



Trees To Tap: Forest Management and Community Drinking Water Supplies



December 13, 2018

To: Ms. Erin Isselmann, Executive Director, Oregon Forest Resources Institute

From: Dr. Jon A. Souder, Principal Investigator

Subject: Progress Report #2 and Request for No-cost Project Extension

Project Progress Report #2. In our Progress Report #1 on May 17, 2015 we outlined our accomplishments in establishing the Steering Committee, identifying priority topics for the Science Review, creating the Literature Matrix, developing the screening criteria, and crafting the report outline. In addition to that report, we have accomplished the following tasks related to the project:

1. **Science Review.** Based on a consensus of the Steering Committee, and approval by OFRI, the Trees To Tap science review is focusing on four attributes in source watersheds for the Science Review, in ranked order: 1st, sediment and turbidity; 2nd water quantity; 3rd forest chemicals; and 4th natural organic matter (NOM) and disinfectant by-products (DBP). Since Progress Report #1, we've:
 - Finalized Literature Review Matrix. The latest version includes 739 publications in 18 different categories. The bulk of the references were found through our structured search process; Steering Committee members also had the ability to suggest articles and publications. We tried to be inclusive in this list, recognizing that there was a criteria to determine which ones were relevant for the reviews. This is the basic resource that the two Science Reviewers will rely upon for their analyses. Any additional publications included by the reviewers will be added to the Literature Matrix. Summaries of publications used in the review will be extracted from the Literature Matrix for Appendix B.
 - Chapter 5, Water Quantity, draft was completed on November 5, 2018 and provided to the Steering Committee for their review. To date, we have received comments from four Steering Committee members that will be incorporated into the final draft.
 - Unfortunately, due to the reviewers' teaching loads in the Fall, 2018 quarter (some of which were unanticipated when the project was initiated), progress has been slower than desired. We will outline a schedule below that represents our best estimate on when the other three chapters for the science review will be completed.
2. **Water Provider Survey, Case Studies, and Atlas.** Progress Report #1 discussed our methodology and the survey launch on May 5, 2018. Since that report:
 - Received a total of 54 responses to the survey, including 13 elicited through targeted phone calls after the initial returns proved insufficient.
 - Prepared two drafts of the survey results, one for review by the Trees To Tap team, with a revised draft provided to the Steering Committee on October 10, 2018.

- Comments on the Survey Results received from the Steering Committee at their November 19, 2018 meeting were incorporated, and pertinent findings moved into Chapter 3 format.
- Field interviews for all three Case Studies (Oceanside, Ashland, and Baker City) have been completed. Oceanside and Ashland write-ups have been completed and approved by those interviewed. Baker City interviews were held on December 10th, with the initial write-up expected by December 15th.
- For the Provider Atlas, we have identified two sources that provide information on the extent of forest land cover changes from 1980 – 2017. One source, “High-Resolution Global Maps of 21st-Century Forest Cover Change” has just basic information on the changes, not their cause. The second source, Landtrendr, currently has forest cover change data from 1990-2012 with causes (harvest, fire, insect and disease). We’re in discussion with the program manager for Landtrendr to see whether they can update the coverage within our time and budget.

3. **Steering Committee Activities.** The Steering Committee has met five times, twice after our Progress Report #1. At Meeting #4 on June 27, 2018, the Committee:

- Discussed the final Literature Search Matrix. Consensus of the Committee was that the Matrix itself would be a good resource beyond just this project, and that we had sufficient literature to begin the review.
- Revisited the filtering criteria for which documents will be suitable for inclusion in the review, and confirmed the hierarchy of peer-reviewed articles and peer-reviewed agency reports, with a geographic focus on the Pacific northwest.
- Discussed the problem of low response rate for the community water provider survey. Committee recommended focusing on the 20 systems with highest percentage of industrial private timberland, 20 with highest percentage of 32 publicly-owned land, and ten owned by local governments.
- Reviewed the draft template for the Water Provider Atlas. Clarified that no new information will be developed for the Atlas, just compiling existing data. Identified potential sources of information on forest land cover changes.

At its last meeting on November 9, 2018, the Committee:

- Emily Jane Davis presented the second draft of the Community Water Provider survey results. There were some useful recommendations for additions and emphases from the survey to include in the overview of water providers in Chapter 3.
- Dr. Davis also presented and discussed two of the three case studies (Oceanside and Ashland) that had been conducted. The third case study, Baker City, will be done on December 10, 2018.
- Jeff Behan presented his draft of the policy context, and elicited feedback on the extent and desired focus.
- The Steering Committee also reviewed the draft of Chapter 5 (Water Quantity). One recommendation that will be incorporated into the final analysis is to clarify which systems are likely to be most affected by changes in hydrology that might result from forest management activities, i.e., size, capacity, and location. This recommendation will be incorporated into Chapter 3 context discussion, and then used in the analyses for the Science Review chapters.

4. **Coordination With Other Source Water Protection Efforts.** Through Steering Committee members and other contacts, we realized that there are a number of other efforts in Oregon whose goals are to protect source water. We have joined in a number of these in order to outreach to the water utilities and coordinate efforts to avoid duplication, especially competing water provider surveys.
- Coordinated with the Willamette Future Project/ Willamette Drinking Water Utilities Group that is concerned with protecting drinking water sources in the Willamette basin. While their focus is on agriculture, stormwater, and emergency spill response, there is considerable interest in forest management activities as well. I presented an overview of the Trees To Tap project at their meeting in Salem on May 5, 2018, and a summary of the Community Water Provider Survey results at their meeting in Salem on October 11, 2018.
 - Worked with Bob Parker at the University of Oregon Community Service Center who conducted a survey of Willamette basin Community Water Utilities to craft survey questions and schedule our surveys to avoid competing and overwhelming the local utilities.
 - Coordinated with Working Waters Program (<https://workingwatersgeos.org/>) to publicize the Trees To Tap program at their Source water Protection Workshops in Roseburg (May 23, 2018) and Tillamook (December 12, 2018).

Anticipated schedule.

| Chapter | Draft | Final |
|---|----------------|------------|
| 1. Introduction and Context | 1/30/2019 | 3/15/2019 |
| 2. Methods | 1/30/2019 | 3/15/2019 |
| 3. Community Drinking Water Systems in Oregon (inc. Survey) | 1/30/2019 | 3/15/2019 |
| 4. Active Forest Management and Community Water | 1/30/2019 | 3/15/2019 |
| 5. Water Quantity | Out for Review | 3/15/2019 |
| 6. Sediment and Turbidity | 2/15/2019 | 3/29/2019 |
| 7. Forest Chemicals | 12/30/2018 | 2/15/2019 |
| 8. Natural Organic Matter (NOM) and Disinfectant Byproducts (DPB) | 12/30/2018 | 2/15/2019 |
| 9. Case Studies | 12/30/2018 | 2/15/2019 |
| 10. Findings and Conclusions | 4/12/2019 | 5/17/2019 |
| 11. Information Gaps and Needs | 4/12/2019 | 5/17/2019 |
| Appendix A. Summary Report on Drinking Water Provider Survey | Out for Review | 12/30/2019 |
| Appendix B. Atlas of Drinking Water Providers | 3/1/2019 | 3/29/2019 |
| Appendix C. Summaries of Literature Cited in Science Review | 3/1/2019 | 3/29/2019 |
| Appendix D. Staff and Steering Committee Biographies | 1/30/2019 | 3/1/2019 |
| Appendix E. Comments Received on Draft Report | 4/12/2019 | 5/17/2019 |
| Final Formatting and Document Production | 6/1/2019 | 6/30/2019 |