PUBLIC EXCHANGE™

Reducing Residential Water Use in the Santa Clarita Valley

Research and Messaging Brief

USC Dornsife

SCV WATER

Aims of the Study

California has a growing water conservation problem, and the Santa Clarita Valley (SCV) is no exception. The Valley has experienced exceptional levels of drought over the past few years, with 45% of its banked water reserves depleted after record-low levels of rain during the 2020-2022 drought. This improved somewhat due to the increase in precipitation in early 2023, but over the longer term, California, including the SCV, is expected to face continued water challenges.

In response to these circumstances, the Santa Clarita Valley Water Agency (SCV Water) developed several initiatives including the Water Use Efficiency Strategic Plan and the Water Shortage Contingency Plan, which focus on various areas of action, including *demand reduction initiatives during normal and dry-year water conditions*. These initiatives are a key piece of the puzzle for water conservation in the community, but their uptake and success, at least in part, depend on how effectively they are communicated to customers.

SCV WATER

Water Use Efficiency Strategic Plan

Water Shortage Contingency Plan

Yet information alone is often not sufficient to change behaviors (Ehret et al 2021). Information-based outreach assumes that individuals do not engage in water conservation because they lack sufficient knowledge about water issues and/or what they can do to take action. Our findings show that SCV Water customers are well aware of drought and of water conservation behaviors and technologies they can put in place at home. Knowledge deficits — especially about the reality of drought in the area — may be a small component of the lack of uptake of outdoor water conservation among SCV residents. This suggests that communications and outreach may be more effective when they directly address customers' perceived barriers to adopting further conservation behaviors (such as lawn replacement), in addition to providing information about drought and water issues in the community.

USC Dornsife

PUBLIC EXCHANGE™

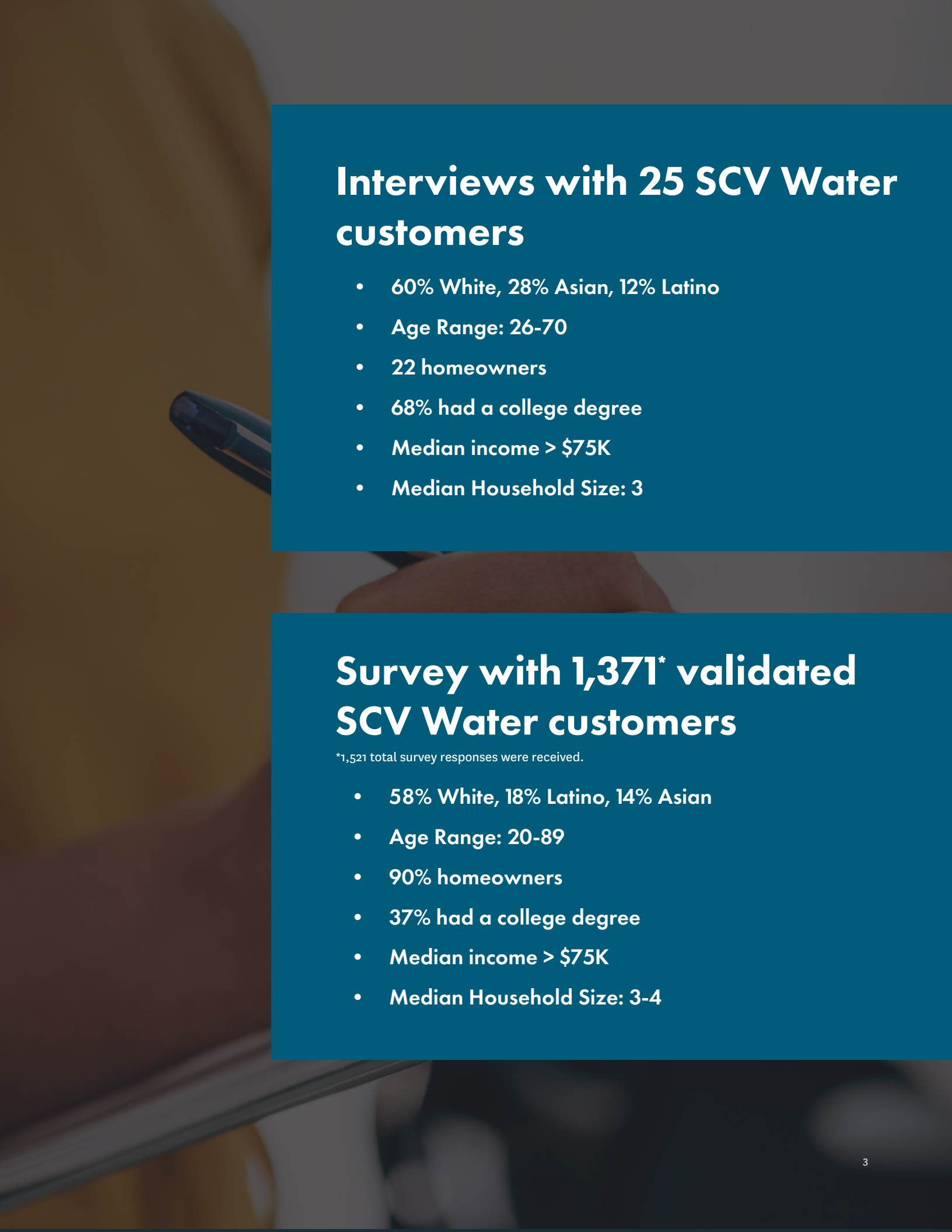
To support SCV Water's demand reduction initiatives, the USC Dornsife Public Exchange conducted a study to assess customers' beliefs and attitudes about water conservation. The study aimed to yield in-depth insights about customers' perceptions about, motivations for, and barriers to water conservation, which can help inform SCV Water communications, outreach, and potential interventions.

Ultimately, the study's goals are to support SCV Water in their efforts to:

- Increase awareness of water issues among residents;
- Increase participation in specific SCV Water initiatives such as the Lawn Replacement Program (LRP) and incentive programs to adopt water-saving irrigation systems, and;
- Promote water conservation within the community in general.

Approach

This was a mixed methods study which included qualitative interviews and a survey with SCV Water customers. Our qualitative interviews aimed to provide in-depth insights into the range and meaning of customer perspectives, behaviors and preferences around water use and water conservation. A survey was then fielded to SCV Water customers to understand the prevalence of particular perspectives and behaviors around water conservation.



Interviews with 25 SCV Water customers

- 60% White, 28% Asian, 12% Latino
- Age Range: 26-70
- 22 homeowners
- 68% had a college degree
- Median income > $75K
- Median Household Size: 3

Survey with 1,371* validated SCV Water customers

*1,521 total survey responses were received.

- 58% White, 18% Latino, 14% Asian
- Age Range: 20-89
- 90% homeowners
- 37% had a college degree
- Median income > $75K
- Median Household Size: 3-4

Key Findings: SCV Water Customers' Beliefs & Attitudes

Most survey participants underestimate their own water use at home.

SCV Water customers consistently underestimated how much water they used when asked or were unsure of their water use. In our survey, when asked "How many gallons of water do you estimate your household uses per day," 33% of customers said "I don't know;" and the remaining 67% estimated a median of 50 gallons/day. The estimates respondents provided are noteworthy because they are well below the single-family home average for SCV, which is 480 gallons per day according to data from the Agency.

However, **60% of survey respondents said they would be interested to know more** about how much water their household uses, and the vast majority think that the water agency has an important role to play in educating the community about their water use and about water conservation. Yet only 42% reported already having seen any information to this effect from the agency, which suggests opportunity for intervention.

How many gallons of water do you estimate your household uses per day?

33%	**67%**
"I don't know"	~50 gallons/day

Single-family home average for Santa Clarita Valley is 480 gallons/day

Most survey respondents already see benefits to saving water, and agree on its importance.

The majority of SCV Water customers surveyed understood the importance of water conservation and are concerned about the water supply. Most survey participants agreed that conserving water is necessary for three broad aims: (1) protecting the current clean water supplies and quality of life, (2) protecting the environment and saving water for the future, and (3) lowering households' water bills. The majority of survey participants felt they have a role to play in water conservation, with 86% reporting it is important for them to conserve water, and 80% feeling they have a moral obligation to conserve water.

Survey participants agreed that conserving water is necessary for:

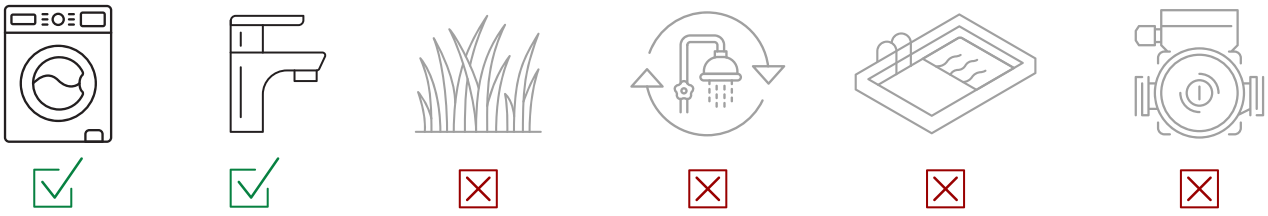
1. Protecting the current clean water supply
2. Protecting the environment & saving water for the future
3. Lowering households' water bills

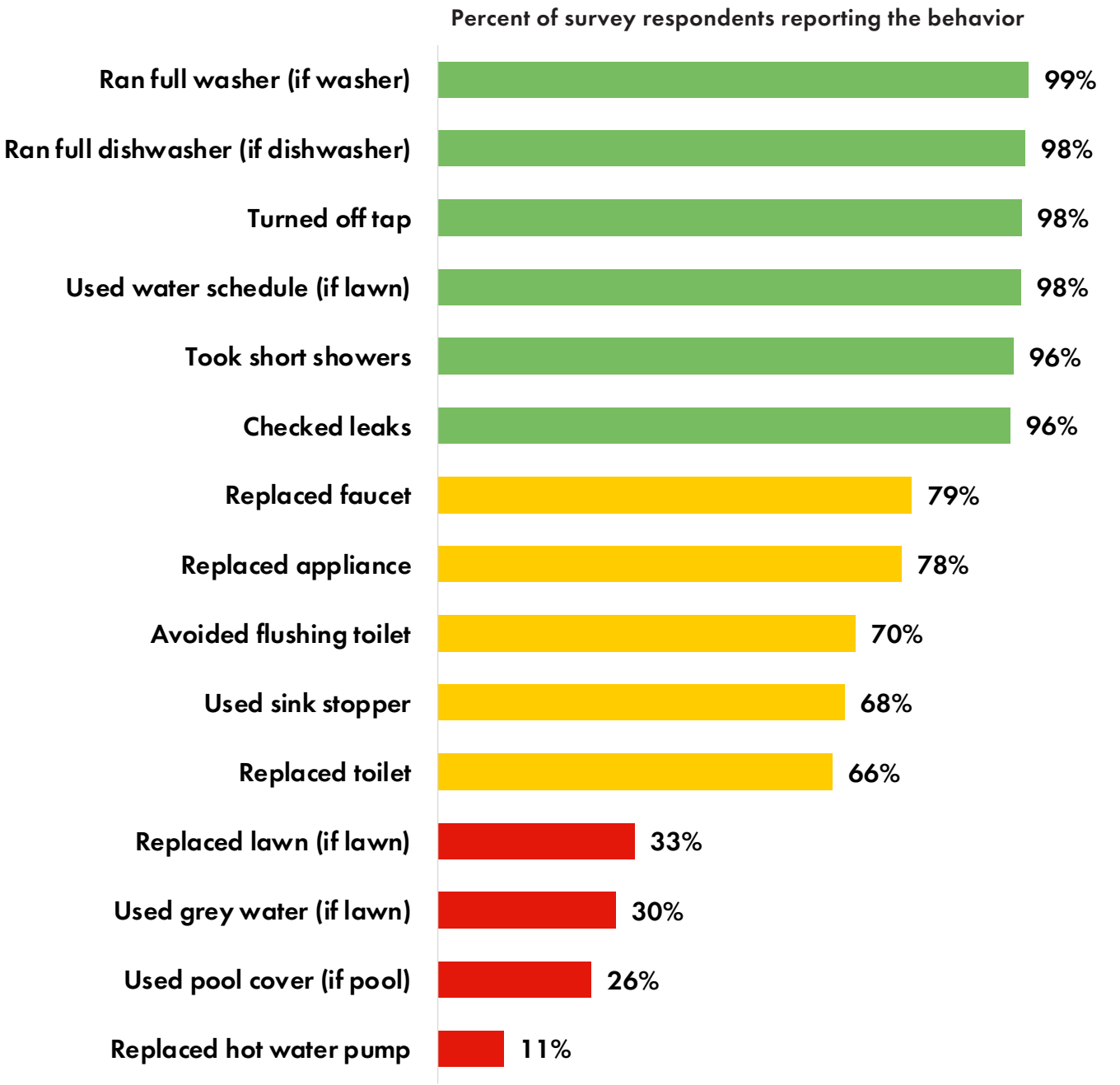
86%
say it is important for them to conserve water

80%
say they have a moral obligation to conserve water

Indoor water conservation behaviors are widespread among survey participants; outdoor conservation is less common.

The survey shows that water conservation behaviors are common, especially indoor behaviors such as running a full washer or turning off taps. However, there are some important water conservation behaviors and technologies that are much less prevalent, notably, replacing lawns with drought resistant varieties, using gray water to water the lawn, using pool covers (for households with pools), and replacing hot water pumps for more efficient versions.





- N=1361, with washer
- N=1269, with dishwasher
- N=1113, with lawn
- N=319, with pool

Survey respondents cited many barriers to lawn replacement.

When survey participants were asked about barriers to lawn replacement, 58% thought drought-tolerant landscapes are too expensive, 45% said they like their lawn as it is now, 41% stated they don't like the drought-tolerant look, 40% thought lawn replacement is too time-consuming, and 22% mentioned their HOA or landlord won't let them replace their lawn. While the water savings from lawn replacement are well known, there remains high skepticism about the perceived barriers to taking advantage of such programs, such as cost, aesthetics, time to implement and maintain, and lack of perceived need. Addressing these concerns will be critical to enhance participation.

SCV Water lawn replacement programs have the lowest uptake despite being the most well-known.

In addition to the lawn replacement program, other SCV Water conservation initiatives include pool cover rebates, water conservation workshops, water efficiency check-ups, leak check-ups, smart controllers, irrigation efficiency improvements and more. Amongst these, the lawn replacement rebate was by far the most well-known by SCV Water customers who participated in our survey. Of particular interest is that among customers who have not replaced their lawn, 63% said they were aware of the lawn replacement program which suggests that a knowledge deficit may *not* be a key barrier to participation. Other programs were less well-known; for instance, only 41% of participants reported they were aware of SCV Water's irrigation rebates.

Many survey participants receive information about lawn replacement from sources outside of SCV Water.

In the survey, SCV Water customers were asked which sources they have used other than SCV Water to get information about lawn replacement. Responses varied, with participants obtaining information from a range of sources. Thirty-nine percent reported learning about lawn replacement from neighbors or friends, followed by landscaper or gardener (33%), nurseries and garden centers (24%), and homeowners associations (12%).

Survey respondents are concerned that certain actors in the community are not pulling their weight in terms of water conservation.

Almost half of survey respondents reported a perception that other entities in the community, such as farms, developers, the City (in public parks, etc.), and golf courses are the biggest water wasters, and not individual households. This perception may be a deterrent to water conservation; in qualitative interviews, interviewees said it is unfair to expect them to replace their own lawn when large actors in the community are not routinely conserving water (e.g. daytime watering of parks; water runoff from construction sites).

The language used to communicate with customers is important, but not likely a major determinant of residents taking action.

In both the qualitative interviews and the survey, USC tested preferences for terms typically used in water-related communications, such as *responsible water use*, *water-wise*, and *water-smart*. Findings show that most terms were clearly understood based on context clues. In particular, *water-wise* appears to be a relatively familiar term while *water-smart* is less familiar (but interviewees could figure out what it meant) and made people think of 'smart devices' for water conservation.

Recommendations

Increase awareness of individual water use.

Given the low levels of awareness of customers' individual water use, one recommendation is to show customers their actual use, emphasizing how much water they are using outdoors (and how much of that is likely to go to waste due to runoff). Information about customers' individual water use may act as a useful corrective of households' underestimates. This information may be highlighted in customer's water bills, and/or in direct mailings or emails[1].

Awareness of customers' individual water use may in particular address the perceived lack of need for lawn replacement reported by many participants. Understanding how much water is spent (and wasted) on outdoor use may shift perceptions about the need for lawn replacement.

Focus messaging and intervention efforts on behaviors and technologies that are not yet common.

Indoor water conservation (such as turning taps off and running full loads of laundry) was identified as being fairly widespread and understood in the SCV community. A focus on communications about *less common* water conservation behaviors may be effective, including lawn replacement, using gray water to irrigate landscapes, using pool covers, and replacing hot water pumps with more efficient versions.

Increase awareness of how much water and money can be saved through water conservation.

Survey participants highlighted the importance of water conservation for protecting the water supply, for securing water for future generations, and for saving money. Communications highlighting both the water and cash savings from specific water conservation behaviors (especially around outdoor water conservation) may increase support for those initiatives[2].

[1] Direct emails or mailings may increase customer exposure to the information; our qualitative findings suggest many people do not look at their bills in detail or at all, especially if they have automatic payments set up.

[2] Research has found that providing households with information on the water and energy use of neighbors can decrease resource consumption (Bhanot, 2021; Schultz et al, 2019). However, other research has demonstrated increased water use amongst the lowest consuming households (Landon et al, 2018). There is also a risk that households already conserving water will increase their use to match the norm (Ehret et al, 2021). These findings suggest the need for a cautious deployment of such strategies, taking into consideration how messages are framed, and who receives them. Other research on messaging for water conservation suggests that giving behaviors a personal, emotive and social significance by making it relevant to an identity (e.g. "Californian") may be effective. For example, a recent study using identity-framed messages found that households that received personal ("our precious water resources") and social ("our city") messages reduced their water use compared with households that only received water saving tips (i.e., behavioral skills) (Seyranian et al., 2015). The critical aspect of this intervention is to use identities that resonate with the target population.

Recommendations

Address concerns about aesthetics of lawn replacement.

Survey participants expressed concerns about the aesthetic aspects of lawn replacement; that is, they perceive drought-tolerant landscapes as less attractive than their current lawn. Interventions that highlight the varieties and aesthetic value of drought-tolerant landscapes may help address this concern. Possible avenues for this include engaging with customers through in-person outreach at community events/stations, organizing garden tours of completed lawn replacement projects in different neighborhoods, showcasing pictures of replaced lawns and the diversity of replacement options, and emphasizing other alternatives to lawn use such as drought-tolerant vegetable and flower gardens.

Address concerns about time and cost of lawn replacement.

Perceptions about the direct, one-time cost of lawn replacement, and the high level of effort involved, were also key barriers to lawn replacement. Add clarity to these perceptions by providing the true cost and up-front time commitment for customers in an accessible, clear, and concise way. This may help reduce misconceptions about the time and cost associated with lawn replacement among customers[3].

Address perceptions of lost recreational space.

Interviewees and survey participants also cited concerns that lawn replacement may lead to loss of recreational space (e.g., lawn for kids to play on). This could be addressed by providing examples of drought-tolerant landscapes that encourage recreation (e.g., alternative soft-scape materials, rocks or other structures to climb on, pollinator gardens, sports courts, etc.), as well as emphasizing community areas with grass which are available for public recreation (e.g., parks), and encouraging residents to only keep grass in areas where it is needed (e.g., sections of lawn reserved for use by children or pets).

Incentivize local gardeners, landscapers, and nurseries to emphasize the importance of SCV Water conservation programs to their customers.

Survey results show that customers often obtain information from trusted sources such as their landscaper, gardener, nurseries and others. These sources may be an efficient and effective conduit for targeted information about SCV Water programs, as well as for general education on outdoor water conservation. Concerted efforts to partner with these stakeholders to promote both water conservation generally, and SCV Water conservation initiatives in particular, might be effective in increasing interest and awareness in outdoor water conservation.

[3] Financial appeals (e.g. “saving water saves you money”) have been shown to lead to some reduction in water use (Brent et al 2017). However, our study suggests that SCV Water customers are concerned with the upfront cost of lawn replacement, even if they are aware of the potential longer-term savings.

Recommendations

Address perception of water waste by large community actors.

Interviewees and survey participants perceive certain actors in the community (the City, County, developers, and others) as not pulling their weight in water conservation, which may deter conservation behaviors. Addressing this perception may incentivize individuals to take more action at home. Options for this may include partnering with public authorities, golf courses, **Green Santa Clarita** and HOAs on messaging showcasing what these entities are doing to conserve, and increasing the visibility of existing water conservation measures across these stakeholders.

Conduct additional engagement with customers to distill SCV-centric conservation terminologies.

As noted in the findings, interviewees and survey participants expressed familiarity with the term *water-wise*. However, *water-wise* is also a term used for other water conservation consultants and programs, which could cause confusion with customers. The term *water-smart* was also familiar to respondents, but was often associated with smart devices for water conservation. Therefore, further research and engagement specific to water conservation and drought terminology is recommended to determine the lexicon which resonates most with SCV Customers. In general, the use of everyday language is recommended for communications with the general public[4].

[4] Research has shown that when communicating specific terminology to the general public, using everyday language at a 7th grade reading level is most effective in it being understood by its audience. Generally, it is recommended to simplify wording as much as possible and describe any underlying processes related to the subject matter being communicated (Bruine de Bruin et al 2021).

Forging Ahead

The study's findings clearly indicate widespread support for water conservation and a high prevalence of certain conservation behaviors and technologies (especially indoors). Yet the findings also suggest several areas for action that may further entrench and increase water conservation behaviors and technology uptake in the community. The recommendations above stem directly from the findings of the research and are meant to support planning and decision-making for current and future communications, outreach, and interventions.

While the study provides clear insights into the main perceived barriers to further water conservation, additional research is needed to shed light on what specific approaches may be most effective in the Santa Clarita Valley community. Finally, it is also worth noting that these recommendations are not comprehensive. Other areas of potential intervention may be: allocating budget to increase financial incentives to lawn replacement, implementing fully-funded pilot lawn replacements or demonstration gardens around the community to showcase the aesthetic and entertainment value of drought-tolerant landscapes, partnering with developers and other private entities for further adoption of water conservation measures, and others.

References

Bhanot, S. (2021). *Isolating the effect of injunctive norms on conservation behavior: New evidence from a field experiment in California*. Organizational Behavior and Human Decision Processes

Schultz, W., Javey, S., Sorokina, A. (2019). *Social Comparison as a Tool to Promote Residential Water Conservation*. Frontiers in Water

Landon, A., Woodward, R., Kyle, G., Kaiser, R. (2018). *Evaluating the efficacy of an information-based residential outdoor water conservation program*. Journal of Cleaner Production

Ehret, P., Hodges, H., Kuehl, C., Brick, C., Mueller, S., Anderson, S. (2021). *Systemic Review of Household Water Conservation Interventions using the Information-Motivation-Behavioral Skills Model*. Environment and Behavior 2021, Vol. 53(5) 485-519

Seyranian, V., Sinatra, G., Polikoff, M. (2015). *Comparing communication strategies for reducing residential water consumption*. Journal of Environmental Psychology 21 (2015) 81-90

Brent, DA., Lott, C., Taylor, M., Cook, J., Rollins, K., Stoddard, S. (2017). *Are Normative Appeals Moral Taxes? Evidence from A Field Experiment on Water Conservation*. Louisiana State University-Baton Rouge, E.J. Ourso College of Business, Department of Economics Working Paper Series

Bruine de Bruin, W., Rabinovich, L., Weber, K., Babboni, M., Dean, M., Ignon, L. (2021). *Public understanding of climate change terminology*. Climatic Change 167, 37