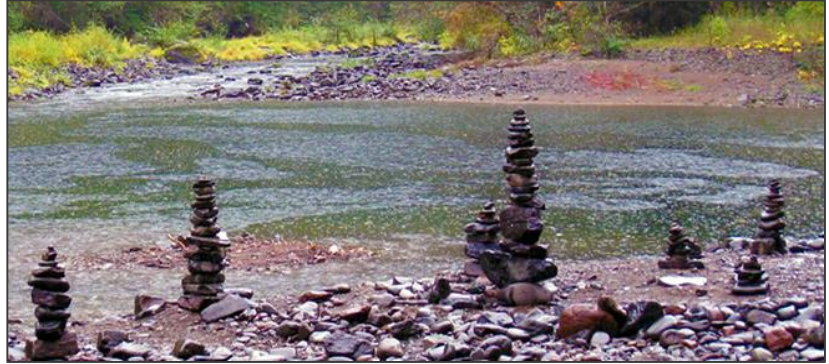


The 2015 Clackamas River Watershed Survey:

Landowner perspectives on watershed stewardship programs



PRELIMINARY DATA REPORT

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WITH SUPPORT FROM

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1. OVERVIEW

Between August and November of 2015, we conducted a survey of private forestry, agricultural, and residential landowners to investigate landowner interest in and preferences for watershed stewardship programs in the Clackamas River watershed, Oregon. This report presents a summary of findings from the survey.

Background

The Clackamas River is the center of a multi-use watershed characterized by a patchwork of agricultural, semi-urban, and public lands. Eight separate drinking water utilities rely on water from the Clackamas River to supply water to over 300,000 customers in Washington and Clackamas Counties. In 2005, an Intergovernmental Agreement for Joint Funding for Watershed Activities between these water utilities and Clackamas County Water Environment Services formalized collaboration for work on water quality and watershed related projects. In 2007, the Clackamas River Water Providers (CRWP) was formed as a central organization to implement these activities¹. In their 2010 Drinking Water Protection Plan, the CRWP outlined two primary goals for maintaining the Clackamas River as a high quality drinking water source:

- Identify, prevent, minimize and mitigate activities that have known or potentially harmful impacts on drinking water quality so that the Clackamas River can be preserved as a high quality drinking water source that meets human future needs and minimizes drinking water treatment costs.
- Promote public awareness and stewardship of healthy watershed ecology in collaboration with other stakeholders.

As one of several strategies to address these goals, the CRWP highlighted the need to work with commercial and small acreage rural landowners in a program to promote watershed stewardship. Key goals of a watershed stewardship program would include restoring or maintaining existing riparian zones and limiting inputs of nonpoint source pollutants² such as pesticides, fertilizers, and bacterial loadings into the water supply. This research project intended to reach out to private landowners to understand how to best work with this important population on watershed stewardship initiatives. The primary objectives of this research were to:

- Determine the interest level of watershed landowners for participation in a watershed stewardship program;

¹ The Clackamas River Water Providers (2010) Drinking Water Protection Plan for the Clackamas River

² Non-point Source Pollutant | a pollutant that cannot be attributed to a single source

- Evaluate potential features of a program that are likely to encourage enrollment;
- Identify key barriers to enrollment in watershed stewardship programs;
- Identify key differences between likely and unlikely program participants.

Most survey questions utilized a form of the Likert scale³ to inquire about current land management practices; perceived impact of land management on downstream water quality; perceptions of watershed stewardship programs; and overall interest in participation with a watershed stewardship program. The results of this survey are intended to provide practical insight into structuring a successful watershed stewardship program for the Clackamas River watershed.

Survey Sample

Landowners were considered eligible for the survey based on the following criteria:

- Property is outside of the Urban Growth Boundary
- Property is at least 2 acres in size
- Property has been zoned as agricultural, rural, or forestry land
- Property edge is within 100 feet from a stream
- Any nursery operating within the watershed, regardless of property size, was considered eligible

The survey was administered via mail and web to 1,031 landowners in the Clackamas River watershed. 72 surveys (6.5%) were returned as undeliverable, leading to an effective sample of 959. To enhance response rate, landowners were contacted four times from August to September via the Dillman Tailored Design Method, which included an initial postcard, followed up by a first round of surveys, a reminder postcard, and a second wave of surveys for non-respondents⁴. As of December 1, 2015, we received 275 valid responses – a 28.7% response rate (**Table 1**). Though response rate was lower than anticipated, it is not unprecedented for this population; a previous questionnaire of agricultural landowners in the watershed conducted by the Clackamas River Basin Council in 2013⁵ used the same methods and reported a 20.3% response rate.

³ Likert R (1932). A technique for the Measurement of Attitudes. *Archives of Psychology* 140:1-55

⁴ Dillman (2000). *Mail and Internet Surveys – the Tailored Design Method* (2nd ed.) New York: Wiley

⁵ Clackamas River Basin Council (2013). *Organic and Sustainable Farming Certification Report*

Table 1. Number of contacts and response rate of selected groups.

Group	No. Contacted	Response
Small acreage landowners (2-10 acres)	294	97 (32.7%)
Large acreage landowners (>10 acres)	585	165 (28.2%)
Nurseries	80	11 (13.8%)
Total	959	275 (28.7%)

Key Findings

A few key themes emerged common to most respondents. There was widespread agreement that functioning stream ecosystems are important for a clean water supply, and a majority of respondents stressed that they manage their land to protect environmental attributes such as open space, clean water, and wildlife. Respondents tended to agree that conservation programs can provide benefits to wildlife, and they expressed the highest interest in working with watershed stewardship programs to control invasive species on their property. Most respondents agreed that the best way to increase their interest in working with a watershed stewardship program would be to offer cash payments for watershed stewardship work, and to avoid long-term contracts or deed restrictions. However, we noted some key differences between respondents who stated that they would be likely to enroll in a watershed stewardship program, versus those who said they were unlikely to enroll.

Respondents who specified that they were likely to enroll in a watershed stewardship program...

1. *more frequently* expressed interest in working with a watershed stewardship program on riparian habitat and wildlife restoration goals.
2. *more frequently* expressed the belief that water pollution is bad for human health and perceived a relationship between land management practices and water quality. In particular, they *much more frequently* thought fertilizers, pesticides, and livestock impact water quality.
3. *more frequently* expressed belief that watershed stewardship programs have environmental and social benefits.

Respondents who specified that they were unlikely to enroll in a watershed stewardship program...

1. *more frequently* manage their land to enhance development potential or to manage a farm or timber business. Concurrently, they *less frequently* thought that conservation programs were compatible with their goals for their land.
2. *more frequently* perceived barriers to enrollment with a watershed stewardship program. In particular, they *much more frequently* expressed distrust in agencies or organizations that run these sorts of programs.
3. *more frequently* expressed concern that watershed conservation may lead to increased regulatory pressure.

The above trends suggest that, in general, respondents were concerned for water quality and expressed an interest in environmental stewardship, but they

differed in their attitudes towards watershed stewardship programs. **While most respondents were motivated to protect water quality through their own initiative in land management, unlikely program participants did not see the benefit of working with a watershed stewardship program to accomplish these goals.** Additionally, a lack of trust in the organizations and agencies involved in conservation programs played a key role in differentiating likely and unlikely participants. This sentiment is perfectly summarized by the following comment provided by a respondent:

"I believe that water quality is important to me, my children, and society. However, I strongly distrust agencies, especially fanatical environmental agencies that do not take into account cold hard financial realities. So any program would require building trust."

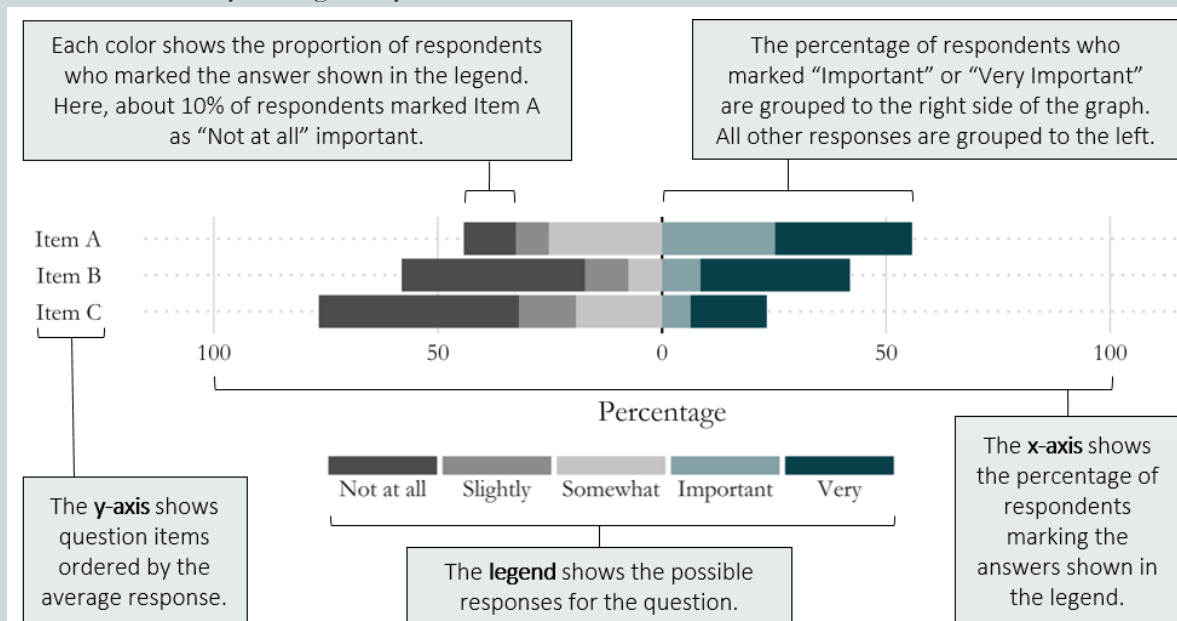
2. UNDERSTANDING THIS REPORT

This report graphically and numerically summarizes responses to all questions in the Clackamas River watershed landowner survey. For each question, we separate our respondents into three groups and compare these groups based on their overall interest in working with a watershed stewardship program (see “Respondent Grouping”, page 6). We leave interpretation of the data largely up to the reader, but we provide some comments written by survey respondents that exemplify common sentiments.

In some instances, we have slightly modified the wording of survey questions for presentation clarity – to see question items and data in their raw form, please see the survey attached in Appendix A. A summary of demographic data can be found in Appendix B, and the survey materials sent to the sample can be found in Appendix C. Any additional questions regarding the content of this report or methods of data collection may be directed to Matt DeAngelo (deangel2@pdx.edu).

Box 1. Interpreting Figures in this Report

To help understand the figures used throughout this report, we provide an example graph for a fictional question, “How important are the following items to you?” The **y-axis** separates out the different items for which we sought response, the **legend** shows the possible responses to each item, and the **x-axis** shows the percentage of respondents who chose each response. Respondents who answered affirmatively or very affirmatively (in this case, represented by “important” or “very important”) to an item are grouped together to the right of zero in shades of teal. Respondents who answered neutrally or negatively to the item were grouped together to the left in shades of gray. In the example below, about 54% of respondents answered affirmatively to Item A, whereas about 46% answered neutrally or negatively to that item.



3. RESPONDENT GROUPING

One of the driving objectives behind this research was to identify key differences between likely and unlikely watershed stewardship program participants. By understanding what differentiates a likely participant from an unlikely participant, water resource managers may target outreach efforts to address some of these key dividing issues, and watershed conservation programs may be designed to achieve higher enrollment.

To accomplish this, we asked a series of questions relating to a hypothetical watershed conservation program. Questions pertained to factors influencing land management decisions, perception of the relationship between land management and water quality, attitudes towards conservation programs in general, attitudes towards potential features of watershed conservation programs, perceived barriers to participation in watershed conservation programs, and beliefs about the need for watershed conservation in the Clackamas River watershed. These questions were designed to showcase the breadth of forms a watershed conservation program could take. Following these questions, we asked,

“Now that you know a little bit more about the potential features of a watershed conservation program in the Clackamas River watershed, how likely would you say you are to participate in such a program if the program was tailored to your responses above?” (Question 17)

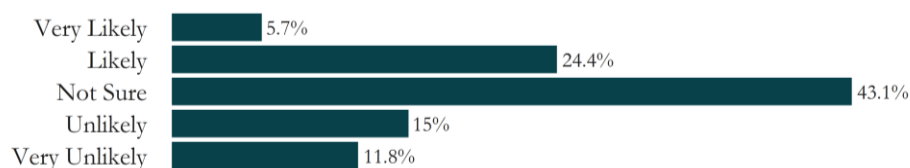


Figure 1. Respondents' (n=246) willingness to participate in a watershed conservation program.

To explore differences between likely and unlikely participants, we split our sample into three groups – the **Yes Group** (those who answered “likely” or “very likely”, n=74), the **No Group** (those who answered “unlikely” or “very unlikely”, n=66), and the **Maybe Group** (those who answered that they were “not sure”, n=106). About 30% of respondents were placed in the Yes Group, 27% of respondents were placed in the No Group, and 43% of respondents were placed in the Maybe Group (**Figure 1**).

"I wish we were 20 years younger, so we could more freely participate in a watershed conservation program."

Demographic Comparison of Groups

We compared the demographics between these three groups, and found no substantial difference in property size, educational attainment, household income, location of residence, number of years owning property, value of agricultural sales, or size of vegetative buffer. The Yes Group tended to be younger (mean age 59) compared with the Maybe Group (mean age 62) and the No Group (mean age 69). This may indicate that age plays a significant role in determining an individual's willingness to participate in watershed stewardship programs. **Figure 2** shows that the Yes and No Groups tended to be made up primarily of male respondents, whereas the Maybe Group tended to comprise primarily of female respondents. **Figure 3** shows that 49% of the Yes Group identified themselves as liberal or very liberal, whereas only 18% of the No Group identified themselves as such.

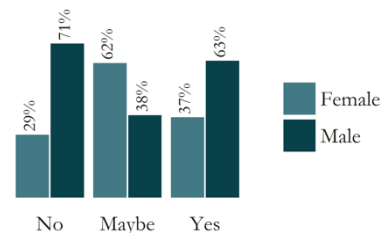


Figure 2. Comparison of gender makeup between the No (n=65), Maybe (n=103), and Yes (n=73) Groups.

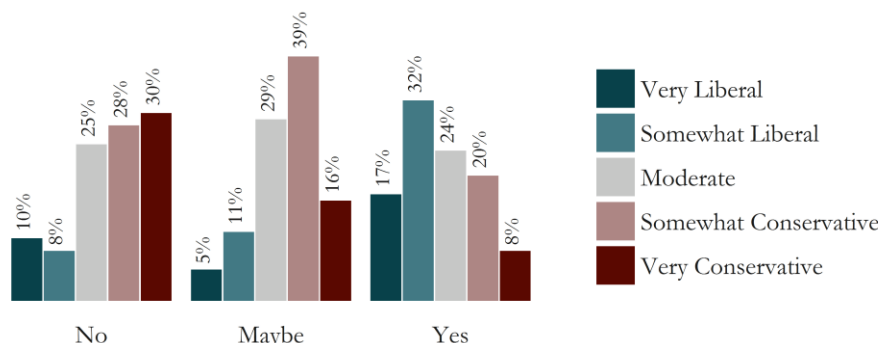


Figure 3. Comparison of political tendency between the No (n=61), Maybe (n=87), and Yes (n=66) Groups.

Box 2. Interpreting Tables in this Report

Tables in this report show the percentage of respondents in each group who answered either affirmatively (e.g. “agree”) or very affirmatively (e.g. “strongly agree”) to each question item. The column “Difference” shows the difference between individuals in the Yes Group and the No Group. Items are ordered by the values in the “Difference” column. In the example table Item B below, 41% more respondents in the Yes Group marked affirmatively or very affirmatively than the No Group, and 14% fewer marked affirmatively or very affirmatively to Item C.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
99	Item B	31%	52%	72%	41%
101	Item A	49%	55%	60%	11%
100	Item C	68%	63%	54%	-14%

4. EXPERIENCES WITH LAND MANAGEMENT

The survey included a series of questions relating to past and present experiences with land management. We asked about the importance of various factors influencing land management decisions, utilization of specific land management practices, past experience with conservation programs, and attitudes towards conservation programs. These questions are intended to help inform water resource managers by providing insight into the diverse suite of factors that a landowner in the Clackamas River watershed must consider when managing their land.

Factors Influencing Land Management | Question 6

“How important are the following factors when making decisions regarding your land?”

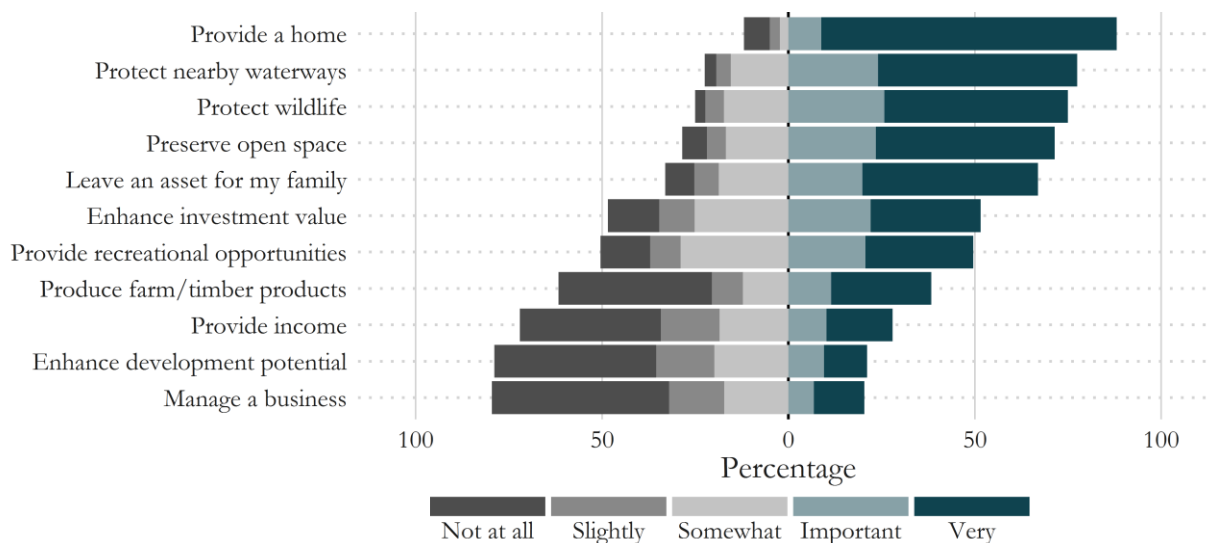


Figure 4. Influential factors for land management decisions amongst respondents ($n = 250$ to 260).

Figure 4 shows that the single most important factor influencing land management decisions amongst respondents was “to provide a safe and comfortable home for me and my family”, with 88% of respondents marking this item as important or very important. Environmental factors were also highly rated by a majority of respondents, with over 70% marking the protection of local waterways (78%), the protection of wildlife and native vegetation (75%), and the preservation of open space (71%) as important or very important. The production of farm or timber products, provision of income, enhancement of the property’s development potential and business considerations were ranked as the least important factors.

Box 3. As shown in Figure 4, land production, business, and income considerations were generally not considered important factors influencing land management decisions. However, these factors were considered substantially more important by landowners with agricultural or forestry sales of greater than \$1000.



“We do our part with our land [...] to maintain a natural diversity of plants and wildlife, and enjoy living in a natural surrounding. It is our home, not a business. We encourage our type of lifestyle, but realize we are in a minority.”

Table 2. Percentage of respondents who reported the item as an “important” or “very important” factor in making land management decisions. The column “Difference” indicates the difference between the Yes Group and the No Group.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
237	Preserve open space	60%	66%	88%	28%
239	Protect wildlife	65%	71%	92%	27%
237	Protect nearby waterways	68%	71%	93%	25%
235	Provide recreational opportunities	43%	46%	59%	16%
231	Provide a home	84%	88%	92%	8%
229	Enhance investment value	52%	45%	58%	6%
237	Leave an asset for my family	73%	65%	68%	-5%
233	Produce farm/timber products	41%	36%	35%	-6%
231	Provide income	34%	24%	28%	-6%
233	Manage a business	25%	18%	15%	-10%
235	Enhance development potential	30%	18%	16%	-14%

Table 2 shows that respondents in the Yes Group more frequently marked that environmental or recreational factors were important influences on their land management decisions. Compared with the No Group, the Yes Group marked “preserve open space” 28% more frequently, “protect wildlife” 27% more frequently, “protect nearby waterways” 25% more frequently, and “provide recreational opportunities” 16% more frequently. Conversely, respondents in the Yes Group less frequently marked practical considerations as important influences on their land management decisions. Compared with

the No Group, the Yes Group marked “enhance development potential” 14% less frequently and “manage a business” 10% less frequently.

Perception of Water Quality Impacts | Question 7

“Please indicate how much of an impact you think these practices have on river water quality.”

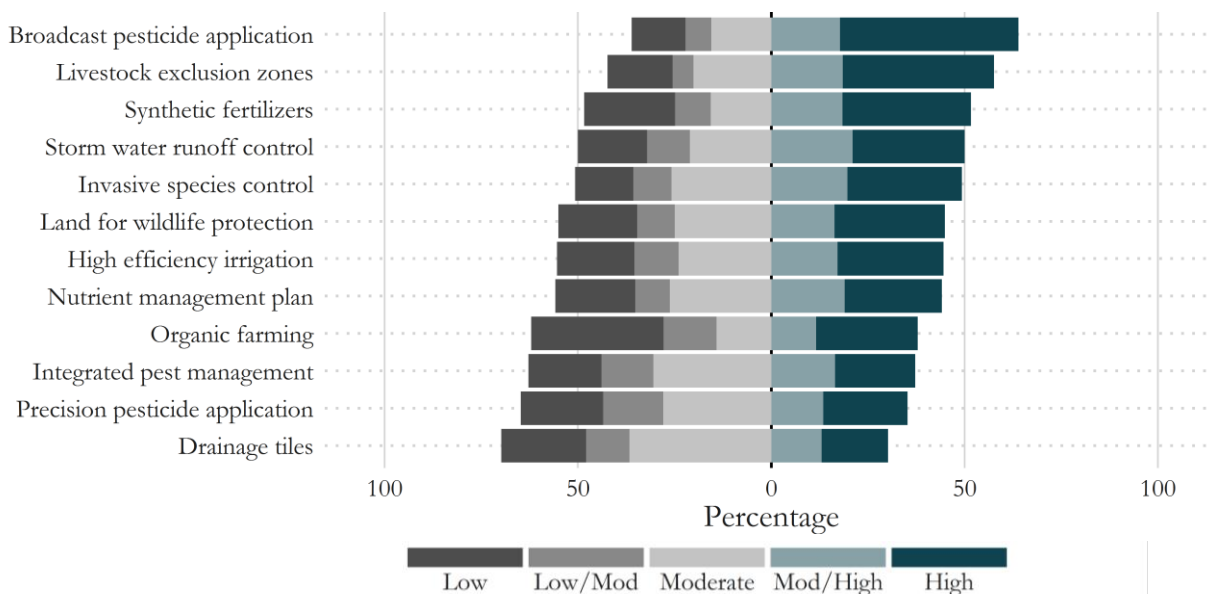


Figure 5. Respondents’ perceptions of water quality impacts (n = 164 to 217).

Figure 5 shows the impact that respondents perceive common land management practices to have on water quality. Note that the term *impact* was not defined as a positive or negative relationship to water quality; instead, this question was asked to gain insight into the degree with which landowners perceive *a relationship* between land management and water quality. Respondents perceived broadcast pesticide application to have the greatest impact on water quality, with 64% of respondents reporting this activity to have a moderately high to very high impact on water quality. Livestock exclusion zones around streams (58%), use of synthetic fertilizers (52%), and storm water runoff control (50%) were all reported as important or very important by more than half of respondents.

Table 3. Percentage of respondents who reported the item as having a “moderately high” or “high” impact on water quality. The column “Difference” indicates the difference between the Yes Group and the No Group.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
200	Synthetic fertilizers	27%	60%	64%	37%
166	Broadcast pesticide application	44%	64%	78%	34%
169	Livestock exclusion zones	41%	56%	75%	34%
151	Integrated pest management	18%	41%	47%	29%
166	Nutrient management plan	32%	41%	60%	28%
176	Precision pesticide application	23%	37%	47%	24%
182	Land for wildlife protection	35%	41%	59%	24%
154	Drainage tiles	20%	30%	36%	16%
175	Storm water runoff control	42%	49%	57%	15%
172	Organic farming	33%	37%	45%	12%
161	High efficiency irrigation	43%	41%	47%	4%
195	Invasive species control	54%	49%	49%	-5%

“There is a small seasonal stream that runs through my property. It runs into another small stream. I know that anything I put into the seasonal stream may end up in the watershed.”

Table 3 shows that for nearly all items, respondents in the Yes Group more frequently perceived the listed land management actions as having a high impact on water quality. Compared with the No Group, the Yes Group marked “synthetic fertilizers” 37% more frequently, “broadcast pesticide application” 34% more frequently, “livestock exclusion zones” 34% more frequently, “integrated pest management” 29% more frequently, and “nutrient management plan” 28% more frequently. Respondents in the No Group most often marked “invasive species control,” whereas respondents in the Maybe and Yes Groups most often marked “broadcast pesticide application.”

Attitudes towards Conservation Programs | Question 10

“Please report the degree to which you agree with the following opinions. In general, conservation programs are...”

Figure 6 shows that, in general, respondents held either positive or neutral attitudes regarding conservation programs. In particular, respondents were highly positive regarding the benefits to wildlife, with 83% reporting that conservation programs had either positive or very positive impacts on wildlife. Many respondents reported that conservation programs were a good use of resources (52%), rewarding to landowners (48%), compatible with goals for their land (46%) and beneficial to their lands productivity (46%). A majority of respondents expressed neutral attitudes regarding the impact of conservation programs on their finances, the flexibility of conservation programs, or the ease of enrollment in conservation programs.

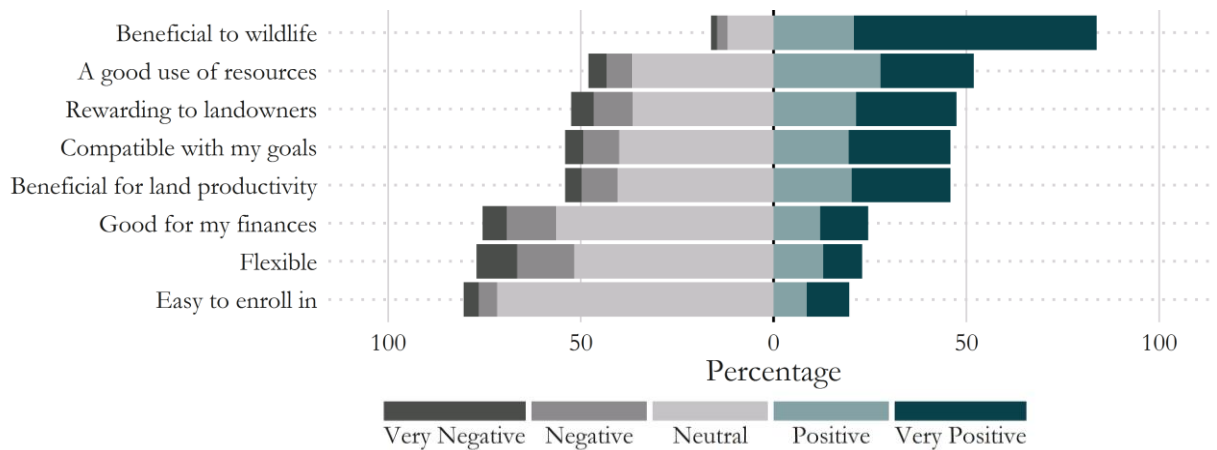


Figure 6. Respondents' attitudes towards conservation programs ($n = 255$ to 259).

Table 4 shows that the Yes Group had more positive attitudes towards conservation programs. Compared with the No Group, the Yes Group marked “compatible with my goals” 45% more frequently, “beneficial for land productivity” 40% more frequently, “rewarding to landowners” 39% more frequently, and “a good use of resources” 39% more frequently. Respondents in all three groups most often marked “beneficial to wildlife.” Conversely, respondents in all three groups least often marked that “good for my finances,” “flexible,” and “easy to enroll in.”

Table 4. Percentage of respondents who reported a “positive” or “very positive” attitude regarding each statement about conservation programs. The column “Difference” indicates the difference between the Yes Group and the No Group.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
233	Compatible with my goals	28%	36%	73%	45%
233	Beneficial for land productivity	25%	46%	65%	40%
233	Rewarding to landowners	31%	43%	70%	39%
231	A good use of resources	34%	49%	73%	39%
233	Good for my finances	13%	21%	39%	26%
232	Beneficial to wildlife	71%	84%	93%	22%
233	Flexible	20%	14%	38%	18%
231	Easy to enroll in	18%	15%	29%	11%

5. PERSPECTIVES ON WATERSHED STEWARDSHIP

The 2015 Clackamas Landowner survey included a series of questions regarding preferences for a hypothetical watershed stewardship program. We asked about interest in achieving watershed stewardship goals, desired incentives for participation, interest in working with selected agencies and organizations, perceived barriers to participation, and beliefs regarding the need for watershed stewardship in the Clackamas River watershed.

Likelihood of working towards stewardship goals | Question 11

“How likely would you be to work with a watershed conservation program on any of the following goals?”

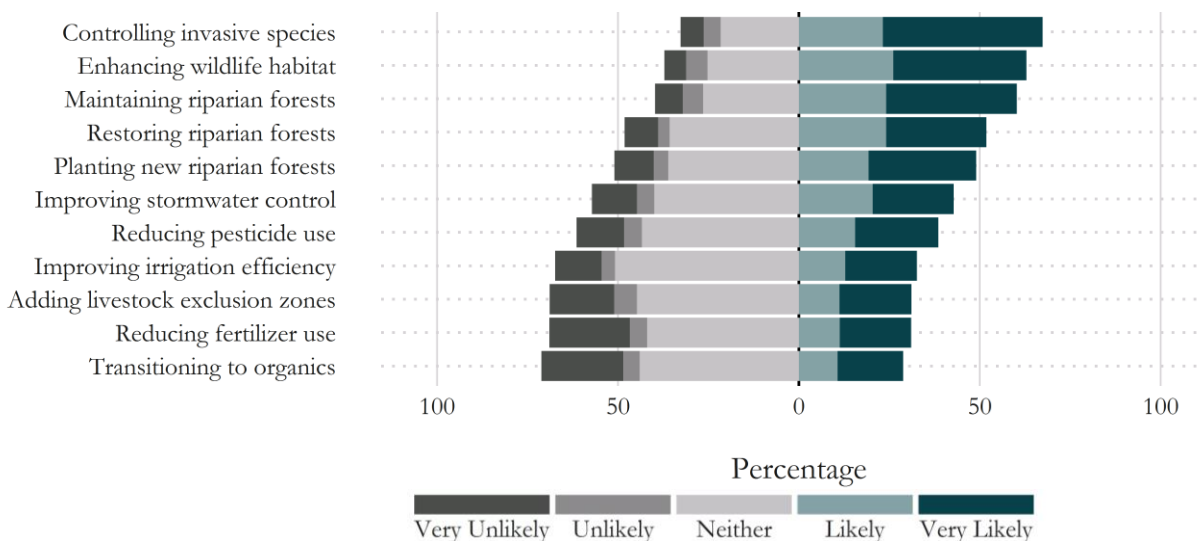


Figure 7. Respondents’ likelihood of working towards conservation goals (n = 238 to 251).

Figure 7 shows that many respondents reported that they would be either likely or very likely to work towards habitat restoration goals such as controlling invasive species (68%), enhancing wildlife habitat (61%), maintaining healthy streamside forests (61%), restoring floodplains (52%), or planting new riparian forests (50%). Fewer respondents reported that they were likely or very likely to work towards more specific land management goals such as improving storm water runoff control (43%), reducing pesticide use (39%), improving irrigation efficiency (33%), adding livestock exclusion zones around streams (32%), reducing fertilizer use (31%), and transitioning to organic production (29%).

Table 5. Percentage of respondents who answered “likely” or “very likely” to work with a watershed conservation program on the listed goals. The column “Difference” indicates the difference between the Yes Group and the No Group.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
231	Planting new riparian forests	18%	47%	78%	60%
231	Restoring riparian forests	22%	51%	78%	56%
233	Maintaining riparian forests	31%	61%	85%	54%
234	Enhancing wildlife habitat	35%	66%	84%	49%
226	Reducing pesticide use	14%	33%	62%	48%
231	Improving storm water control	19%	38%	65%	46%
229	Reducing fertilizer use	7%	29%	51%	44%
223	Adding livestock exclusion zones	11%	26%	54%	43%
226	Improving irrigation efficiency	10%	27%	52%	42%
235	Controlling invasive species	48%	66%	88%	40%
226	Transitioning to organics	12%	22%	51%	39%

"We would appreciate help eradicating invasive species and building fences. Free/ discounted native plants, surveying, and labor would help."

Table 5 shows that the Yes Group most frequently expressed interest in working towards all listed goals and expressed an exceptionally high interest in working towards environmental goals. Compared with the No Group, the Yes Group marked “planting new riparian forests” 60% more frequently, “restoring riparian forests” 56% more frequently, “maintaining riparian forests” 54% more frequently, and “enhancing wildlife habitat” 49% more frequently. Respondents in all three groups most often marked “controlling invasive species.” Conversely, respondents in the No Group least often marked “reducing fertilizer use,” whereas respondents in the Maybe and Yes Groups least often marked “transitioning to organics.”

Desired Incentives for Enrollment | Question 12

“Would the following increase your interest in working with a watershed conservation program?”

Figure 8 shows which incentives are most likely to increase respondent interest in watershed stewardship programs. The highest number of respondents marked “probably yes” or “definitely yes” for annual cash incentives (51%), a one-time cash bonus (45%) and dedicated staff to help implement projects (43%). Respondents expressed a moderate degree of interest in discounts at local retailers, a bonus for working with neighbors, and educational/training opportunities. Respondents expressed a high degree of uncertainty or disinterest in zero-interest loans or improved marketing opportunities.

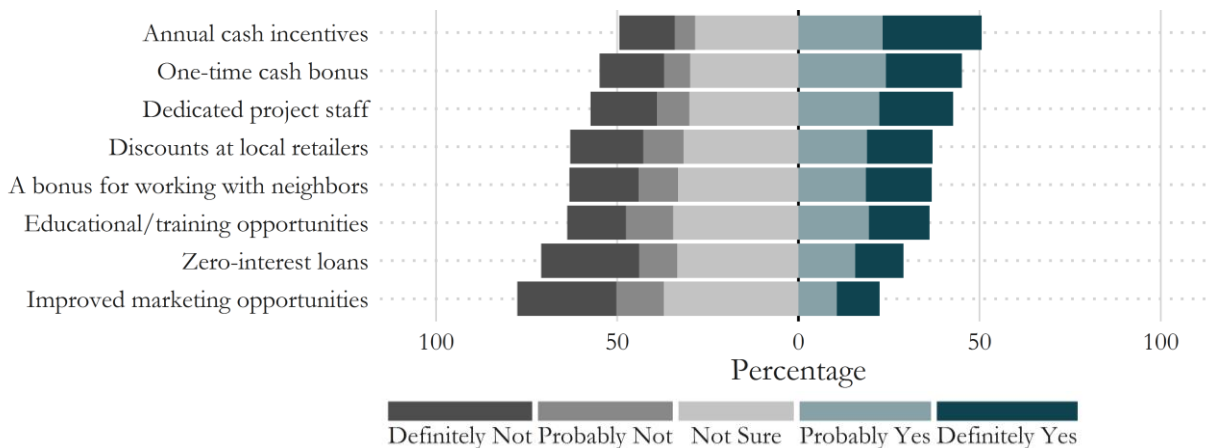


Figure 8. Respondents' interest in various incentives for participation (n = 243 to 249).

Box 4. Respondents with sales over \$1000 in 2014 were much more likely to be interested in annual cash incentives, a one time cash bonus, and improved marking opportunities for products from their land.

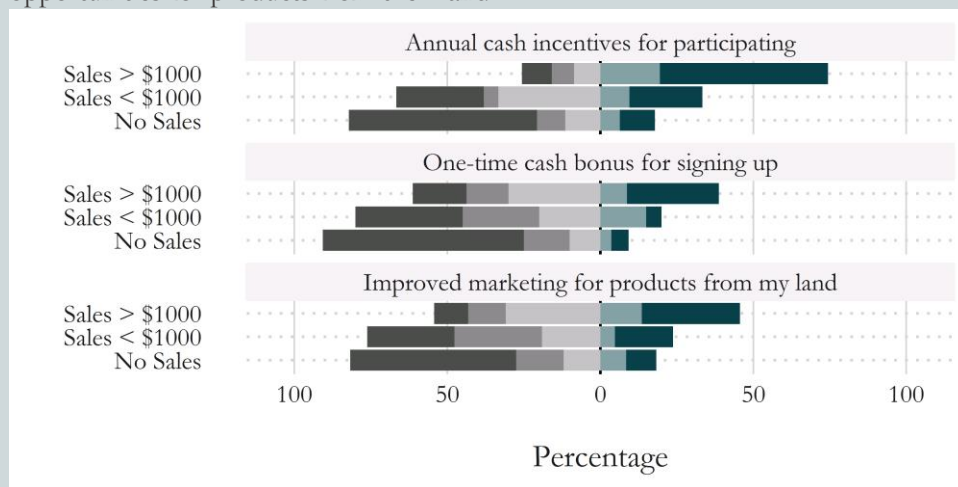


Table 6 shows that incentives will probably increase interest amongst respondents in the Yes Group. Compared with the No Group, the Yes marked “dedicated project staff” 49% more frequently, “annual cash incentives” 46% more frequently, “one-time cash bonus” 45% more frequently, and “educational/training opportunities” 44% more frequently. Respondents in all three groups most often marked financially related incentives such as “annual cash incentives,” a “one time cash bonus,” and “discounts at local retailers.”

Table 6. Percentage of respondents who answered “yes” or “definitely yes” to interest in incentives. The column “Difference” indicates the difference between the Yes Group and the No Group.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
229	Dedicated project staff	20%	33%	69%	49%
233	Annual cash incentives	28%	47%	74%	46%
231	One-time cash bonus	23%	42%	68%	45%
229	Educational/training opportunities	10%	35%	54%	44%
230	A bonus for working with neighbors	18%	35%	55%	37%
227	Discounts at local retailers	20%	37%	54%	34%
231	Zero-interest loans	15%	26%	39%	24%
228	Improved marketing opportunities	14%	17%	31%	17%

Preferred Partner Organizations | Question 13

“How likely would you be to enroll in a watershed conservation program if it required you to work with the following organizations to implement the program or project?”

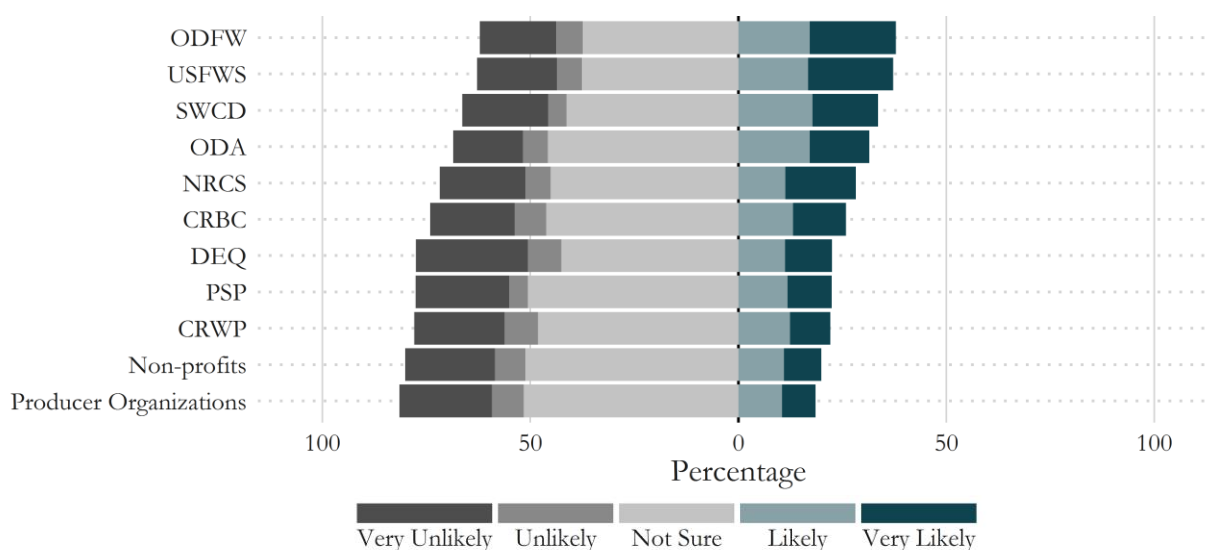


Figure 9. Respondents’ preferred partner organizations (n = 245 to 251). Acronyms listed in Table 14.

Figure 9 shows respondents likelihood of working with potential partner organizations. Respondents generally expressed uncertainty, with at least 37% of respondents marking “Not Sure” for all items. However, the greatest number of respondents marked likely or very likely to work with Oregon Department of Fish and Wildlife (38%) and the US Fish and Wildlife Service (37%).

Table 7. Percentage of respondents who answered “likely” or “very likely” to work with the listed organizations. The column “Difference” indicates the difference between Group Yes and Group No.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
234	CRBC (Clackamas River Basin Council)	8%	14%	56%	48%
231	NRCS (Ntrl. Resources Conservation Services)	10%	16%	54%	44%
234	USFWS (US Fish and Wildlife Service)	19%	23%	63%	44%
234	ODFW (OR Dept. of Fish and Wildlife)	21%	22%	64%	43%
230	SWCD (Soil & Water Conservation District)	12%	19%	54%	42%
238	PSP (Pesticide Stewardship Partnership)	8%	12%	49%	41%
229	Other non-profit conservation organizations	7%	8%	46%	39%
232	DEQ (OR Dept. of Environmental Quality)	10%	10%	48%	38%
232	CRWP (Clackamas River Water Providers)	11%	9%	46%	35%
234	ODA (OR Dept. of Agriculture)	18%	21%	50%	32%
232	Producer Organizations	13%	9%	32%	19%

"This property has been in our family for 168 years and is an original donation land claim. We have always maintained it by ourselves without outside help or interference."

Table 7 shows that for all organizations, respondents in the Yes Group expressed higher interest in working with the listed organizations. Notably, the Yes Group marked the Clackamas River Basin Council 48% more frequently. Respondents in all three groups most often marked the Oregon Department of Fish and Wildlife. Conversely, whereas respondents in the No and Maybe Groups least often marked non-profits.

Agreement to Contractual Features | Question 14

"Would you be willing to agree to any of the following in a watershed conservation program?"

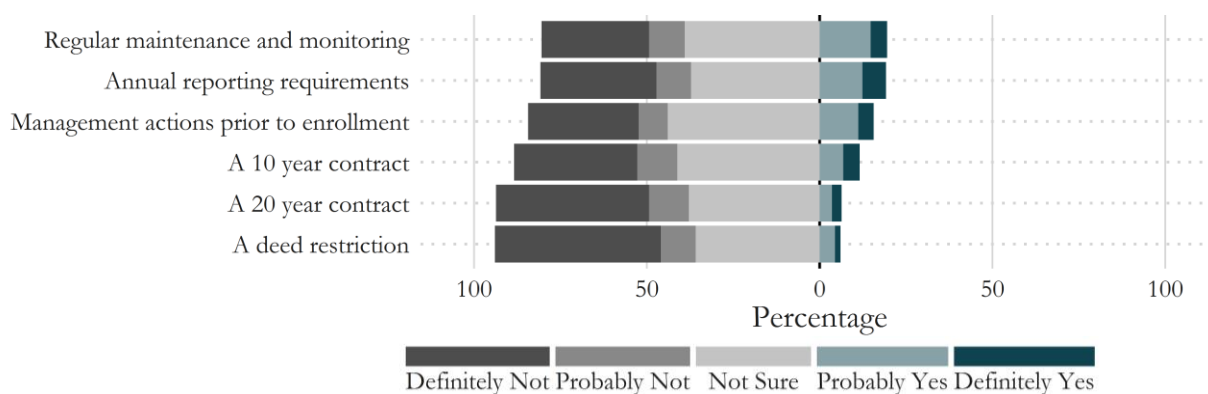


Figure 10. Respondents' willingness to agree to contractual obligations (n = 248 to 251).

Figure 10 shows that respondents were generally uncertain or unwilling to commit to contractual obligations. In particular, 46% of respondents marked probably or definitely not to signing a 10 year contract, 56% to signing a 20 year contract, and 58% to signing a deed restriction.

Table 8. Percentage of respondents who answered “yes” or “definitely yes” to agreeing to the listed features. The column “Difference” indicates the difference between Group Yes and Group No.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
234	Annual reporting requirements	3%	9%	45%	42%
234	Regular maintenance and monitoring	3%	10%	42%	39%
234	Management actions prior to enrollment	6%	7%	32%	26%
234	A 10 year contract	5%	3%	25%	20%
232	A deed restriction	3%	3%	13%	10%
234	A 20 year contract	6%	2%	11%	5%

“I will never allow any land inspection on my land, it would only bring trouble and interference in my already good stewardship.”

Table 8 shows that the Yes Group was more willing to agree to contractual features than the No or Maybe Groups. Compared with the No Group, the Yes Group marked “annual reporting requirements” 42% more frequently and “regular maintenance and monitoring” 39% more frequently. Fewer than 6% of respondents in the No Group marked that they would be willing to agree to any of the listed items.

Barriers to Participation | Question 15

“To what extent do you agree or disagree with the following statements about why you might NOT participate in a watershed conservation program?”

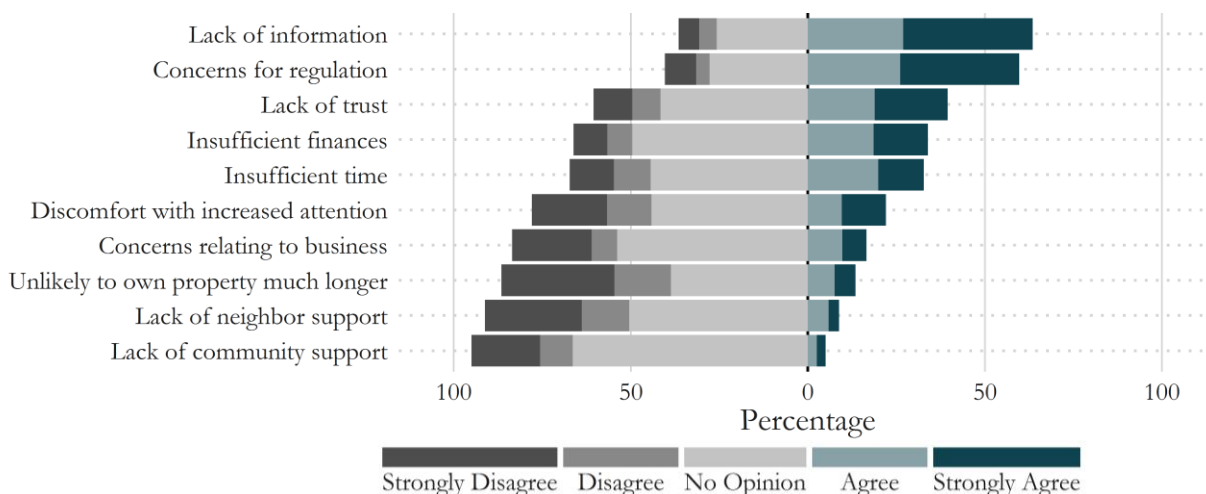


Figure 11. Barriers to participation in watershed conservation programs (n = 238 to 242).

Figure 11 shows reasons why respondents would not participate in a watershed conservation program. The majority (64%) either agreed or strongly agreed that they did not have enough information; this is logical given that all questions were pertaining to a hypothetical conservation program. 60% of respondents agreed that they were concerned about regulatory implications, and 49% noted a lack of trust of organizations that run conservation programs.

Few people agreed that lack of neighbor support (9%) or community support (5%) would prevent them from participating.

Table 9. Percentage of respondents who answered “agree” or “strongly agree” to the listed barriers. The column “Difference” indicates the difference between Group Yes and Group No.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
275	Lack of information	40%	70%	74%	34%
272	Concerns for regulation	53%	64%	60%	7%
272	Lack of neighbor support	10%	10%	7%	-3%
272	Lack of community support	7%	6%	3%	-4%
275	Insufficient finances	34%	38%	26%	-8%
272	Unlikely to own property much longer	22%	10%	12%	-10%
274	Discomfort with increased attention	30%	25%	14%	-16%
274	Insufficient time	43%	33%	26%	-17%
270	Concerns relating to business	31%	12%	12%	-19%
273	Lack of trust	48%	47%	23%	-25%

“I don't want to give up my right to harvest my timber if the price is right and I need money.”

Table 9 shows that, in general, the Yes Group perceived fewer barriers. Compared with the No Group, the Yes Group marked “discomfort with increased attention” 16% less frequently, “insufficient time” 17% less frequently, “concerns relating to business” 19% less frequently, and “lack of trust” 25% less frequently. Respondents in the No Group most often marked “concern for regulations,” whereas respondents in the Maybe and Yes Groups most often marked “lack of information.” Conversely, respondents in all three groups least often marked “lack of community support.”

Beliefs about Watershed Conservation | Question 16

“In general, do you agree or disagree with the following statements regarding watershed conservation in the Clackamas River watershed?”

Figure 12 shows that many respondents either agreed or strongly agreed that functioning stream ecosystems are important for a clean water supply (88%), watershed conservation is the right thing to do (65%), watershed conservation benefits everyone in the watershed (62%), water pollution is detrimental to human health (59%), and development within the watershed threatens water quality (57%). Despite this recognition of the important of water quality, 45% of respondents agreed or strongly agreed that watershed conservation might limit their choice and personal freedoms. 48% of respondents disagreed that pollution from their property has impacts downstream.

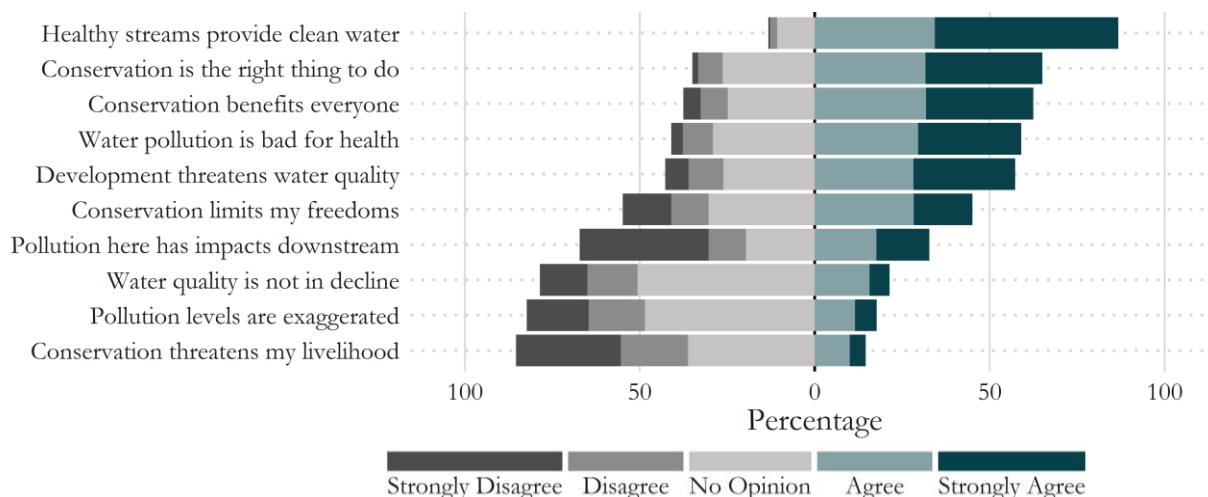


Figure 12. Respondents' beliefs regarding watershed conservation (n = 240 to 245).

Table 10 shows that the Yes Group more frequently believed that watershed stewardship programs have environmental and societal benefits. Compared with the No Group, the Yes Group marked “conservation is the right thing to do” 52% more frequently, “conservation benefits everyone” 49% more frequently, mark “development threatens water quality” 35% more frequently, and “water pollution is bad for health” 34% more frequently. Additionally, the Yes Group was less likely to hold negative beliefs about watershed conservation. Compared with the No Group, the Yes Group marked “conservation threatens my livelihood” 20% less frequently, “conservation limits my freedoms” 22% less frequently, and “water quality is not in decline” 22% less frequently. Respondents in all three groups most often marked “healthy streams provide clean water.” The No Group least often marked “pollution here has impacts downstream,” whereas the Maybe and Yes Groups least often marked “conservation threatens my livelihood.”

Table 10. Percentage of respondents who answered “agree” or “strongly” to the listed beliefs. The column “Difference” indicates the difference between Group Yes and Group No.

n	Watershed Program Response	Watershed Program Response			Difference
		No	Maybe	Yes	
236	Conservation is the right thing to do	37%	64%	89%	52%
237	Conservation benefits everyone	39%	60%	88%	49%
235	Development threatens water quality	39%	57%	74%	35%
237	Water pollution is bad for health	39%	60%	73%	34%
235	Healthy streams provide clean water	71%	87%	99%	28%
237	Pollution here has impacts downstream	23%	27%	48%	25%
236	Pollution levels are exaggerated	29%	16%	11%	-18%
233	Conservation threatens my livelihood	28%	11%	8%	-20%
237	Conservation limits my freedoms	60%	42%	38%	-22%
236	Water quality is not in decline	34%	21%	12%	-22%

Payments for Vegetative Buffers | Question 22

“A watershed conservation program may be able to pay you to place or keep land in buffers. What level of payment would motivate you to plant or maintain a buffer of at least 35 feet in width?”

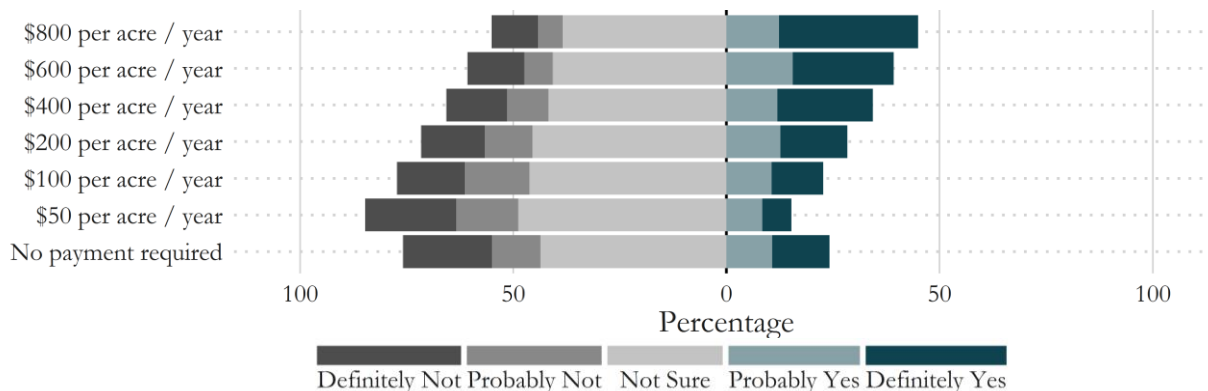


Figure 13. Payments required to plant or maintain an acre of vegetative buffer (n = 131 to 149).

Figure 13 shows an expected trend; as payments for buffers increase, more landowners reported an interest in placing or maintaining vegetative buffers on their land. Only 15% of landowners would plant or maintain vegetative buffers for \$50 per acre/year, whereas 45% of landowners would plant or maintain a vegetative buffer for \$800 per acre/year. Interestingly, 28% of respondents reported no payment required for buffers, a greater portion than those reporting \$50 or \$100 per acre/year. This may suggest that some landowners are simply opposed to the idea of a payment program.

“Remember it's my family's land, not public property! I'm willing to do things for the greater good, but need to be compensated for my time and trouble.”

Table 11. Percentage of respondents who answered “probably yes” or “definitely yes” to the listed payments. The column “Difference” indicates the difference between Group Yes and Group No.

n		Watershed Program Response			Difference
		No	Maybe	Yes	
146	No payment required	21%	17%	35%	14%
128	\$50 per acre / year	0%	11%	29%	29%
129	\$100 per acre / year	0%	22%	37%	37%
131	\$200 per acre / year	8%	22%	49%	41%
131	\$400 per acre / year	17%	27%	56%	39%
132	\$600 per acre / year	28%	30%	60%	32%
135	\$800 per acre / year	27%	37%	60%	33%

Table 11 shows that the Yes Group was more willing to enroll at lower levels of payment than the No Group. Note that the drop in respondents between “No payment required” and “\$50 per acre / year” was particularly pronounced amongst respondents in the No Group. This may indicate that these respondents are particularly unwilling to accept payment for watershed stewardship work, but does not necessarily indicate that they are wholly opposed to watershed stewardship.

6. IMPLICATIONS FOR WATERSHED PROGRAMS

Though our sample represents only a small subset of the rural landowners in the Clackamas River watershed, they provided a diverse array of perspectives on watershed stewardship. Respondents generally believed that watershed stewardship is important to maintain clean drinking water and healthy communities, but their attitudes regarding watershed stewardship programs differed greatly. Some key trends may be able to provide guidance to enhance enrollment in a watershed stewardship program:

1. Restoration projects focused on controlling invasive species, enhancing wildlife habitat, and preserving riparian forests showed the most widespread support. A program may anchor itself around these goals to achieve water quality objectives.
2. Despite noting that a watershed conservation program would be entirely voluntary, respondents expressed a high degree of concern about government intrusion and regulatory implications. This may imply that respondents immediately associate the term “conservation program” with government interventions. Outreach efforts should directly and clearly address these concerns.
3. Respondents noted that lack of information and lack of trust in program organizations were key barriers to enrollment, and relatively few respondents indicated that they would be willing to work with the Clackamas River Water Providers. It may be helpful to expand awareness of the CRWP, and to identify a few key individuals in the community who would be able to build trust and to champion watershed stewardship.
4. Cash incentives for enrollment are likely to be substantially more effective for respondents who reported significant agricultural or forestry sales. Targeted use of cash incentives towards working properties may achieve a greater benefit per unit of cost.
5. Whether a respondent believed conservation programs to be compatible with their goals for their land or not played a highly significant role in determining their interest in participating with a watershed stewardship program. A first step in working with a landowner should be to identify what their most important goals are and whether a program can help them to achieve these goals.

Of course, these suggestions are far too over-simplified to fully address the interests and concerns of the diverse landowners in the Clackamas River watershed. Perhaps the most important take home from this study is that a successful program should be flexible and capable of being tailored to meet the unique goals and needs of individual landowners.

APPENDIX A. Raw Data Summary

Q6) How important are the following factors when you are making decisions regarding your land?

n		Not at all	Slightly	Somewhat	Important	Very
260	Provide a safe and comfortable home for me and my family	6.9%	2.7%	2.3%	8.8%	79.2%
258	Protect the health of waterways on or near my property	3.1%	3.9%	15.5%	24%	53.5%
260	Protect local wildlife or native vegetation	2.7%	5%	17.3%	25.8%	49.2%
256	Preserve open space or aesthetic beauty	6.6%	5.1%	16.8%	23.4%	48%
257	Leave an asset for future generations of my family	7.8%	6.6%	18.7%	19.8%	47.1%
254	Enhance my land's investment value	13.8%	9.4%	25.2%	22%	29.5%
256	Provide recreational opportunities for me and my family	13.3%	8.2%	28.9%	20.7%	28.9%
253	Produce high quality farm or timber products for market	41.1%	8.3%	12.3%	11.5%	26.9%
254	Provide income for me and my family	37.8%	15.7%	18.5%	10.2%	17.7%
251	Enhance my property's development potential	43.4%	15.5%	19.9%	9.6%	11.6%
250	Grow/manage a business through my land's production	47.6%	14.8%	17.2%	6.8%	13.6%

Q7) Please indicate how much of an impact you think these practices have on river water quality.

n		Low	Low/Mod	Moderate	Mod/High	High
180	Broadcast pesticide application	13.9%	6.7%	15.6%	17.8%	46.1%
184	Livestock exclusion zones around streams	16.8%	5.4%	20.1%	18.5%	39.1%
217	Use of synthetic fertilizers	23.5%	9.2%	15.7%	18.4%	33.2%
190	Storm water runoff control	17.9%	11.1%	21.1%	21.1%	28.9%
213	Invasive species control	15%	9.9%	25.8%	19.7%	29.6%
196	Land set aside for wildlife protection	20.4%	9.7%	25%	16.3%	28.6%
175	High efficiency irrigation	20%	11.4%	24%	17.1%	27.4%
179	Nutrient management plan	20.7%	8.9%	26.3%	19%	25.1%
190	Organic farming	34.2%	13.7%	14.2%	11.6%	26.3%
164	Integrated pest management	18.9%	13.4%	30.5%	16.5%	20.7%
193	Precision pesticide application	21.2%	15.5%	28%	13.5%	21.8%
169	Drainage tiles	21.9%	11.2%	36.7%	13%	17.2%

Q10) Please report the degree to which you agree with the following opinions. In general, conservation programs are...

n		← Agree		Neutral	Agree →		
259	Beneficial to wildlife	1.5%	2.7%	12%	20.8%	62.9%	Harmful to wildlife
256	A good use of resources	4.7%	6.6%	36.7%	27.7%	24.2%	A waste of resources
257	Rewarding to landowners	5.8%	10.1%	36.6%	21.4%	26.1%	Harmful to landowners
257	Compatible with goals for my land	4.7%	9.3%	40.1%	19.5%	26.5%	Incompatible with goals for my land
257	Beneficial to my land's productivity	4.3%	9.3%	40.5%	20.2%	25.7%	Harmful to my land's productivity
257	Good for my finances	6.2%	12.8%	56.4%	12.1%	12.5%	Bad for my finances
257	Flexible	10.5%	14.8%	51.8%	12.8%	10.1%	Inflexible
255	Easy to enroll in	3.9%	4.7%	71.8%	8.6%	11%	Difficult to enroll in

Q11) How likely would you be to work with a watershed conservation program on any of the following goals?

n		Very Unlikely	Unlikely	Neither Likely nor Unlikely	Likely	Very Likely
251	Controlling invasive species	6%	4.4%	21.5%	23.5%	44.6%
250	Enhancing wildlife habitat	5.6%	6%	25.2%	26%	37.2%
246	Maintaining healthy streamside and floodplain forests	6.9%	5.7%	26.8%	24%	36.6%
246	Restoring degraded stream and floodplain areas	8.5%	3.3%	35.8%	24.4%	28%
246	Planting new forests along streams that are not currently forested	10.2%	3.7%	36.6%	19.5%	30.1%
247	Improving storm water runoff control	11.3%	4.9%	40.5%	20.6%	22.7%
241	Reducing pesticide use	12.4%	4.6%	44%	15.8%	23.2%
240	Improving irrigation efficiency	12.1%	3.8%	51.3%	12.9%	20%
238	Adding livestock exclusion zones around streams	16.8%	6.3%	45.4%	11.3%	20.2%
245	Reducing fertilizer use	21.6%	4.5%	42.4%	11.4%	20%
240	Transitioning to organic production	21.7%	4.6%	44.6%	10.8%	18.3%

Q12) Would the following increase your interest in working with a watershed conservation program?

n		Definitely Not	Probably Not	Not Sure	Probably Yes	Definitely Yes
249	Annual cash incentives for participating	15.3%	5.6%	28.5%	23.3%	27.3%
248	One-time cash bonus for signing up	17.7%	7.3%	29.8%	24.2%	21%
246	Dedicated staff to help you implement your project	18.3%	8.9%	30.1%	22.4%	20.3%
243	Discounts at local retailers	20.2%	11.1%	31.7%	18.9%	18.1%
247	A cash bonus for joint participation with neighbors	19%	10.9%	33.2%	18.6%	18.2%
246	Educational/training opportunities	16.3%	13%	34.6%	19.5%	16.7%
248	Zero-interest loans	27%	10.5%	33.5%	15.7%	13.3%
245	Improved marketing for products from my land	27.3%	13.1%	37.1%	10.6%	11.8%

Q13) How likely would you be to enroll in a watershed conservation program if it required you to work with the following organizations to implement the program or project?

n		Very Unlikely	Unlikely	Not Sure	Likely	Very Likely
251	Oregon Department of Fish and Wildlife	18.3%	6.4%	37.5%	17.1%	20.7%
250	US Fish and Wildlife Service	19.2%	6%	37.6%	16.8%	20.4%
247	Clackamas Soil & Water Conservation District	20.6%	4.5%	41.3%	17.8%	15.8%
251	Oregon Department of Agriculture	16.7%	6%	45.8%	17.1%	14.3%
248	Natural Resources Conservation Services	20.6%	6%	45.2%	11.3%	16.9%
251	Clackamas River Basin Council	20.3%	7.6%	46.2%	13.1%	12.7%
249	Oregon Department of Environmental Quality	26.9%	8%	42.6%	11.2%	11.2%
245	Clackamas Pesticide Stewardship Partnership	22.4%	4.5%	50.6%	11.8%	10.6%
249	Clackamas River Water Providers	21.7%	8%	48.2%	12.4%	9.6%
246	Other non-profit conservation organizations	21.5%	7.3%	51.2%	11%	8.9%
248	Producer Organizations	22.2%	7.7%	51.6%	10.5%	8.1%

Q14) Would you be willing to agree to any of the following in a watershed conservation program?

n		Definitely Not	Probably Not	Not Sure	Probably Yes	Definitely Yes
251	Regular project maintenance and monitoring	31.1%	10.4%	39%	14.7%	4.8%
250	Annual reporting to the project sponsor	33.6%	10%	37.2%	12.4%	6.8%
250	Specific management actions prior to enrollment	32%	8.4%	44%	11.2%	4.4%
250	A 10 year contract	35.6%	11.6%	41.2%	6.8%	4.8%
251	A 20 year contract	44.2%	11.6%	37.8%	3.6%	2.8%
248	A deed restriction lasting the length of the contract	48%	10.1%	35.9%	4.4%	1.6%

Q15) To what extent do you agree or disagree with the following statements about why you might NOT participate in a watershed conservation program.

n		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
241	I still don't know enough about these programs	5.8%	5%	25.7%	27%	36.5%
238	I'm concerned about legal or regulatory implications	8.8%	3.8%	27.7%	26.1%	33.6%
238	I don't trust the organizations or agencies that run these programs	10.9%	8%	41.6%	18.9%	20.6%
242	My finances won't allow it	9.5%	7%	49.6%	18.6%	15.3%
241	I don't have enough time to participate in a program like this	12.4%	10.4%	44.4%	19.9%	12.9%
240	I'm uncomfortable with the attention programs like these bring to me	21.3%	12.5%	44.2%	9.6%	12.5%
236	Enrollment would make it harder to run my business	22.5%	7.2%	53.8%	9.7%	6.8%
238	I won't own the property long enough to make it worth my while	31.9%	16%	38.7%	7.6%	5.9%
238	My neighbors or community would give me a hard time	27.3%	13.4%	50.4%	5.9%	2.9%
238	No one else in my community participates in these types of programs	19.3%	9.2%	66.4%	2.5%	2.5%

Q16) In general, do you agree or disagree with the following statements regarding watershed conservation in the Clackamas River watershed?

n		Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
242	Functioning stream ecosystems are important for a clean water supply	0.4%	2.1%	10.7%	34.3%	52.5%
243	Watershed conservation is just the right thing to do	1.6%	7%	26.3%	31.7%	33.3%
245	Watershed conservation benefits everyone in the watershed	4.9%	7.8%	24.9%	31.8%	30.6%
244	The effects of water pollution on public health are worse than we realize	3.3%	8.6%	29.1%	29.5%	29.5%
241	Development within the watershed threatens water quality	6.6%	10%	26.1%	28.2%	29%
244	Watershed conservation might limit my choice and personal freedoms	13.9%	10.7%	30.3%	28.3%	16.8%
244	Pollution generated on my land harms people downstream	36.9%	10.7%	19.7%	17.6%	15.2%
243	While some local areas may have seen declines in water quality, overall water quality in the watershed is not in decline	13.6%	14.4%	50.6%	15.6%	5.8%
243	Claims regarding high pollution levels in the watershed are exaggerated	17.7%	16%	48.6%	11.5%	6.2%
240	Watershed conservation will threaten my livelihood	30%	19.2%	36.3%	10%	4.6%

Q22) A watershed conservation program may be able to pay you to place or keep land in buffers. What level of payment would motivate you to plant or maintain a buffer of at least 35 feet in width?

n		Definitely Not	Probably Not	Not Sure	Probably Yes	Definitely Yes
149	No payment required	20.8%	11.4%	43.6%	10.7%	13.4%
131	\$50 per acre / year	21.4%	14.5%	48.9%	8.4%	6.9%
132	\$100 per acre / year	15.9%	15.2%	46.2%	10.6%	12.1%
134	\$200 per acre / year	14.9%	11.2%	45.5%	12.7%	15.7%
134	\$400 per acre / year	14.2%	9.7%	41.8%	11.9%	22.4%
135	\$600 per acre / year	13.3%	6.7%	40.7%	15.6%	23.7%
138	\$800 per acre / year	10.9%	5.8%	38.4%	12.3%	32.6%

APPENDIX B. Demographics and Property Characteristics

In order to evaluate how well our sample represented our population of landowners, we collected basic demographic information and compared the demographics of our population to known demographics of the study area. Because our sample included a combination of residential landowners, small acreage farmers/foresters, and commercial producers, no single existing demographic data source adequately described our population. Therefore, we compared our sample to both the USDA's Census of Agriculture for Clackamas County⁶ as well as known demographics recorded in the American Community Survey of residents residing in the same census blocks as our sample⁷.

Gender | Question 23

64% of respondents were male and 36% were female (**Table 12**). These numbers fall roughly halfway between the proportions identified amongst Clackamas County farmers and census block residents, suggesting that our sample was a representation of gender that falls between farmers and residents.

Table 12. Gender of respondents (n=265) compared with county farmer and resident populations.

Gender	Sample	County Farmers	Census Block Residents
Male	64%	78%	51%
Female	36%	22%	49%

Age | Question 24

The mean age of respondents was 63 years, with 47% of respondents aged 65 and over. By comparison, 33% of farmers in Clackamas County and 22% of census block residents were aged 65 and older (**Table 13**). However, it is important to note that statistics from county farms and census block residents include both individuals who lease and who own property, whereas our sample includes only individuals who own property. Therefore, it is possible that landowners in general tend to be older than the average farmer or resident.

Table 13. Age of respondents (n=248) compared with county farmer and resident populations.

Years	Sample	County Farmers	Census Block Residents
25 to 34	2%	3%	13%
35 to 44	3%	8%	16%
45 to 54	18%	23%	23%
55 to 64	30%	33%	26%
65 and over	47%	33%	22%

⁶ United States Department of Agriculture (2012) Census of Agriculture

⁷ United States Census Bureau (2009 – 2013) American Community Survey

Education | Question 25

Our sample was highly educated, with 48% having received a bachelor's degree or higher, and only 1% having not completed high school (**Table 14**). By comparison, 21% of census block residents have received a bachelor's degree or higher, and 9% have not completed high school. A tendency towards more educated respondents is a common finding amongst rural landowner surveys. Educational attainment was not available for county farmers.

Table 14. Educational attainment of respondents (n=261) compared with county resident population.

Educational Attainment	Sample	Census Block Residents
Less than High School	1%	9%
High School Graduate or more	13%	32%
Some college or more	38%	38%
Bachelor's Degree or more	23%	14%
Graduate or Professional Degree	25%	7%

Income | Question 27

Our sample reported substantially higher annual household incomes than census block residents, with 37% reporting an income of at least \$100,000/year and only 5% reporting an income of less than \$25,000/year (**Table 15**). By comparison, 28% of census block residents reported an income of at least \$100,000/year and 15% reported an income of less than \$25,000/year. Household income was not available for county farmers.

Table 15. Household income of respondents (n=225) compared with county resident population.

Household Income	Sample	Census Block Residents
Less than 25K	5%	15%
25 to 50K	14%	20%
50 to 75K	25%	20%
75 to 100K	19%	17%
100 to 150K	17%	19%
150K or more	20%	9%

Political Tendency | Question 26

Our sample was substantially skewed towards conservative political tendencies, with 47% of respondents reporting their political tendency as either somewhat or very conservative (**Figure 14**). Conversely, 27% of respondents identified themselves as either somewhat or very liberal. By comparison, Clackamas County voters have favored democratic candidates in

the last two presidential elections⁸, but our sample represents a more rural population than Clackamas County as a whole, and rural voters tend to hold more conservative values⁹.

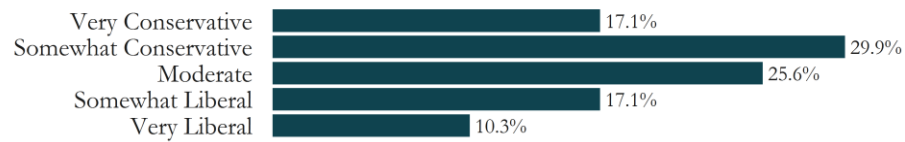


Figure 14. Political tendency of respondents (n=235).

Years Owning Property | Question 1

The mean number of years that respondents owned their current property was 29.9 years, compared with 21.5 years for Clackamas County farmers (**Table 16**). While this indicates that our sample may have owned property substantially longer than our population of interest, several respondents indicated property ownership for 70 up to 168 years. Presumably, these respondents answered for years of family ownership (see quote on page 17).

Table 16. Years owning property of respondents (n=249) compared with county farmer population.

Years	Sample	County Farms
2 or less	1%	2%
2 to 4	6%	4%
4 to 10	7%	14%
10 or more	86%	79%

Land Usage | Question 3

A large majority of respondents (85%) considered their property in the Clackamas River watershed to be their primary residence (**Figure 15**). By comparison, 91% of Clackamas County farmers live on their farm properties¹⁰. Other important land uses include production of timber (44%), grass and pasturelands (34%), and production of hay (20%). All other land uses were reported by fewer than 20% of respondents.

⁸ Clackamas County General Election Results

⁹ McKee (2008) Rural Voters and the Polarization of American Presidential Elections. Univ. of S. Florida Petersburg.

¹⁰ United States Department of Agriculture (2012) Census of Agriculture

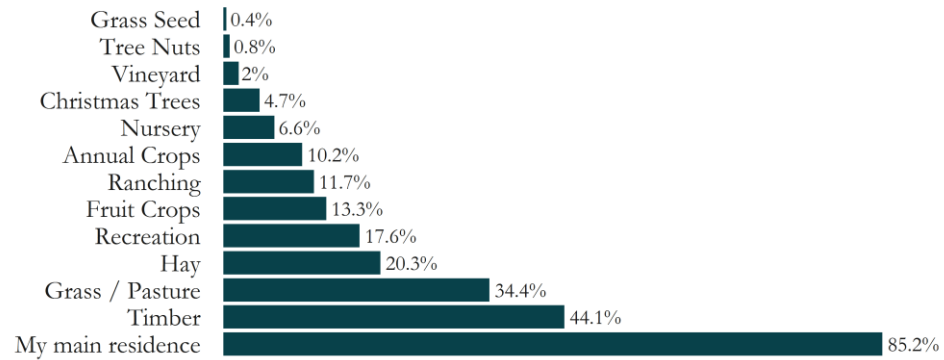


Figure 15. Count of respondents (n=256) reporting listed land uses.

Property Size

Based on available tax lot data, we calculated the total number of acres within the watershed owned by each respondent (**Table 17**). The mean acreage owned by respondents was 105 acres, compared with an average farm size of 43 acres in Clackamas County as a whole. This difference in property size may be due to our exclusion of properties below 2 acres in size – the large number of small parcels within Clackamas County likely substantially lower the mean property size. The median property size represented by our sample was 19 acres.

Table 17. Total acreage owned by respondents (n=240) compared with county farmer population.

Acres	Sample	County Farms
1 to 9 acres	32%	38%
10 to 49 acres	43%	44%
50 to 179 acres	12%	15%
180 to 499 acres	8%	3%
500 to 999 acres	3%	1%
1000 or more acres	2%	<1%

Agricultural and Forestry Sales | Question 5

We asked a question regarding the value of agricultural sales in 2014, and out of 254 respondents, 149 of them (59%) reported no agricultural sales. **Table 18** shows data only for the 105 respondents who reported agricultural sales in 2014. Respondents generally reported higher value agricultural sales than Clackamas County farmers in general did in 2012; 42% of respondents reported sales over \$10,000, whereas 28% of Clackamas County farmers reported similar sales. This difference could either be due to the different years of measurement, or our sample could be slightly may represent higher value agricultural producers.

Table 18. Agricultural and/or forestry sales of respondents (n=105) compared with county farmers

Agricultural/Forestry Sales	Sample	County Farms
Less than \$1K	22%	28%
\$1K to \$10K	36%	45%
\$10K to \$50K	20%	17%
\$50K to \$100K	8%	4%
More than \$100K	14%	7%

Land Management Practices | Questions 7-9

In question 8, we asked respondents whether they utilized a variety of land management practices on their land. Out of the 199 respondents who marked at least one of the listed land management practices, 107 marked invasive species control and 83 marked the use of synthetic fertilizers. Only 22 respondents marked the use of an integrated pest management plan, and only 21 marked the use of broadcast pesticide application practices (Figure 16).

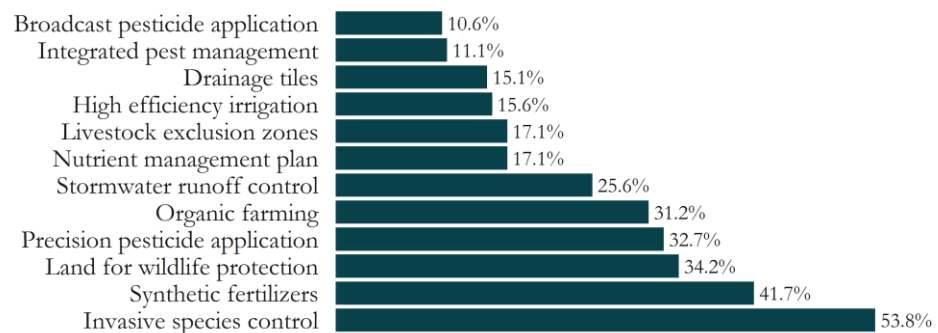


Figure 16. Count of respondents (n=199 marked at least 1) reporting listed land management practices.

We also asked respondents to report whether they had participated in past land stewardship or conservation programs (questions 8 and 9), and we found that very few respondents had past participation with such programs. 10 individuals reported participation in a federal program, 14 individuals reported participation in a state program, and 24 individuals reported participation in other sorts of programs. Only 2 individuals marked that they had either enrolled or donated land to a conservation easement.

Vegetative Buffers | Question 20

We asked whether a stream, agricultural ditch, slough, or wetland exists anywhere on the respondent's property. Of the 255 who answered this question, 191 (75%) answered affirmatively. We then asked whether they had a vegetative buffer around their stream, and if so, to identify the type. Out of 180 respondents reporting some sort of buffer on their stream, 157 reported a riparian buffer, 28 reported having a filter strip, and 18 reported having

grassed waterways. Last, we asked participants the average width of their vegetative buffer (**Figure 4**). 45% reported having a buffer of greater than 100 feet in width; 26% reported a buffer of 35 to 50 feet in width; and 29% reported having a buffer between 5 and 20 feet in width (Figure 3).

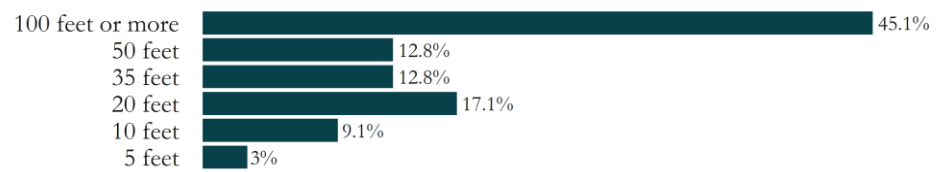


Figure 17. Average width of vegetative buffers surrounding streams (n=164).

APPENDIX C. Survey Materials

School of the Environment
 Department of Environmental Science & Management
 Natural Resources Management Lab

Post Office Box 751
 Portland, Oregon 97207-0751
www.pdx.edu/esm



John Doe

We are contacting you to ask for your help in a study on the land stewardship experiences and opinions amongst landowners in the Clackamas River watershed. This study is being conducted by Dr. Max Nielsen-Pincus and Matthew DeAngelo from the Portland State University Department of Environmental Science and Management in collaboration with the Clackamas River Water Providers (CRWP), a consortium of drinking water utilities operating in the Clackamas River watershed.

As part of this study, we request that you complete the enclosed questionnaire about your properties in the Clackamas River watershed and your perspective on different measures to maintain its environment. Participation in this study is an opportunity for you to voice your opinions about programs that promote watershed stewardship while supporting the needs of watershed landowners. This research will contribute to a growing body of work regarding the role that public utilities and the private sector can play in strengthening and supporting the environmental and economic benefits of local watersheds. **As a thank you for submitting your completed survey, you will be automatically entered into a drawing to receive a \$100 gift card.**

For convenience, we are also offering the questionnaire in a web-based form. If you would prefer to complete the questionnaire online, you may enter the link and four-digit passcode listed below:

<http://tinyurl.com/ClackamasWatershed>

Passcode: 1234

Please complete the questionnaire and mail it back to us in the enclosed postage-paid envelope, or complete the web version. **Your responses are entirely confidential, and your name will never be connected to your answers.** Your decision to take part in this study is completely voluntary, you may skip any questions you do not want to answer, and you have the right to end your participation at any time. When you complete and return the attached questionnaire, it means that you have read and understood this information, and you agree to take part in this study.

If you have questions or concerns about your participation in this study or about your rights as a research participant, please contact the Human Subjects Research Review Committee at:

PSU Office of Research Integrity
 1600 SW 4th Ave., Market Center Building, Suite 620
 Portland, OR 97201
 503-725-2227 or 877-480-4400

Thank you very much for your time and support of this study. Sincerely,

Max Nielsen-Pincus

Matt DeAngelo

Max Nielsen-Pincus
 Assistant Professor

Matt DeAngelo
 M.S. Graduate Student
 503-451-0394 / deangel2@pdx.edu

Farms, Forests, & Water

A SURVEY OF LANDOWNERS IN THE CLACKAMAS RIVER WATERSHED



As a landowner in the Clackamas River Watershed, you play an important role in a landscape **connected by the flow of water**, and your land provides a variety of benefits to downstream drinking water consumers, recreational users, and wildlife. There is growing interest amongst water resource managers in programs that protect watershed health by **working with landowners to restore or maintain their property in a way that benefits and preserves water quality and supply**. This survey is part of an effort to learn more about what kind of a program might be appropriate for improving and maintaining the health of the Clackamas River watershed.



Survey Instructions

- Please carefully read each question and make your responses clear
- Feel free to write in any additional comments anywhere on the survey
- Please mail your completed survey back in the prepaid envelope provided
- **All of your answers will be kept completely confidential**



YOUR LAND IN THE CLACKAMAS RIVER WATERSHED

Please answer the following questions regarding your property to help provide a more complete picture of current land uses in the watershed.

1 How many years have you owned property in the Clackamas River watershed?

2 Of the land you own, do you rent or lease any of it to others?
 Yes No
 If Yes, What for?

3 Do any of the following options characterize the land uses of the property you own or lease in the Clackamas River watershed? (Check all that apply)

<input type="checkbox"/> My main residence	<input type="checkbox"/> Annual crops	<input type="checkbox"/> Hazelnuts or walnuts	<input type="checkbox"/> Recreation
<input type="checkbox"/> Ranching	<input type="checkbox"/> Fruit crops	<input type="checkbox"/> Timber	<input type="checkbox"/> Other (please specify)
<input type="checkbox"/> Dairy	<input type="checkbox"/> Vineyard	<input type="checkbox"/> Nursery	<input type="text"/>
<input type="checkbox"/> Hay	<input type="checkbox"/> Grass seed	<input type="checkbox"/> Grass / Pasture	

4 How many livestock (including horses, cows, and chickens) do you keep at least part of the time on your properties in the Clackamas River watershed?

Cattle	Horses	Pigs/Hogs	Chickens	Other (specify)
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

5 What was the value of agricultural or forestry sales from your land in the watershed in 2014?

<input type="radio"/> \$0	<input type="radio"/> <\$1,000	<input type="radio"/> \$1,000 - \$9,999
<input type="radio"/> \$10,000 - \$49,999	<input type="radio"/> \$50,000 - \$99,999	<input type="radio"/> >\$100,000

6 How important are the following factors when you are making decisions regarding your land?

Select one response for each item	Not at all Important	Somewhat Important	Very Important
Produce high quality farm or timber products for market	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grow/manage a business through my land's production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhance my land's investment value	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhance my property's development potential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide income for me and my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide a safe and comfortable home for me and my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leave an asset for future generations of my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Provide recreational opportunities for me and my family	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protect the health of waterways on or near my property	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Preserve open space or aesthetic beauty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protect local wildlife or native vegetation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

YOUR LAND MANAGEMENT EXPERIENCES

Reporting on your land management practices and experiences will help water resource managers more fully understand the role that landowners play in the watershed.

- 7 (a) Please check any of the practices utilized on your land in the boxes to the left.
 (b) Then, regardless of whether or not you checked the box in part a, please indicate how much of an impact you think these practices have on river water quality.

(a) Check all practices that apply	(b)	Impact on Water Quality		
		Low	Moderate	High
<input type="checkbox"/> Use of synthetic fertilizers		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Nutrient management plan		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Broadcast pesticide application		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Precision pesticide application		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Integrated pest management		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Organic farming		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Storm water runoff control		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> High efficiency irrigation		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Livestock exclusion zones around streams		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Drainage tiles		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Invasive species control		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> Land set aside for wildlife protection		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 8 (a) Have you ever participated in any of the following voluntary conservation programs on any of the land you own? If so, please check the box on the left for all that apply.
 (b) Then, for the boxes you checked, tell us whether your experience was positive or negative.

(a) Check all programs that apply	(b)	Very Negative	Neither positive nor negative	Very Positive
		<input type="checkbox"/> A federal conservation program (e.g. CREP or EQIP)		<input type="radio"/>
<input type="checkbox"/> A state of Oregon conservation program		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> A local conservation program (e.g. a watershed council or conservation district)		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- 9 Do any of the below statements about conservation real estate apply to you?

Select one response for each item	Yes	No
Some or all of my land is covered by a conservation easement held by a conservation organization or agency.	<input type="radio"/>	<input type="radio"/>
I have sold, donated, or otherwise transferred the title to land I previously owned to a conservation organization or agency.	<input type="radio"/>	<input type="radio"/>

10 Please report the degree to which you agree with the following opinions. In general, conservation programs are...

	← Agree		No Opinion		Agree →	
Beneficial to wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Harmful to wildlife
Beneficial to my land's productivity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Harmful to my land's productivity
Good for my finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Bad for my finances
Rewarding to landowners	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Harmful to landowners
Compatible with goals for my land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Incompatible with goals for my land
Flexible	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Inflexible
A good use of resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	A waste of resources
Easy to enroll in	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Difficult to enroll in

YOUR OPINIONS ON WATERSHED CONSERVATION

Please take the opportunity to fill out the following information regarding what types of practices and features you would like to see in a watershed conservation program.

11 A watershed conservation program may be able to help you to accomplish some of the goals listed below while keeping your land in production. Assuming such a program is established in the Clackamas River watershed, how likely would you be to work with the program on any of the following goals?

Select one response for each item	Very Unlikely		Neither Likely nor Unlikely		Very Likely
Reducing fertilizer use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reducing pesticide use	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving irrigation efficiency	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Transitioning to organic production	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving storm water runoff control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Adding livestock exclusion zones around streams	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Controlling invasive species	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enhancing wildlife habitat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Maintaining healthy streamside and floodplain forests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restoring degraded stream and floodplain areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Planting new forests along streams that are not currently forested	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

12 Would the following increase your interest in working with a watershed conservation program?

<i>Select one response for each item</i>	<i>Definitely Not</i>	<i>Not Sure</i>	<i>Definitely Yes</i>
Annual cash incentives for participating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
One-time cash bonus for signing up	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A cash bonus for joint participation with neighbors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Discounts at local retailers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improved marketing for products from my land	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Educational/training opportunities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zero-interest loans	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dedicated staff to help you implement your project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

13 How likely would you be to enroll in a watershed conservation program if it required you to work with the following organizations to implement the program or project?

<i>Select one response for each item</i>	<i>Very Unlikely</i>	<i>Not Sure</i>	<i>Very Likely</i>
Natural Resources Conservation Services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clackamas Soil & Water Conservation District	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
US Fish and Wildlife Service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clackamas Pesticide Stewardship Partnership	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oregon Department of Environmental Quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oregon Department of Agriculture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oregon Department of Fish and Wildlife	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Producer Organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clackamas River Basin Council	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clackamas River Water Providers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other non-profit conservation organizations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

14 Would you be willing to agree to any of the following in a watershed conservation program?

<i>Select one response for each item</i>	<i>Definitely Not</i>	<i>Not Sure</i>	<i>Definitely Yes</i>
A 10 year contract	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A 20 year contract	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A deed restriction lasting the length of the contract	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Annual reporting to the project sponsor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specific management actions prior to enrollment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular project maintenance and monitoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15 To what extent do you agree or disagree with the following statements about why you might NOT participate in a watershed conservation program?

<i>Select one response for each item</i>	<i>Strongly Disagree</i>	<i>No Opinion</i>	<i>Strongly Agree</i>
I still don't know enough about these programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't trust the organizations or agencies that run these programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm concerned about legal or regulatory implications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My neighbors or community would give me a hard time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No one else in my community participates in these types of programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I won't own the property long enough to make it worth my while	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I'm uncomfortable with the attention programs like these bring to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I don't have enough time to participate in a program like this	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My finances won't allow it	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Enrollment would make it harder to run my business	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16 In general, do you agree or disagree with the following statements regarding watershed conservation in the Clackamas River watershed?

<i>Select one response for each item</i>	<i>Strongly Disagree</i>	<i>No Opinion</i>	<i>Strongly Agree</i>
Watershed conservation benefits everyone in the watershed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watershed conservation is just the right thing to do	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The effects of water pollution on public health are worse than we realize	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pollution generated on my land harms people downstream	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Development within the watershed threatens water quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Functioning stream ecosystems are important for a clean water supply	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watershed conservation will threaten my livelihood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Watershed conservation might limit my choice and personal freedoms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
While some local areas may have seen declines in water quality, overall water quality in the watershed is not in decline	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Claims regarding high pollution levels in the watershed are exaggerated	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17 Now that you know a little bit more about the potential features of a watershed conservation program in the Clackamas River watershed, how likely would you say you are to participate in such a program if the program was tailored to your responses above?

Very Unlikely
 Unlikely
 Not Sure
 Likely
 Very Likely

**VEGETATIVE
BUFFERS ON
YOUR LAND**

An effective way to maintain water quality is to keep vegetated buffers around waterways. Please answer the following questions about the use of vegetated buffers on your land.

18 Does a stream, agricultural ditch, slough, or wetland exist anywhere on your property?

- Yes No (If no, skip to Question #23)

19 Do you currently have a vegetative buffer around streams or waterways on your property? (select all that apply)

- No
 Yes, I have riparian buffers (native trees, shrubs, and grasses alongside waterways)
 Yes, I have filter strips (non-harvested grasses alongside waterways)
 Yes, I have grassed waterways (strips of grass seeded within cropland to slow water flow)



20 On average, about how wide is the vegetative buffer surrounding the waterways on your property?

- N/A 5 ft 10 ft 20 ft 35 ft 50 ft 100 ft or more

21 Do you currently receive any payments for maintaining a vegetative buffer around your streams (e.g. the federal Conservation Reserve Enhancement Program (CREP))?

- N/A
 Yes, I receive payments for my vegetative buffer in the amount of \$_____ per acre
 No, I do not currently receive payments for my vegetative buffer

22 A watershed conservation program may be able to pay you to place or keep land in buffers. What level of payment would motivate you to plant or maintain a buffer of at least 35 feet in width?

Select one response for each item	Definitely Not	Probably Not	Not Sure	Probably Yes	Definitely Yes
No payment required	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$50 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$100 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$200 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$400 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$600 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
\$800 per acre / year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

*Images courtesy of USDA NRCS

**FINALLY, PLEASE
TELL US A LITTLE
ABOUT YOURSELF**

Remember, your responses are entirely confidential. When you have finished the survey, don't forget to mail it back to us in the enclosed envelope.

23 What is your gender? Male Female

24 What year were you born?

25 What is the highest level of education that you have completed?

- | | |
|--|--|
| <input type="radio"/> Less than high school degree | <input type="radio"/> Associate's or other 2-year degree |
| <input type="radio"/> High school degree or equivalent | <input type="radio"/> Bachelor's degree (4 year) |
| <input type="radio"/> Some college, no degree | <input type="radio"/> Graduate or professional degree |

26 What is your political tendency?

- | | |
|--|---|
| <input type="radio"/> Very Liberal | <input type="radio"/> Somewhat Conservative |
| <input type="radio"/> Somewhat Liberal | <input type="radio"/> Very Conservative |
| <input type="radio"/> Moderate | |

27 Please estimate your total household income in 2014 before taxes. (Check one item only)

- | | |
|--|---|
| <input type="radio"/> Less than \$25,000 | <input type="radio"/> \$75,000 - \$99,999 |
| <input type="radio"/> \$25,000 - \$49,999 | <input type="radio"/> \$100,000 - \$149,999 |
| <input type="radio"/> \$50,000 - \$ \$74,999 | <input type="radio"/> \$150,000 or more |

28 Approximately what percentage of your household's income is provided by your land in the Clackamas River watershed?

USE THE SPACE BELOW TO WRITE ANY ADDITIONAL COMMENTS

THANK YOU FOR YOUR TIME AND SUPPORT OF THIS STUDY!

Matt DeAngelo
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503-451-0394 / deangel2@pdx.edu

Max Nielsen-Pincus, PhD
Assistant Professor

