate, lay the groundwork for—a collaborative process to address challenges related to the long-term management of the Spirit Lake/Toutle-Cowlitz River system. A joint effort of Washington's two research universities, the University of Washington and Washington State University (WSU), the Center provides expertise to foster collaborative solutions to complex policy challenges. For more information on the Center, see Appendix B or visit www.ruckelshauscenter.wsu.edu.

It is important to be clear about what this report *is not*, as well as what it is. This report *is not* a thorough analysis of management options for the Spirit Lake/Toutle-Cowlitz River system. The Center works to enable the involved parties to explore opportunities and challenges while working towards mutually agreeable solutions, *not* to develop or analyze specific management alternatives.

This report *is* the primary written product of the Center's situation assessment and a summary of issues, interests, perspectives, and prospects for collaboration derived from interviews with the involved parties. A situation assessment is an interview-based effort to better understand and explore relevant issues and interests of key parties, along with situation dynamics. This assessment is a typical first step in exploring a potential collaborative process. Such an assessment reveals useful information to guide next steps forward, whether that involves a collaborative process or not.

For the purposes of this report, a collaborative process is defined as a solution-focused dialogue among the vital interests, participating willingly, that is convened and facilitated by a neutral third party. If the parties to a collaborative process reach agreement, results typically go to the traditional legislative, executive, and/or judicial policy forums for consideration and possible action.

The Center reached out to a balanced cross-section of parties between June and December 2018 to capture a wide range of perspectives. Interview candidates were identified via the Center's background research, selection criteria, and chain referral sampling (in which all interviewees are asked to identify additional potential interviewees). The assessment was intended to identify the major issues and key parties involved and to document their interests and perspectives while exploring the prospects for a collaborative process to address those issues.

B. ASSESSMENT TEAM

Chris Page (Ruckelshaus Center Project and Development Lead) managed the situation assessment. Page and Alexa Schreier (Project Coordinator) designed the assessment process, developed the protocols and guide for the interviews (see Appendix C), and conducted and summarized the interviews. Dr. Season Hoard (WSU Division of Governmental Studies or DGSS) and WSU Political Science student Danielle Fox (School of Politics, Philosophy, and Public Affairs) conducted quantitative analysis on the interview content.

C. IDENTIFICATION OF PARTIES

The assessment team consulted with staff at the Gifford Pinchot National Forest, read the NASEM

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report, reviewed that report’s list of “Interested and Affected Organizations Contacted During the Study,” and did background research to produce a preliminary draft list of interested parties to interview, representing a broad and balanced range of interests. As the team worked its way through conversations with each initial party, team members solicited suggestions for other key entities and people to interview. Using this referral method, the team eventually reached the cohort of 35 entities (see Appendix D), with multiple group interviews leading to 50 total individuals. The interviewee list was not designed to be exhaustive, but rather to include each significant category of interested constituency. The goal was for all interested parties to feel that their perspective was considered, whether they were personally interviewed or not.

D. ASSESSMENT PROTOCOLS AND INSTITUTIONAL REVIEW

The assessment team developed protocols to govern the interview process, based on university human subject research principles and best practices in the field of collaborative decision-making. The WSU Office of Research Assurances reviewed the study and protocol and determined that the study satisfied the criteria for Exempt Research at 45 CFR 46.101(b)(2) and could be conducted without further review by the WSU Institutional Review Board.

Interviewees received email and/or phone invitations to interview, along with background information explaining the process, the purpose, and how information would be used. Materials emphasized that the interview would be confidential (to be consistent with university research protocols and encourage interviewees to be candid); the report would articulate aggregate results without specific statements attributed to individuals or organizations. Interviewer notes were not retained beyond the drafting of the report, per research protocol. Interviews occurred by phone or in person.

IV. CATALOG OF KEY ISSUES RAISED BY PARTICIPANTS

As noted above, the management of the Spirit Lake/Toutle-Cowlitz system presents a multifaceted public policy challenge, consisting of numerous complex and interconnected challenges and actors. The list of issues below is by no means comprehensive, but rather summarizes the most frequently mentioned challenges voiced by participants in this process. Perspectives on many issues in this section receive further consideration in Sections V and VI, which explore key areas of agreement and divergence.

Data analysis of respondent answers identified three major issue themes: public safety, ecosystem restoration, and local economic restoration.

Interviewees (also referred to here as “respondents” and “participants”) were asked, “What important issues come to mind for you and your organization in considering the Spirit Lake/Toutle-Cowlitz River System and its drainage basin?” Data analysis of responses identified three major themes: public safety, ecosystem restoration, and local economic restoration. Figures 1, 2, and 3 below (from the data analysis report in Appendix E) illustrate the suite of issues mentioned by most respondents. Each figure includes a primary theme (in orange box), related organizational themes (in

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green circles), and specific issues related to each major and organizational theme (in blue boxes).

A. PUBLIC SAFETY

Approximately 90,000 individuals live and work downstream of Spirit Lake, largely concentrated in the communities of Castle Rock, Kelso, and Longview. These individuals face the risk of catastrophic flooding if the Spirit Lake debris blockage is breached or if the structural integrity of the SRS is compromised. Nearly all interview participants voiced a strong desire for reduced flood risk and better preparation and public education about living in an area that is likely to undergo a catastrophic event at some point. The NASEM report emphasizes that management and decision making in the region needs to consider and account for the future impacts of characteristic natural hazards in the region⁴. On the issue of public safety, respondents also identified key issues of concern including risk awareness, emergency preparedness, flood management, and water supply (see Figure 1).

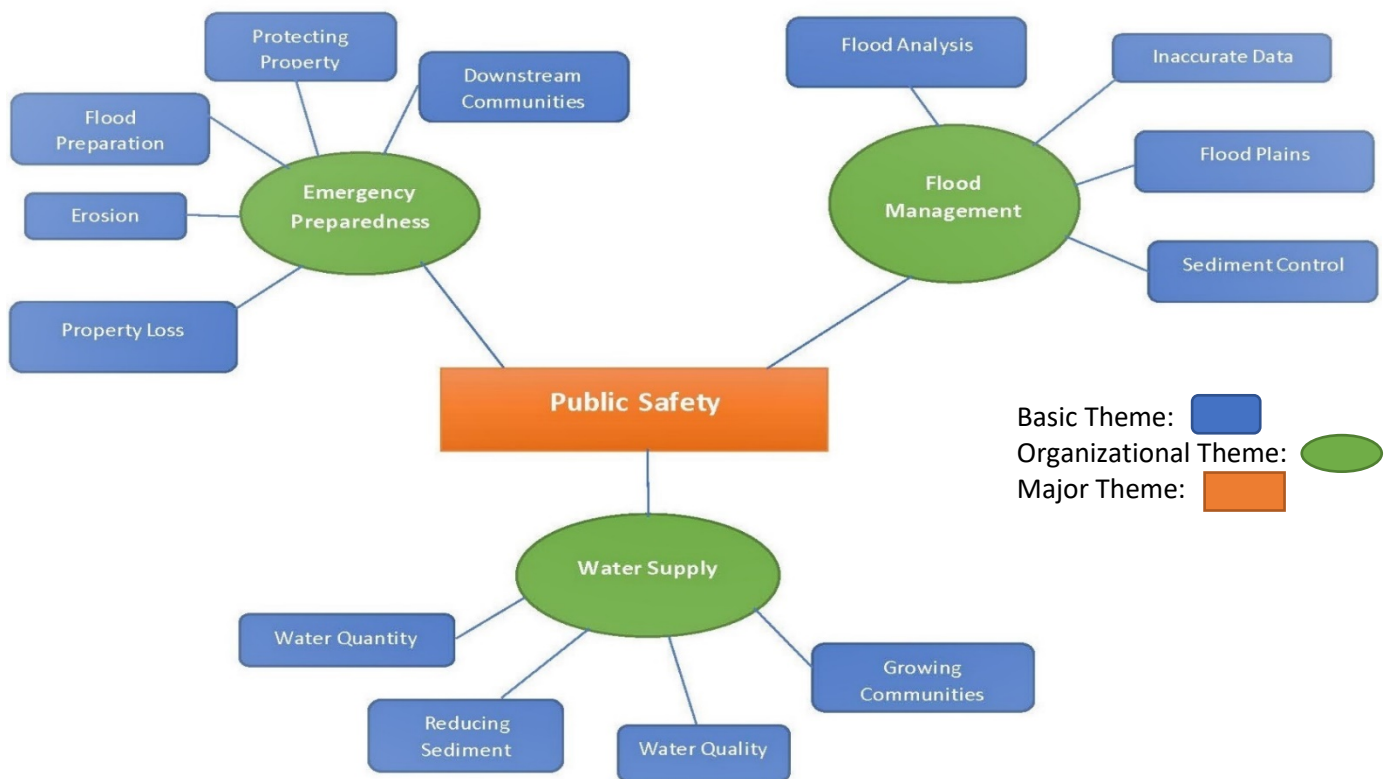


Figure 1. Public safety thematic issue network derived from interviewee responses.

⁴ NASEM Report, p. 52

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B. ECOSYSTEM RESTORATION

While most respondents voiced their concern for public safety above all other issues, many respondents also expressed an interest in pursuing the protection and enhancement of the environment for local flora and fauna (including salmon and elk populations). The largest themes from responses about ecosystem restoration include wildlife restoration and the restoration of natural processes (see Figure 2).

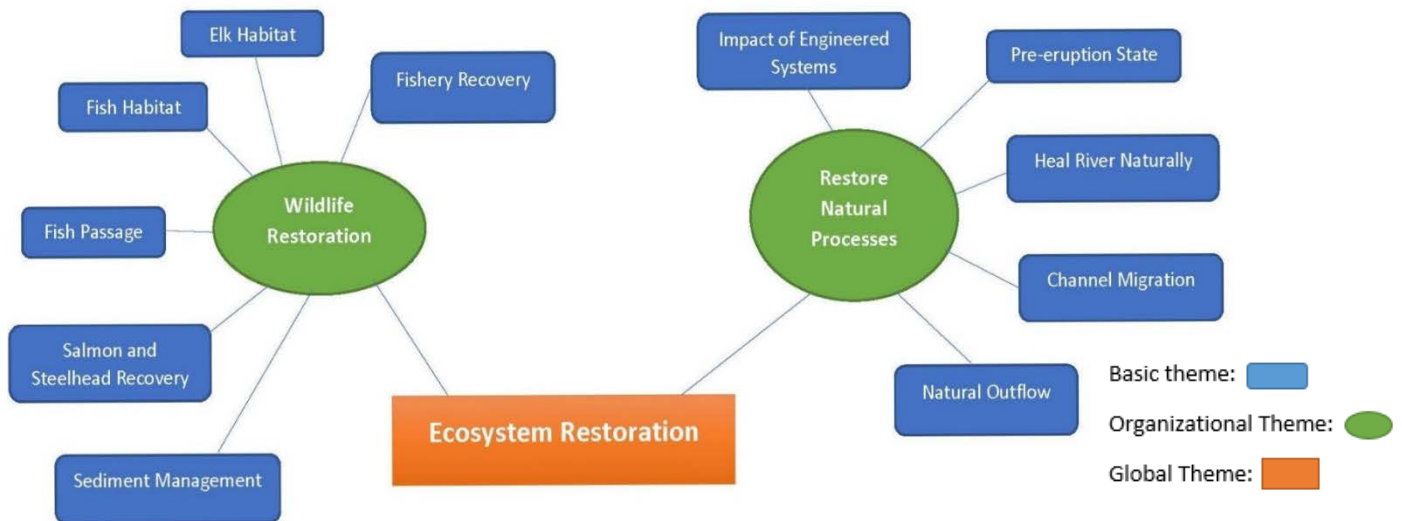


Figure 2. Ecosystem restoration thematic issue network derived from interviewee responses.

C. LOCAL ECONOMIC RESTORATION

Several respondents noted the relatively robust nature of region's pre-eruption economy, fueled by recreation and tourism industries (hunting, fishing, camping, hiking, and vacation homes on Spirit Lake) and past timber production. After the 1980 eruption, the local population declined, and fewer people moved to the area to pursue business opportunities, with at least one interviewee attributing this not only to risk but to high flood insurance rates. The ensuing reduction in tourism and economic activity has acutely impacted the communities downstream of Spirit Lake. Many respondents expressed a desire to reinvigorate the economy through increased recreation and regional tourism. Some respondents noted the challenge of increasing tourism and recreation while maintaining the scientific integrity of the Mount St. Helens National Volcanic Monument, which is managed to limit access to the public and promote scientific study. This tradeoff represents one element of tension between state and federal agency management actions upstream (largely conducted to benefit downstream communities), and the perception by residents in downstream communities of those actions and how they impact the livelihoods of locals. (More information on these issues comes in [Section VI-B](#) below.)

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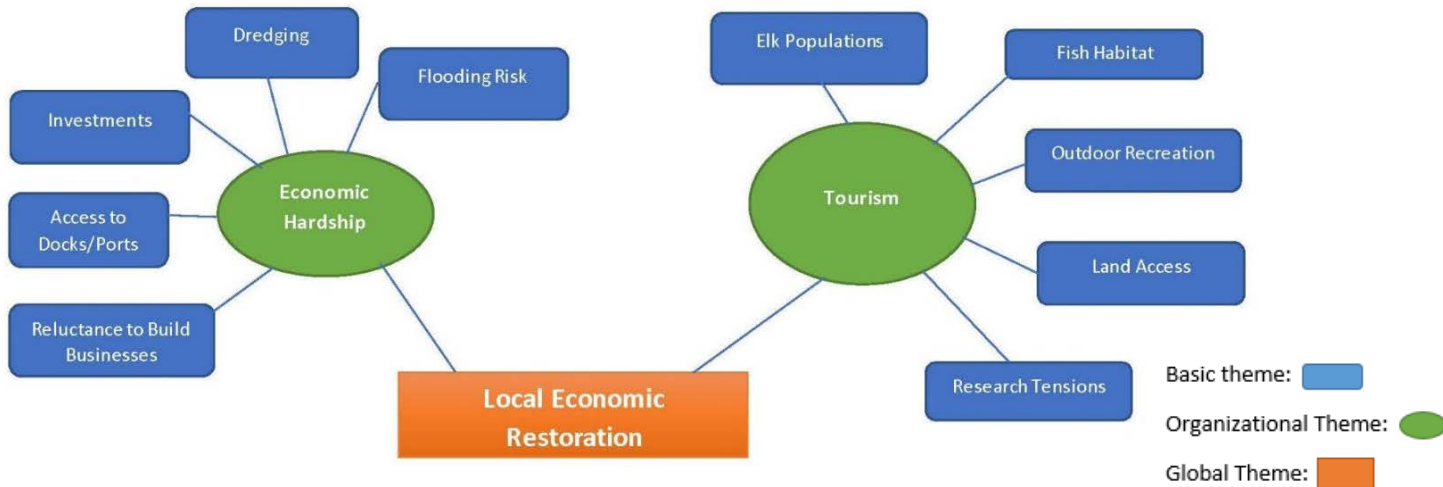


Figure 3. Local economic restoration thematic issue network derived from interviewee responses.

V. KEY THEMES: AREAS OF AGREEMENT

A general set of widely-desired outcomes emerged that any long-term approach must address. While no respondents disputed that public safety is the top concern of addressing issues in the Spirit Lake basin, most would like to see other values simultaneously supported in long-term planning. Many interviewees believe that in addition to public safety, a long-term solution should consider issues of sediment management, the environment, and economic development. Most respondents articulated their interests and opinions around the basic question, *“What is the safest way to get water out of Spirit Lake in the long term that won’t exacerbate sediment problems downstream?”*

A. CROSSCUTTING THEMES

As the NASEM report states repeatedly, key issues should be considered in the context of the entire (institutional and geographic) system. In addition to the quantitative themes in the figures above, other topics will challenge any parties to a prospective collaboration to find common ground in terms of specific solutions that work for all:

- **Sediment Management:** Interviewees expressed hopes of collaboratively developing and implementing an approach to manage the colossal quantities of sediment throughout the system over time, to provide the highest level of mutual benefits for the environment AND economic development (given the paramount concern of public safety). Interviewees acknowledge the perceived need for a long-term approach to sediment management, though suggestions differed on how to best achieve this. Proposed solutions ranged from dredging to engineered systems to naturalization. Most respondents acknowledged the challenges of each management method, and some respondents suggested using a combination of methods to achieve the best results while mitigating potential downfalls.
- **Inter-Agency Coordination:** Due to the complex agency jurisdictions in the Spirit Lake/Toutle-Cowlitz River system, many respondents expressed the need for better

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coordinated communication among the relevant government agencies. Improved communication of agency mandates, research, and planning would allow agencies to avoid duplicated work and more efficiently coordinate on long-term planning and implementation.

- **Geographic Scope:** While some parties focused on the SRS and lake outlet, others pinpointed the costs and safety challenges of management efforts in and around downstream communities. Still others centered their comments on the body of the Toutle River and its associated issues. This supports the NASEM statement about a potential consortium: “Early agreement among participants on the definition of the system and geographic scope is important.”⁵
- **Pursuit of Stable State:** Many interviewees differentiated between a more natural state and a stable state downstream of Spirit Lake; the former would possess a relatively high level of ecosystem functionality while the latter, at least in the longer term, characterized by a low need for management interventions. Regardless of the details of any long-term management path, most respondents expressed a desire for the system to be more self-sustaining, requiring less maintenance (and corresponding cost).
- **Unpredictability of Natural Events:** Many respondents described the dynamic nature of the natural landscape: possible seismic activity, future eruptions, and wetter winters and larger storm events characterizing the region’s future climate; all of these can increase the threat of flooding. Multiple participants noted that the overall unpredictability of events such as earthquakes or eruptions could jeopardize the effectiveness of any longer-term solution(s), especially if a solution or plan were not fully implemented.
- **Public Awareness/Communication:** Due to that unpredictability, many respondents expressed desire for improved hazard communication and increased public awareness. To address these concerns, numerous respondents suggested adding a public education component to any path forward.
- **Funding:** With the tunnel under USFS jurisdiction and SRS under USACE jurisdiction, the two are unique structures. Respondents noted that the tunnel requires greater maintenance funds than most other USFS programs and services. Funding for management actions is needed throughout the length of the system. Participants expressed interest in cost-sharing—both for management solutions and the collaborative effort to decide them.

B. PUBLIC SAFETY

Interviewees in this assessment all agree safety takes precedence. While it was easy for respondents to agree on public safety as a high-level value, respondents expressed differing ideas and opinions on how to best address issues of public safety in the Spirit Lake/Toutle-Cowlitz River system. Significant public safety that arose during interviews included emergency preparedness, flood management, and water supply. Multiple respondents expressed concern not only for their own personal safety, but for the safety of their property, which can be subject to erratic bank erosion as the river channel is largely unstable through the Toutle and parts of the Cowlitz.

⁵ NASEM report, pg. 137

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i) Education

A majority of interviewees voiced the opinion that no matter what resolution or path forward is chosen for sediment management in the system, there is a broad need for public education on the risks of living in a region subject to natural hazards. Such public education would increase awareness of regional risks and increase public safety and preparedness among downstream communities. At least one respondent suggested that the Mount St. Helens Institute, an educational entity in the region providing volcano education to visitors, could potentially provide resources to a collaborative effort or consortium working to incorporate an education and outreach component of the process.

C. ECOSYSTEM RESTORATION

Along with the desire for a more naturalized system, many respondents justified their interest in a more natural system to promote ecosystem services including fish habitat, elk range, clean water, and recreational opportunities. Numerous respondents commented on the region's rich history of outdoor recreation and voiced hopes to restore environmental vitality to the region. The issues below intersect with economic development; several interviewees expressed an interest in restoring recreational opportunities as a means of reinvigorating the local downstream communities.

i) Naturalized System

Many interviewees expressed a desire for the benefits provided by a more “natural” system, i.e. one characterized and influenced by primarily natural processes (as opposed to engineered structures). Multiple respondents expressed the sentiment that such a system might, if eventually achieved, prove more self-regulating and less needing of infrastructure investments and management actions. However, many respondents expressed concern over how much of a “natural” system could ever be restored in this system, so changed by a massive eruption. In fact, NASEM states, “Any thought of a natural, unmanaged environment is unrealistic.”⁶ While the Spirit Lake tunnel and SRS are entirely engineered, a few respondents made a point to express that the altered landscape outside of the tunnel and SRS is still natural (though vastly different from pre-eruption conditions) so some level of naturalness, and self-regulation, is achievable and desirable.

Multiple interviewees noted that engineered structures negatively impact succession of ecosystems in the area. NASEM adds, “in the minds of many interested and affected parties, the hazards may not rival in importance other consequences of the engineered landscape.”⁷ Despite the challenges, many respondents articulated a desire to restore a greater level of natural ecosystem function to the system, or at least explore the prospects for what level of natural function could be restored (to the Toutle River channel in particular).

ii) Ecosystem Services

Multiple respondents discussed the importance of restoring the capacity of the system to provide ecosystem services, including fish and wildlife habitat (particularly for the local elk herd), clean water supply, and opportunities for recreation-based tourism.

⁶ NASEM report p. 119

⁷ NASEM report p. 99

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iii) Fish Habitat

Fish habitat and populations were brought up often throughout the interviews. Beyond simply mentioning fish habitat and populations, numerous participants believe recovering fish populations and restoring their habitat is likely one of the largest issues on which all actors might find common ground. While no respondents directly opposed fish habitat restoration, several noted the challenges of effectively restoring fish habitat in a highly engineered and dynamic system. Respondents also varied greatly in their stance on the feasibility of volitional fish passage in the Toutle River. Some interviewees think volitional passage is achievable, but others believe it unlikely if not impossible. More than one noted that even if volitional fish passage over the SRS were achieved, it is unclear how successfully fish can navigate through the shallow and warm water of the sediment plain.

iv) Wildlife Habitat and Range

The health and wellbeing of other wildlife and their respective habitat was brought up several times. The region's local elk population (notably the largest in Washington state) was given particularly high attention during respondent interviews. Respondents discussed the challenges of delayed ecological succession impacting the elk's winter range in the area of the sediment plain.

D. LOCAL ECONOMIC RESTORATION

As mentioned, numerous respondents noted the negative impact the 1980 eruption (and subsequent impacts on the system by sediment) had on local economic development in downstream communities. While federal agency actions to reduce flood risk bring benefits to downstream communities (and their economies), nonetheless a key finding, as noted in the data analysis report, is that “no federal officials specifically stated local economies as a concern that should be addressed, rather these concerns were mostly expressed by local government officials, followed by NGOs and state government.” The latter respondents often suggested that enhanced recreation through increased fish, elk, and wildlife habitat, and greater access to lands around the Monument, could bolster local economies.

i) Recreation Opportunities

Many interview respondents discussed the importance of fish and wildlife habitat in terms of ecosystem restoration, as well as the recreational opportunities provided by fishing and hunting. Multiple respondents also noted the high appeal for recreation and nature-based tourism prior in the region to the 1980 eruption and expressed an interest in restoring such industries to support local economies that once thrived on associated businesses that support visitors.

VI. DIFFERING PERSPECTIVES ON MANAGEMENT OPTIONS

As the attached data analysis report also notes, despite broad agreement on public safety and ecosystem restoration in general, substantial disagreement emerged on how best to achieve those twin goals. While the NASEM report outlines a specific approach to group decision-making, a collaborative process would enable participants to determine together how they can optimally balance competing desires, find common ground on key interests, prioritize issues for solving, generate options for solutions, and work to find agreement.

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A. SEDIMENT MANAGEMENT

Differing opinions emerged on the best long-term approach. While numerous methods of sediment management were proposed by interview respondents, the main management methods considered for use include dredging, engineered structures,⁸ and elements of a naturalized system. Multiple respondents expressed concern over the tension between objectives of flood risk reduction and environmental restoration and rehabilitation. For example, while the SRS may be the most effective method of retaining sediment (to prevent it from filling stream channels and increasing flood risk), it dramatically reduces the opportunities for restoration and rehabilitation of the local environment, including salmon habitat and elk range.

Other salient views articulated in this process related to sediment management include:

- At least one respondent pointed out that while the volume of sediment in the system remains massive, some relatively inexpensive and effective downstream remedial measures may exist, reporting that 60 acre-feet of sediment were stored after a rain event through bank stabilization from large woody debris placement.
- Several respondents brought up the prospect of moving some portion of people or critical infrastructure out of the high-risk area. However, most acknowledged that such a proposition would prove politically infeasible, and surely involve immense costs.

B. SCOPE OF GEOGRAPHY

Management responsibilities and land ownership of the Spirit Lake/Toutle-Cowlitz River system lies almost entirely at the upstream end of the system between the National Volcanic Monument and the SRS. However, nearly all the communities affected by sediment runoff live in the downstream regions with little control over management decisions made upstream.

Specific views articulated in this process related to the scope of geography include:

- Dissatisfaction with the lack of public access to lands in the Monument set aside for scientific research.
- Frustration with perceived inaction (or the slow pace of action) to address concerns of downstream communities by management agencies focusing on the upstream portion of the system. Specific concerns cited by respondents included bank erosion in the Toutle River valley and impacts to public agencies of sediment accumulation (e.g. the costs to the Port of Longview of removing 14,000 cubic yards of sediment from shipping berths in 2017-18).
- General agreement on the logic and opportunities of coordinating management actions throughout the entire Spirit Lake/Toutle-Cowlitz system.

⁸ One respondent acknowledged that the primary methods of sediment management to date illustrate the values of decision makers (in this case congressional authorities for the Mt. St. Helens National Monument and Sediment Control Project): purely engineered systems applied for flood risk reduction to pursue public safety (top priority), while naturalization would do more to bolster local ecosystem services (a secondary consideration).

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C. PLANNING TIME FRAMES

The combination of the dynamic natural environment and fiscal challenges facing managing agencies in the Spirit Lake/Toutle-Cowlitz River system, especially related to the tunnel and SRS, has spurred the use of remedies described by interviewees as having relatively short-term timeframes. Many respondents noted that while these measures may have been needed to address safety and flood risk reduction, the time seems ripe to consider the benefits of a coordinated long-term approach to sediment management.⁹

Other views articulated in this process related to planning time frames include:

- Tunnel repairs or upgrades have contributed to significant (and rising) outlays; multiple respondents pointed out that even a massive one-time price tag for a comprehensive long-term approach could ultimately cost less if it results in fewer ongoing funding needs.
- If the planning horizon gets extended far enough into the future, the high probability of a major seismic or volcanic event makes any management actions pale in comparison; in fact, those actions might not provide any real mitigation of impacts.

VII. PROSPECTS FOR MULTI-SECTOR COLLABORATION

A. CHALLENGES

Nearly all interview respondents support a collaborative dialogue to resolve issues in the Spirit Lake/Toutle-Cowlitz River system. However, many respondents acknowledge the complexity of involving so many participating entities with varying interests and legal mandates. One respondent voiced the opinion that a collaborative effort was unnecessary as the public processes in place are capable of long-term planning and implementation in the basin.

In addition to the challenges of working in a system with many interested and affected parties, multiple respondents noted the specific challenge of navigating jurisdictional boundaries, agency mandates, and bureaucratic processes and rules among government agencies.

Additional barriers to collaboration that, if addressed, would enhance the likelihood of a successful process include:

- A trusted sponsor(s) and/or convener(s) would be needed. While state and federal government agencies have expressed interest in participating in a collaborative effort, multiple respondents expressed support and desire for leadership from local entities.
- Several respondents voiced the need for a champion of the issue to take the lead on securing funding and implementing long-term projects. Longstanding community members can attest to the level of initiative and effort involved in securing early federal appropriations after the 1980 eruptions, similar effort and initiative may be necessary to achieve the current level of proposed action.
- Many interview respondents voiced the challenge of finding and allocating available resources in terms of both staff time and funding.

⁹ Any potential collaborative consortium would likely benefit from the parties together defining “long-term”.

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- Multiple participants noted the impact that change in focus, political support, and staff turnover has on the opportunity can either support or detract from the long-term success of a collaborative process.

B. OPPORTUNITIES

The most commonly named potential convener of a collaborative effort was a partnership between the USFS and a representative from Cowlitz County—either the County itself or perhaps the Cowlitz-Wahkiakum Council of Governments. Joint leadership could provide a consortium or collaborative effort with perspective and expertise from both the upper basin consisting largely of federal and state landowners as well as the lower basin where the greatest number of individuals live in downstream communities impacted by sediment movement from the upper basin.

C. PRIOR COLLABORATIONS

Interviewees mentioned multiple collaborative efforts in the Spirit Lake/Toutle-Cowlitz River system since the 1980 eruption. Each effort has included different participants and focused on varied issues. The most prominent efforts include a task force called ATTACK and multiple Memoranda of Agreement/Understanding (MOA/MOU) among various entities in the region.

- The ATTACK collaboration was described as an ad hoc multi-agency/organization group consisting of state, federal, and tribal entities including:
 - U.S. Geological Survey
 - U.S. Forest Service
 - U.S. Fish & Wildlife Service
 - U.S. Army Corps of Engineers
 - Washington State Department of Fish & Wildlife
 - Cowlitz Indian Tribe

The ATTACK group focused on issues of ecology, hydrology, restoration, and management of the Toutle River watershed. The exact timeframe of operation for the ATTACK group was unknown by interview respondents but appeared to run from around 2008 to 2010 or 2011.

- Multiple Memoranda of Agreement / Understanding:
 - USACE, USFS & Cowlitz County: 1986 Local Cooperation Agreement
 - Cowlitz Tribe & WDFW: The Cowlitz Tribe “is a party to a MOU with WDFW that focuses on the need for cooperation and communication aiming at maintaining the health of the fish and wildlife populations in the region” (NASEM p. 51).
 - USACE & WA Department of Ecology (current: Established to determine who “owns” the water passing through the tunnel (“owns” indicates which agency permitting process would govern actions taken that could affect/impact those waters)

VIII. CREATIVE IDEAS

A. FUNDING

While funding for collaborative efforts can be elusive, multiple respondents mentioned the

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opportunity costs of *NOT* collectively developing a long-term approach. Most creative ideas expressed throughout the interview process revolved around funding for a collaborative process, with some applicable to management solutions as well. Numerous respondents suggested some form of a cost-sharing agreement, e.g., among state/federal agencies or local/state/federal agencies. Other funding solutions include:

- U.S. Congressional allocation: This was the most commonly suggested funding solution. Respondents noted that USFS, USACE, and USGS are all paying attention to these issues at high levels. Recent written communications from the Washington State U.S. Congressional delegation to the heads of those three agencies have included a statement to the effect of, “Tell us how we can help.” The regional administrators of each federal department could author a joint memo to the U.S. Congressional delegation, explaining that long-term sediment management is best accomplished via a collaborative forum (per NASEM) and funding *for the collaborative process* would be \$150,000 - \$200,000 per year (up to \$100K for facilitation, plus funding for targeted technical studies, with dedicated office/staff at USFS and/or Cowlitz County or the Cowlitz-Wahkiakum Council of Governments).
- Small fee (e.g. 1/10 of a cent per ton) on goods shipped through the Columbia River past the Cowlitz River, and/or a small user fee for recreational activities on the Columbia where the Cowlitz joins)
- Private philanthropy, such as foundation grants to nonprofits (e.g. Trout Unlimited, Fish First) to fund fish habitat restoration projects that also provide sediment control benefits.
- WA Legislature-provided funding for DNR (tied to timber harvest moneys) to manage collaborative work on forest issues. This funding source, if still extant, could potentially enable projects that a consortium sees as providing multiple benefits supporting community values (e.g., forest health, habitat restoration, and fire risk reduction) but that might not directly assist in managing sediment.

B. GENERAL

When asked, “What should we have asked that we didn’t?” at least one respondent suggested that while a surface outlet for lake drainage seems attractive, it has major challenges and tradeoffs; a relatively simple approach for an alternative lake outlet might involve a tunnel in a different direction, away from the fault.

IX. RECOMMENDATIONS

Despite the complexities of management in the Spirit Lake/Toutle-Cowlitz River system, interview participants largely supported the idea of a collaborative body working to address issues in the system. Synthesizing the input gained throughout this assessment, constructive next steps might include:

1. A kickoff meeting of all parties including citizens, private and nonprofit sector representatives, and all four levels of government (local, state, federal, tribal). This initial session could focus on whether the entities with management responsibilities in the system wish to commit to the type of collaborative consortium discussed in this report—and if so, on high-level shared values, desired goals and outcomes, identifying funding for a multi-year effort, and creating basic operating protocols (ground rules) for a system-wide consortium.

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2. To avoid jurisdictional conflict, it would be important to set aside time early in any collaborative process for the involved federal agencies (USFS, USACE, and USGS) to create a shared understanding of agency missions, mandates, resources, limitations, and jurisdictions. In addition to federal agencies, consider having all levels of government taking management actions in the system meet (interested public could attend for informational purposes) early in a potential collaborative process to share agency-specific information, such as:
 - USACE (and potentially other federal agencies) cannot delegate decision-making responsibility
 - Agency mission and vision statements, mandates, and priorities
 - Authorities, funding, and roles of various offices/staff/elected officials
 - Restrictions
 - Resources and capabilities
 - Decision-making and staffing, since both technical-level staff and policy-level staff are likely to be needed at various times in a collaborative effort
3. If a consortium launches, it would help greatly for local (downstream) leaders to play a sizable role.
4. Design a collaborative effort to be primarily driven by a relatively small group of key entities, as large groups can become unwieldy. Drawing on adaptive management working groups from elsewhere, it might work to convene the whole Task Force periodically for information-sharing and input while entrusting most ongoing consortium work to a Steering Committee (or equivalent) and issue-specific work groups for efficiency. Issue-specific groups would work to address issues that arise throughout the process and could include topics such as:
 - Fish and wildlife habitat
 - Economic development and recreation
 - Long-term approaches to sediment management
 - Technical and scientific information
 - Funding and resources to implement plans and projects
5. Consider working toward developing an independent regional entity modeled along the lines of Tennessee Valley Authority (TVA), Bonneville Power Administration (BPA), or Columbia River Gorge Commission (CRGC). This could take years, and perhaps an act of Congress, but would provide the five components below necessary for collective impact.¹⁰ The five conditions of collective success include:
 - Common Agenda: A shared vision for change, one that includes a common understanding of the problem and a joint approach to solving it through agreed upon actions.
 - Shared Measurement System: Collecting data and measuring results consistently on a short list of indicators at the community level and across all participating organizations not only ensures that all efforts remain aligned, it also enables the participants to hold each other accountable and learn from each other's successes and failures.
 - Mutually Reinforcing Activities: Each involved entity undertaking the specific set of activities at which it excels in a way that supports and is coordinated with the actions of others.
 - Continuous Communication: Enough experience with each other to recognize and appreciate the common motivation behind their different efforts. They need time to see

¹⁰ According to the paper "Collective Impact" by John Kania & Mark Kramer (Stanford Social Innovation Review, Winter 2011, online at https://ssir.org/articles/entry/collective_impact),

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that their own interests will be treated fairly, and that decisions will be made based on objective evidence and the best possible solution to the problem, not to favor the priorities of one organization over another.

- “Backbone” Support Organization: Since coordination takes time and (according to interviewees) none of the participating agencies has much time to spare. This might best be addressed by a combination of upstream and downstream entities.
6. If the responsible agencies decide not to pursue a collaborative effort at this time, each individual entity should (and will) continue fulfilling its mandates and responsibilities. However, instead of operating in a vacuum or in separate silos, the work occurring throughout the entire system (e.g. dredging, diking, engineered structures, planning, restoration, economic development initiatives, research and monitoring) can be enhanced by establishing an informal or working Spirit-Toutle-Cowlitz Forum or other open avenue for communication and coordination. Such a forum could provide opportunities for information-sharing, joint project staffing and/or funding, increased social capital, and multiple other benefits.

X. CONCLUSION

Based on the input of the interested and affected parties interviewed, this report recommends convening a multiparty collaborative group to discuss launching a multi-year consortium to identify common interests and specific solutions to address challenges—both those identified to date and any that emerge. The consortium could at a minimum create mechanisms for interagency coordination, communication, resource-pooling (where appropriate), and begin to discuss long-term sediment management collectively. It will be important to establish shared understanding of the involved agencies’ mandates, missions, and jurisdictions to serve as a foundation for generating and agreeing on management actions or priorities.

As many respondents mentioned, a skilled, experienced, neutral entity would play an important role in facilitating this type of collaborative process. Private firms, nonprofits, individual practitioners, and university programs such as the Ruckelshaus Center could meet this need. Though not directly asked, multiple respondents stated support for the Center playing a facilitation role.

The William D. Ruckelshaus Center is pleased to submit this report to the Forest Service and for interested parties to consider, and hopes these results help decisionmakers determine whether and how to proceed with a collaborative process—including potential issues, outcomes, challenges, participants, design, and facilitation—as well as alternative ways to proceed if a collaborative process is not pursued. For any questions, please contact the Center at ruckelshauscenter@wsu.edu, (206) 428-3021 or (509) 335-2937.

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Appendix C: Interview Guide

WASHINGTON STATE UNIVERSITY

THE
WILLIAM D. RUCKELSHAUS CENTER

UNIVERSITY OF WASHINGTON

**Assessment Process and Interview Questions:
Spirit Lake / Mount St. Helens Assessment Interview Guide**

Background & Introduction

To address the ongoing risk of moderate and potentially catastrophic flooding in the Spirit Lake and Toutle River system, the U.S. Forest Service has asked the William D. Ruckelshaus Center (the Center) to conduct a situation assessment. A situation assessment consists of a series of confidential interviews with interested and affected parties to gather information to design an effective collaborative process. This work lays needed groundwork toward fulfilling the recommendation by the National Academies of Science, Engineering, and Medicine (NASEM) to create “a system-level entity or consortium of agencies to lead a collaborative, multi-agency, multi-jurisdictional effort that can plan, program, create incentives, and seek funding to implement management solutions focused on the entire Spirit Lake and Toutle River system.”

Assessment Process Information

- The Center is a joint program of Washington State University and the University of Washington with the mission to foster collaborative public policy in Washington and the Pacific Northwest.
- This interview is one of a number being conducted with a diverse set of entities as part of a situation assessment with interested and affected parties. The assessment is neutral—neither the Center nor the interviewers have a stake in the outcome.
- Participation is completely voluntary. You can choose at any time during the interview to decline to answer a question or end the interview.
- After we complete the interviews, the findings will be summarized in a report articulating major issues, involved parties and their interests and perspectives, & prospects for a collaborative process. The report will be made available to everyone who participated and other interested parties.
- Your responses will remain confidential: while the assessment report will include a list of who was interviewed and key themes from the interviews, specific statements will not be attributed to individual interviewees and no direct quotes will be used.
- These assessment questions have been reviewed by Washington State University’s Office of Research Assurances, which has determined that the study satisfies the criteria for Exempt Research (meaning it is exempt from needing further review by that office).
- Prior to proceeding with the interview questions, I want to confirm that you are willing to continue with this interview.

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Interview Questions

Background

1. Please tell us about your background and involvement with respect to long-term sediment management and related issues in the Spirit Lake / Toutle River system.¹²
2. Are you familiar with the NASEM report? It lists public safety as a top-priority issue. What other important issues come to mind for you and your organization in considering the Spirit Lake / Toutle-Cowlitz River system and its drainage basin?
3. What are your organization's interests related to those issues?
4. Looking at the whole Spirit Lake / Toutle River watershed and all its communities, how will you know the management of sediment and related issues has been successful? (75 years ...)

Potential for using a collaborative approach to create a system-level consortium or entity

In a typical collaborative process, stakeholders are brought together as a group to share perspectives, define issues, identify interests and common ground, generate options for addressing issues, and seek agreement.

5. Do you agree with the NASEM recommendation to create a system-level entity or consortium of agencies that can plan, program, create incentives, and seek funding to implement management solutions focused on the entire Spirit Lake and Toutle River system?
 - 5.A. If not, what other constructive steps forward do you suggest for addressing flood risks and other identified issues?
 - 5.B. If so, who is appropriate to convene a collaborative process toward creating such a consortium? Would you or your organization be interested in participating?
6. What entities should be involved?
 - 6.A. What should the scope be – what issues should be addressed by a system-level entity or consortium? [If these areas were addressed, what outcomes would you see?]
 - 6.B. Are there matters or issues that should *not* be addressed in a comprehensive examination of related policy?
7. What challenges do you see to creating such an entity or consortium? What suggestions do you have for successfully addressing those challenges?
8. Is there common ground on key issues or are there any policies that you think would meet multiple interests? [How would other interested parties in the region be affected by those approaches/outcomes?]

¹² NASEM report terms this: "...long-term management of risks in light of the different economic, cultural, and social priorities of regional stakeholders and the respective roles of federal, tribal, state, and local authorities, and other groups in the region."

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9. What do you think about the scientific and technical information that would be needed to develop a long-term management framework on the relevant issues and concerns? Do you think it makes sense to involve an impartial state-level entity to assess the available information and commission further information-gathering?
10. Do you have any ideas for funding or other resources available to support a collaborative process?

Wrap-up questions

11. Is there anyone else you think we should be interviewing? Why is it important to speak to him/her?
12. What should we have asked that we did not? Do you have any questions for us?

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Appendix D: Interviewee Names and Affiliations

Name	Sector	Affiliation(s)
Baecher, Gregory	Academia	NASEM, University of Maryland
Thorne, Colin	Academia	University of Nottingham
Grant, Gordon	Federal Government	Pacific Northwest Research Station, USFS
Brice, Kevin	Federal Government	U.S. Army Corps of Engineers, Portland District
Turaski, Mike	Federal Government	U.S. Army Corps of Engineers, Portland District
Darden, Christy	Federal Government	Pacific Northwest (Region 6) Regional Office, USFS
Renteria, Rene	Federal Government	Pacific Northwest (Region 6) Regional Office, USFS
Thomas, Amy	Federal Government	Pacific Northwest (Region 6) Regional Office, USFS
Bishop, Duane	Federal Government	Gifford Pinchot National Forest, USFS
King, Michelle	Federal Government	Gifford Pinchot National Forest, USFS
Olson, Dave	Federal Government	Gifford Pinchot National Forest, USFS
Owens, Gina	Federal Government	Gifford Pinchot National Forest, USFS
Ripp, Sue	Federal Government	Gifford Pinchot National Forest, USFS
Strebis, Chris	Federal Government	Gifford Pinchot National Forest, USFS
Major, Jon	Federal Government	Cascade Volcano Observatory, USGS
Crisafulli, Charlie	Federal Government	Pacific Northwest Research Station, USFS
Swanson, Fred	Federal Government	Pacific Northwest Research Station, USFS, retired
Moran, Seth	Federal Government	Cascade Volcano Observatory, USGS
Perkins, Dwight	Federal Government	Federal Emergency Management Agency
Anderson, Paul	Federal Government	Pacific Northwest Research Station, USFS
Hausmann, Tom	Federal Government	National Oceanic and Atmospheric Administration
Hecht, Scott	Federal Government	National Oceanic and Atmospheric Administration
Vorse, Dave	Local Government	City of Castle Rock
Manlow, Steve	Local Government	Lower Columbia Fish Recovery Board
Gardner, Joe	Local Government	Cowlitz County Commissioners
Swanson, Axel	Local Government	Cowlitz County Commissioners
Youngquist, Van	Local Government	Cowlitz County Commissioner, retired
McKay, Van	Local Government	City of Kelso
Blain, Amy	Local Government	Consolidated Diking District, Number 1
Strayer, Judi	Local Government	Consolidated Diking District, Number 1
Haubner, Steve	Local Government	City of Longview
Schnabler, Ernie	Local Government	Cowlitz County Dept. of Emergency Management
Hendriksen, Lisa	Local Government	Port of Longview
Fashing, Bill	Local Government	Cowlitz-Wahkiakum Council of Governments
Yurkewycz, Ray	Non-Governmental Organization	Mount St. Helens Institute
Budine, Nicole	Non-Governmental Organization	Cascade Forest Conservancy
Little, Matt	Non-Governmental Organization	Cascade Forest Conservancy
Crayne, Brice	Non-Governmental Organization	Lower Columbia Fish Enhancement Group
Powell, Blain	Private Land Owner	Weyerhaeuser
Smith, Mark	Private Land Owner	EcoPark Resort
Duff, Rob	State Government	Governor's Office

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Orcutt, Ed	State Government	20 th District, Washington Legislature
Howe, Dave	State Government	WA Department of Fish & Wildlife
Kingsbury, Lori	State Government	WA Department of Ecology
Graber, Craig	State Government	WA Department of Ecology, retired
Ogden, Steve	State Government	WA Department of Natural Resources
Wisch, Eric	State Government	WA Department of Natural Resources
Aalvik, Taylor	Tribal Government	Cowlitz Indian Tribe
Iyall, Bill	Tribal Government	Cowlitz Indian Tribe
Reynolds, Nathan	Tribal Government	Cowlitz Indian Tribe
White, Erik	Tribal Government	Cowlitz Indian Tribe