

Molalla River Drinking Water Source Quality Assessment

Understanding community perceptions of drinking water source risks and voluntary conservation programs in the Molalla River Watershed



January 2020

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For the Clackamas Soil and Water Conservation District

Introduction

This report summarizes a recent study engaging community stakeholders as part of the Clackamas Soil and Water Conservation District (Clackamas SWCD) Water Quality Assessment Project in the Molalla River Watershed (MRW). The goal of this research is to help determine best practices for protecting drinking water for residents of Canby, Molalla and Colton and unincorporated areas of Clackamas County within the MRW. Community engagement in this study is with rural residential landowners, with the aim of increasing understanding about (1) concerns and perceived risks and vulnerabilities to water resources in the MRW, (2) how rural community members access information, and preferred modes of communication from agencies and organizations, and (3) past participation in voluntary conservation programs, and opportunities and barriers for future participation. Responses from the interview participants will help inform the Clackamas SWCD as they develop outreach and engagement goals with community members in the MRW in order to improve water quality throughout the entire watershed.

Research Approach

Erin Upton conducted in-depth, semi-structured interviews with voluntary participants living in the MRW. All participants own properties and reside in rural areas of the watershed that are not connected to municipal water supplies or wastewater services. A total of 17 individuals participated in interviews, representing ownership of 15 properties. Interview questions were developed in partnership with the Clackamas SWCD (refer to Appendix A for the interview guide). Recommendations and assistance in community outreach from local agencies and organizations¹ helped secure participation from rural landowners. In addition research participants made recommendations for outreach to neighbors and other members of their community. All interviews were conducted by phone, with names or identifying factors of participants remaining confidential.

Rural Residential Landowners in the Molalla River Watershed

All properties included in the study are the primary residence of interview participants. The duration of ownership of the properties ranges from recent acquisition in the fall of 2019, to study participants living on their properties for over 35 years. Ten of the interview participants identify as female and seven identify as male. Property owners represent both retirees and people currently working. All of the working participants commute to work by car to areas near the

¹ Clackamas County Farm Forestry Association, Hopkins Demonstration Forest, Molalla Community Planning Organization, Molalla River Alliance, Molalla River Watch, Native Fish Society, Oregon State University Agriculture Extension, USDA Natural Resources Conservation Service

cities of Molalla and Canby, but also Wilsonville and as far away as Albany, Oregon. Two participants work from home caring for children.

Study participants shared why they chose to live in rural areas in the MRW and the qualities they find most attractive about their properties. Seven participants own properties on the Molalla River, and all stated that they chose their properties because of the benefits of living near the water, including sleeping with windows open to hear the flow of the water, enjoying the river views from windows in their homes, and recreational activities on the water like regular swimming and fishing. A number of residents are attracted to the rural characteristics of the MRW, and found property prices affordable in the area at the time they were looking to buy. Many participants stated that a major motivator is the privacy they experience living in a rural and more secluded area. A few participants chose the area because of the proximity to jobs in Wilsonville and Molalla, while still being able to enjoy a rural life. A few landowners grew up in the country and were seeking a similar lifestyle, while others relocated from urban areas in Portland and in California and were looking for a lifestyle change. One participant was the recipient of a USDA rural home loan, so needed to find a property in the area. One resident desired flat, rural property in order to eventually be able to farm. A number of residents valued seeing wildlife, and quite a few wanted properties where they could work to restore the land back to a more sustainable, natural state.

Description of Rural Residential Properties

All landowners participating in the study access their drinking water from private wells, and have individual septic systems established and maintained on their properties to handle wastewater. The rural residential properties range widely in size from the smallest lot at ½ acre to the largest holdings of 150 acres. Seven properties are located along the banks of the Molalla River. Eleven properties have areas described as wooded or forested and two properties are used for farming activities. Table 1 provides an overview of the 15 properties owned by the 17 study participants and includes property size, the presence or absence of surface water, a brief property description, and a short list of activities undertaken on the property.

Table 1. Property size, presence of surface water, property description, activities on the property

Size	Surface water	Property description	Activities
0.5 acres	Creek across the road	Open property, adjacent to heavily wooded area and small hobby farms	Native landscaping & vegetable gardening
1.5 acres	On the Molalla River	Heavily wooded	Fishing and swimming in the river

1.5 acres	Creek across the road	A section of the property is wooded, the rest is open	Vegetable gardening
2.5 acres	No surface water on the property	Flat, open land, a former nursery with a few trees on the perimeter	Small scale vegetable gardening
2.5 acres	No surface water on the property	A sloping property with a rocky ridge	¼ acre vegetable garden
3 acres	Molalla River and a tributary creek on property	Wooded lot that was partially logged in the past	Replanting and restoring trees, removing invasive ivy and blackberry, kayaking and swimming in the river
3 acres	No surface water on property	Mostly wooded with 20-30 year old evergreen trees	Gardening, four wheeling for grandkids
4.3 acres	On the Molalla River	Partially wooded with riparian plantings	Vegetable and ornamental gardens, swimming, fly fishing, boating, rafting and kayaking
5.5 acres	No surface water on property, but adjacent to a neighbor's property with a stream	Flat farmland, formerly a Christmas tree farm, some large shade trees on the property	Part of the property is leased to another farmer for growing hay, owners have vegetable garden, hazelnut and fruit trees, keep sheep, chickens and rabbits
6 acres	On the Molalla River	The property has a rocky ridge, pasture and woodland	Vegetable gardening, fishing and swimming
20 acres	Seasonal springs, wet meadows, and a creek	Half the property is woodland with mature hardwoods, reforested with evergreens, half the property is fields	Keeps a horse, lots of land restoration efforts through replanting and controlling invasive plant species

24 ¼ acres	On the Molalla River	Former farm fields, riparian area, oak woodland, and small woodlot	Mostly ecological restoration projects
42 acres	An ephemeral shallow pond in winter	Two oak stands and mostly hay fields	Keeps horses, chickens, and bunnies, farms hay
150 acres	On the Molalla River	Pastures, hay fields and woodlands	Raises cattle and hay, restoration projects on the oak woodland
150 acres	On the Molalla River, with six ponds and a number of side channels	Woodland	Large garden and orchard, small logging projects, riparian plantings, swimming and fishing

Landowner activities

Most participants garden on their properties, including ornamental landscape plants, vegetables, fruit, fruit trees and hazelnut trees. A number of landowners have an interest in landscaping with native plants. Five landowners mentioned that they are committed to organic practices on their properties. A few landowners cannot garden because they have very shady properties with many trees. Recreational activities include kayaking, swimming, and fishing on the Molalla River and four wheeling. Four participants keep small numbers of animals, including chickens, rabbits, sheep, goats and horses. One resident has a larger farming operation with cattle. Two participants grow hay crops on their properties. A number of landowners manage the wooded areas on their properties, including selective tree removal, removal of invasive plant species, and tree planting, with the primary aim of maintaining forest health. A small portion of one property was recently logged to provide income for the landowners to purchase an adjacent parcel of land.

Future plans

Half of the participants do not have any plans to change what they are doing with their property. Other property owners have ideas for rain gardens, installing ponds, creating vegetable gardens, planting berries, and getting larger animals like cows and horses. A number of landowners have restoration projects in mind to start or continue, including creating pollinator habitat, restoring a lake and removing non-native or invasive plants and grasses. One landowner wants to begin to

grow their own hay in their fields for their animals. Two residents plan to sell their properties in the near future, but both want to remain in the area. Another couple with a larger land holding plans to sell a portion of their property zoned Ag/Forest in the near future.

Surface Water

Five participants have no surface water bodies on their properties, although a few live near *creeks* on neighboring properties or across county roads from their properties. Two properties have *agricultural drainage ditches*. Seven participants have waterfront properties on the *Molalla River*. A few properties have *creeks or side channels* from the Molalla River. Two participants mentioned observing fish runs in the creeks. One creek changed course due to a beaver dam. One landowner has two *natural springs* on their property that mostly flow in the winter and spring. Another landowner reported a *seasonal spring and wet meadows* on their property in winter months. One property has six *ponds*, four of which exist year-round, and two ephemeral ponds that are present in wetter months. One property had a constructed pond that the owners opted to fill in when they bought the property. Another property has one naturally occurring pond, and one land owner described a “*large puddle*” that appeared every winter that is approximately 1500sf.

Surface water quality concerns

Some concerns regarding water quality include activities taking place on neighboring or nearby properties. One resident has concerns about logging operations upriver from their property, on private industrial forestry land. They express worries about how changes to the land cover will impact river flows and potentially lead to erosion downstream on their property. One landowner is concerned about water quality on their property due to upstream activities on a neighboring property, where the neighbor has approximately two dozen passenger vehicles and six RVs parked permanently in disrepair in and around wetlands and creeks. This neighbor also has cattle that walk freely through the creeks and wetlands. One participant noted concern for water quality from observing a large number of trucks transporting agricultural chemicals for farming in the area. One resident wants to remove a large amount of tires from a creek on her property that were put there by previous owners for bank stabilization.

Water quality in the larger region is a concern for a number of residents. A number of participants expressed concern about the City of Molalla wastewater treatment plant. These concerns included issues with effluent releases, infrastructure that is overcapacity, and potential harmful impacts on the river for recreation, human health, wildlife habitat and drinking water for the City of Canby. One participant is concerned about the potential of microplastics and pharmaceuticals released into the river from the treatment plant, and stated the lack of resources to upgrade infrastructure as a pressing problem for the region.

Surface water quantity concerns

With regards to surface water, flooding is a concern for four residents. Two property owners are concerned due to bank erosion and the location of their homes in the floodplain, and one from beaver dams on a creek on the property. One homeowner was advised to plant willow, but didn't want to obstruct the views to the river from their home. Two property owners were concerned about up-river channelization of the river banks due to bank stabilization projects (riprap) in past decades following damaging floods. The concern is how the river is eroding their unprotected/natural river bank on their downstream properties. One landowner has lost 100-150 yards of land along the river from erosion in the past few years, and is quite concerned. Another property lost 10 acres of riverbank property in the 1996 flood, but the landowners also learned from that flood the least vulnerable places to build structures on their property. These residents also expressed concern about the lack of knowledge among neighbors, who do not understand how the riverbank treatments they deploy on their properties can have negative impacts on downstream neighbors.

Groundwater

All residents access drinking water from a private well on their property. One property has two wells, but only one is in use. Nine property owners use their domestic well for landscape irrigation. One resident only uses well water as irrigation for establishment of new tree plantings in the woodland area on the property for a duration of two years. Most residents have no concerns with their well water, quantity or quality.

Groundwater quality concerns

There were few complaints reported regarding drinking water quality from wells. Most participants stated they have no issues with their well water. Three landowners mentioned issues with high iron content, and one participant reported deposit build ups on their faucets. Two residents have issues with sulfur odors. One participant has concerns about microplastics and pharmaceuticals in their drinking water, but has not done tests for these contaminants at present. One landowner has issues with coliform bacteria and has installed an ultra-violet filter system to deal with it. Another landowner participated in a voluntary testing program with the Oregon Department of Environmental Quality a few years ago and found her well water to be high quality with no contaminants.

Groundwater quantity concerns

Two participants have had water quantity issues. One landowner recently experienced low water levels in their well in the summer when they were irrigating their garden. They stated the possibility that a new well put in by a neighbor may be impacting the amount of water available in their well. A second landowner expressed concern about future impacts to water quantity for their well from the development of a new cannabis operation on a neighboring property, but has seen no indication of impacts to her aquifer so far. One landowner wasn't getting enough water

from their original well, so had to drill a new, deeper well into a different aquifer. Responses of well depths varied, some were drilled to 120 feet, while another went down to 450 feet.

Additional Concerns for Land or Natural Resources in the Molalla River Watershed

Wildfire

A number of participants expressed some concerns about wildfire, particularly from residents who live on or adjacent to wooded properties. One property owner maintains a hose along the property line by the road in case someone tosses a lit cigarette from a car window. One owner had experienced a small fire on a neighboring property last summer, and a second owner had neighbors negligently start a fire that spread on to his property when they used flame weed removal tactics. Another owner worries that insurance policies will require the removal of trees on his property due to potential wildfire risk. One landowner is concerned about fire and the location of their property, because the fire chief has informed them that their house is inaccessible to fire trucks.

Vegetation

Concerns about vegetation include a lack of riparian vegetation for creeks along roadways, future reduction of habitat for wildlife in the region, and invasive plants on resident's properties like English ivy and Himalayan blackberry. One resident is concerned about the health of the woods. Two study participants expressed concern about dying Western Red Cedar trees on their properties. They think the die off is possibly from drought, which is weakening the trees and making them susceptible to pests.

Logging operations

A number of participants expressed concern about potential harmful outcomes from logging operations in the area. Some residents are concerned about low flow in the river in recent years. One landowner wondered if it was related to large amounts of logging in the region.

Visitors

Another concern was the potential negative impacts from the increase in recreational visitors to the MRW, especially following the Molalla River's Wild and Scenic designation. There are very few resources to police or monitor harmful or dangerous human activities in the "corridor" in the upper watershed, which is quite remote.

Other

A number of participants have concerns about the lack of suitable habitat for anadromous fish in the river due to increases in temperature and low flows. Climate change is a concern for

increased risk of wildfire and the decline of fish habitat. Others are worried about the loss of farmland with zoning changes and increased residential development in the Canby area. Two landowners are concerned about the long term outcomes for their properties because of the lack of conservation easement opportunities for small scale landowners in the region. Five participants responded that they have no additional concerns for natural resources in the area.

Landowner Engagement

Table 2. Methods for accessing information and number of responses

Newsletters or email	10
Community group participation/ attend meetings	8
Social media including Facebook	7
Online searches/ websites	6
Newspaper	4
Local television	2
Public radio	1
Word of mouth	1
<i>Preferred mode of communication</i>	
Direct mail	7
Social media	5
Email newsletters	4
Community groups/ attend meetings	4
Local news	1
Independent research online	1
Newspaper	1
Phone	1
Doesn't care to receive any information	1

Interaction with Agencies, Organizations or Groups

The majority of study participants have interacted with agencies, organizations or groups regarding their properties in various capacities. Most interactions were to gather information or advice about restoration projects for meadows, amphibian habitat, woodlands, native plants, bluebird habitat, oak stands, and riparian areas. Others reported interacting with various Clackamas County departments regarding zoning, building permits, septic system permits and tax assessment. Two participants have not had any interactions with agencies, organizations or groups; one stating clearly that he prefers it that way. Table 3 lists the agencies, organizations or

groups that have served as sources of information for participating landowners, as well as those with which they have had personal interactions.

Study participants shared what types of activities on their properties they would find technical assistance or funding helpful. Four landowners stated they would benefit from assistance in bank stabilization and erosion control along waterways. Four landowners could use help removing and controlling invasive plant species on their properties, including English ivy, reed canary grass, Himalayan blackberries and Parrot feather. There is also interest in assistance in landscaping with native plants. Two landowners who have completed extensive restoration projects on their properties are interested in assistance developing long term conservation plans. Other participants could use assistance with farming activities, including berry farming, canning and preserving, improving pasture health, composting and improving soil quality.

Table 3. Agency, Organization or Group Mentions

Agency, Organization or Group	Participants have accessed information from this source	Participants have interacted with this source regarding their property
1000 Friends of Oregon	x	
Bear Creek Recovery	x	
Canby Podcast	x	
Cascade Group		x
Clackamas County	x	x
Clackamas Soil and Water Conservation District	x	x
Columbia River Keepers	x	
Facebook group “Molalla Now”	x	
Friends of Trees		x
Molalla Basin Council/ Molalla River Watch	x	x
Molalla (City of)	x	
Molalla Pioneer Newspaper	x	
Molalla River Alliance		x
Native Fish Society	x	
Natural Resources Conservation Service		x
National Wildlife Federation Backyard Habitat Program		x
Oregon Department of Environmental Quality	x	
Oregonian Newspaper	x	
Oregon Department of Forestry		x
Oregon Department of Fish and Wildlife		x
Prescott Bluebird Recovery		x

Pudding River Watershed Council	x	
United States Department of Agriculture	x	
United States Forest Service	x	
Willamette Riverkeepers	x	
Xerces Society		x

Participation in Conservation Programs

Have participated

Five landowners have participated in voluntary conservation programs on their properties. Project descriptions and outcomes include:

1. Participated in a local watershed council program. Funding, advice and labor in restoration planting and ivy removal on their property. The landowner approached the Molalla River Watch with hopes of getting advice about removing invasive ivy on the property. They benefited from the programs by receiving assistance with labor in removing ivy, and help with a grant to fund riparian tree restoration on their property.
2. Participated in conservation projects for riparian areas with the Clackamas SWCD. The landowner sought out the program. A desire to do conservation projects was one of the motivating factors for purchasing the property. The only barrier was the large amount of required paperwork. This landowner stated that he loved working with the Clackamas SWCD.
3. Participated in projects with the USDA Natural Resources Conservation Service. These included Oak habitat conservation, a fencing project to keep his cattle out of the river, and a pasture enhancement project. All of these projects were very successful. This landowner also sought assistance from the Molalla River Watch with erosion control, but lack of follow through from the organization left him feeling frustrated.
4. Participated in the Clackamas SWCD Oak Conservation program. This property owner received a mailer about the program and followed up. They have a conservation plan and they have removed Hawthorne trees and invasive species. The plan includes mowing, planting native bulbs and spraying. The landowner is very happy with the project, and would be very open to participating in other programs. The largest barrier they encountered was the tax liability. They were unaware when they began the program that project funding would be considered personal income tax, which came as a big bill and a surprise. They encountered a few barriers with signing documents online, but the overall process was a positive experience.

5. One landowner participated in the Oregon Department of Fish and Wildlife Riparian Lands Tax Incentive Program and had a positive experience.

Have not participated

Twelve landowners (representing 10 properties) have not participated in voluntary conservation programs on their properties. Two responded that they have never been approached to participate and would not be interested in doing so in the future. One did not think any program would be an appropriate match for his property. The other participant did not think it would be of any benefit to him or anyone else for him to do anything different in the management of his property. One property owner recounted receiving a mailer about a septic system workshop, but did not choose to participate because they were not having any pressing issues with their septic system. Eight landowners responded that they have not participated in any conservation programs because they have never been approached to do so, but would be open to it in the future. Some potential barriers to their participation may include time commitments, costs, the paperwork involved, and opposition to spraying chemicals for weed control.

Conclusion

The study finds that participating rural residential landowners are open and interested in learning more about voluntary conservation opportunities for their properties. These residents have few concerns regarding drinking water quality or quantity from their private wells, but they have many concerns for surface water quality on both on their private properties and in the greater MRW. Participants share concerns about water quality for recreational pursuits like swimming, but also for fish habitat health and access to clean drinking water for nearby municipalities. Many residents residing along the Molalla River express a desire for improved education about riverbank management practices, in order to live harmoniously with the fluctuations of the natural river system while also preventing flooding and erosion. A number of study participants desire to control invasive plant species on their properties, particularly using methods that will not negatively impact water quality. Residents are also interested in the development of smaller scale conservation easement programs to help ensure the legacy of their restoration efforts. Email newsletters, websites, social media and direct mailings are the preferred ways residents want to engage with these issues, but there is also interest in participation in community groups. The study finds there are a number of existing agencies, organizations and groups who are currently connected to rural residents in the watershed. This highlights an opportunity to enhance partnerships with other organizations to increase outreach and engagement around protecting water resources with this important constituent group in the Molalla River Watershed.

Appendix A. Interview Guide

1. Can you please describe your property, including how many years have you lived in the area and if you rent or lease any of the land you own to others?
2. Can you describe why you chose to live where you live, and what qualities are the most attractive to you about your property (examples: privacy, wildlife, location, etc.)?
3. What kind of activities do you do on your land (examples: farm, garden, woodlot harvesting, recreation, etc.)?
4. Do you have any water bodies on your property, including streams, wetlands, or agricultural ditches, etc.?
5. How do you access water on your property and for which uses (examples: wells, streams, residential water use, irrigation, water for livestock, etc.)?
6. Do you have any concerns about water on your property, either quality or quantity, including drinking water?
7. Do you have any other concerns regarding natural resources in your area (example: wildfire risk)?
8. Do you have any plans to make any changes to what you are doing with your property in the future?
9. What are your sources for accessing information about local and regional issues?
10. What is your preferred mode of receiving information (examples: news outlets, social media, direct mail, phone, community groups, etc.)?
11. Are there aspects of your activities on your property that you would find technical advice, funding, or other assistance helpful? (examples: controlling erosion; hazardous material disposal, etc).
12. Do you interact with any organizations, institutions or government agencies regarding your land management practices? If so, which ones?
13. Have you ever participated in a conservation program on your land? If so which one (examples: federal program, state program, local watershed council program)?
 - a. If you have participated: (1) What were the driving factors in deciding to participate in a conservation program? (2) Have you noticed any benefits from participating in a conservation program? (3) Have you experienced any challenges related to participation?
 - b. If you have not participated: (1) Have you ever been approached or asked to participate? (2) If you were asked, but declined, what were the driving factors in deciding not to participate? (3) Were there any other barriers to participation? (4) Would you consider participating in the future? If so, what would have to change?