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### Authors

Brown, Abigail

Langridge, Ruth

Rudestam, Kirsten

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## Coming to the table: collaborative governance and groundwater decision-making in coastal California

Abigail Brown<sup>a\*</sup>, Ruth Langridge<sup>b</sup> and Kirsten Rudestam<sup>a</sup>

<sup>a</sup>Department of Sociology, University of California Santa Cruz, Santa Cruz, CA, USA; <sup>b</sup>Legal Studies/Politics Department, University of California Santa Cruz, Santa Cruz, CA, USA

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Collaborative governance is on the rise in the United States. This management approach brings together state and non-state actors for environmental decision-making, and it is frequently used in California for decisions regarding local groundwater management. This study examines groundwater decision-making groups and practices in a central California coastal community to understand whether groups meet specific collaborative governance criteria and whether and why certain subsets of the population are excluded from groundwater decision-making practices. It also identifies actions for better group inclusion. We find that small farmers, the Hispanic/Latino community, and the general public are often excluded from groundwater decision-making groups and practices due to unawareness, mistrust, and insufficient resources. Education and awareness as well as incentives could help increase inclusion. This study provides insights into more equitable groundwater decision-making groups and practices, and also calls for more critical examination of the current stakeholder approach to decision-making.

**Keywords:** collaborative governance; participatory governance; groundwater; decision-making; California

### 1. Introduction

Ending the third driest water year<sup>1</sup> on record in California, the governor signed what many media outlets and officials called historic legislation to improve local management of dwindling groundwater resources in a state with limited groundwater regulation and no permit system for groundwater withdrawals (Office of Planning and Research 2014).<sup>2</sup> The *Sustainable Groundwater Management Act*, passed in September 2014, strengthens local control of groundwater supplies through creation of *Groundwater Sustainability Agencies* along with increased state oversight. These new agencies are required to “consider the interests of all beneficial uses and users of groundwater,” and the act lists stakeholder groups to be consulted including “disadvantaged communities” (Groundwater Management Act 2014). This emphasis on locally driven and inclusive management of groundwater resources was echoed at an annual *Groundwater Resources Association of California* conference in late 2014 with officials and professionals both calling for increased collaboration in the implementation of the new act (Groundwater Resources Association of California 2014). What is not being critically questioned, however, is the efficacy of past or present participatory and collaborative groundwater decision-making arrangements in California. Now, more than ever before, it is essential

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\*Corresponding author. Email: [ablbrown@ucsc.edu](mailto:ablbrown@ucsc.edu)

to consider how participatory and collaborative groundwater decision-making groups and practices in this state fail or succeed in being equitable entities.

Authors of this article are responding to the practical need to examine collaborative governance approaches in California. Moreover, research on collaborative governance in the state is limited, and we expand on the work of previous scholars who explore power imbalances in participatory decision-making (Morales and Harris 2014; Goldin 2013) and who analyze collaborative governance groups (Johnston *et al.* 2011; Ansell and Gash 2008; Connick and Innes 2003).<sup>3</sup> Our research is situated in coastal California's Pajaro Valley where we examine active groundwater decision-making to understand group structures and to further evaluate practices that result in exclusion or inclusion. We use secondary data about the groundwater decision-making entities in the Pajaro area, along with information from interviews with different stakeholders, to analyze power dynamics and decipher why some collaborative governance schemes do not bring all impacted actors to the table. Our research provides insights into generating equitable groundwater decision-making groups. It calls for more critical examinations of the stakeholder approach to local groundwater management, other power dynamics present in collaborative governance groups, and the broader political and economic factors that shape groundwater decision-making groups in California.

## 2. Background

Collaborative governance for environmental decision-making is on the rise in the United States (Ansell and Gash 2008; Ferreyra and Beard 2007; Reilly 1998). This approach claims to bring together state and non-state actors to solve complex environmental problems (Ansell and Gash 2008; Connick and Innes 2003). Ansell and Gash (2008) provide a concise definition of collaborative governance: “[a] governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets” (544). Their definition draws on previous efforts of Connick and Innes (2003).

Several scholars identify prominent features of collaborative governance groups. We recognize Connick and Innes (2003) and Ansell and Gash (2008) as providing the most comprehensive and clear frameworks. Connick and Innes (2003) compile characteristics of collaborative governance groups achieving beneficial outcomes. Ansell and Gash (2008) conducted a detailed evaluation of 137 collaborative governance settings and found six essential variables. Variables from Ansell and Gash (2008), with additions from Connick and Innes (2003) noted in brackets, are: (1) Public agencies or institutions (often) initiate the forum; (2) participants include state and non-state actors (as well as representatives from all interests); (3) participants engage directly in decision-making and are not merely consulted; (4) groups are formally organized and meet collectively; (5) groups aim to make decisions by consensus (even if consensus is not achieved); and (6) public policy or public management is the focus of collaboration.

Collaborative governance, one of many participatory paradigms for watershed management in low-income and high-income countries alike, emerged after neoliberal policies in the 1970s and 1980s (Harris 2013). Participatory approaches are often seen as a way to bring social equity and environmental sustainability to project outcomes (Morales and Harris 2014; Morinville and Harris 2014). In low-income countries, national loan provisions sometimes include stipulations for water privatization and participatory water management (Harris 2013). Terms for participatory processes in low-

income countries are *participatory rural appraisal* or *participatory development* (Goldin 2013). In high-income countries, less government funding for environmental management shifts some state responsibilities to non-state actors (Harvey 2005). Terms for participatory processes in high-income countries are *collaborative governance* or *adaptive governance* (Morinville and Harris 2014; Ansell and Gash 2008). Other factors leading to collaborative governance approaches are policy failures, difficulties with regulation, or increasing system complexity (Ansell and Gash 2008; Connick and Innes 2003).

Collaborative governance is similar to adaptive governance and participatory management, but there are a few differences between the three approaches. Collaborative governance is often discussed in the public policy literature, and addresses how to bring state and non-state actors together to make policy or management decisions (Ansell and Gash 2008; Connick and Innes 2003). Adaptive governance is generally explored in the natural resources literature, and focuses on diverse actors across various scales making dynamic decisions about changing systems (Morinville and Harris 2014). Participatory management is examined in the literature on development, and centers on decentralization of resource management by local representatives (Goldin 2013). While there is convergence between these three areas of research and participation in environmental decision-making is a global phenomenon, this article evaluates collaborative governance in California because of increased involvement of state and non-state actors in groundwater decision-making.

Many scholars identify purported benefits of collaborative governance groups in the United States. Collaborative governance can be useful for policy disputes, complex problems, or long-term management issues (Reilly 1998). When impacted stakeholders communicate about possible solutions, some individuals engage in a process of learning and growth (Connick and Innes 2003). Involving state and non-state actors in decision-making can also help preserve funds and vital resources (Ansell and Gash 2008; Weech-Maldonado, Benson, and Gamm 2003). Johnston *et al.* (2011) state: "When successful, a collaborative governance approach can lead to increased governmental accountability, greater civic engagement, consistent downstream implementation, and most importantly, higher levels of process and program success" (700). Additionally, collaborative governance processes are increasingly required on local, state, and national scales (Nelson 2012; Ansell and Gash 2008; Larson and Lach 2008).

While beneficial, participatory management and collaborative governance groups can be complicated in practice. For example, participatory management processes can reinforce power imbalances, devolve problems to communities, or result in persistent inequalities in decision-making. (Morales and Harris 2014; Morinville and Harris 2014; Goldin 2013). Strategies to include a broad range of stakeholders can be co-opted by power interests instead of enabling people to engage fairly in decision-making (Goldin 2013). Another issue is that collaborative governance may be replacing hierarchy or emerging within the context of existing hierarchal structures (Conrad 2012). It is essential to understand how power dynamics function in participatory management and collaborative governance arrangements while situating them within broader political and economic contexts (Morales and Harris 2014).

Earlier research finds that participatory management and collaborative governance groups should be inclusive and engage weaker and disadvantaged communities (Nelson 2012; Ansell and Gash 2008; Connick and Innes 2003), but people are often excluded. Group participants may have a false impression that they are taking part in a collaborative process (Nelson 2012; Ansell and Gash 2008). People may never join

participatory or collaborative groups or leave them after a short period of time due to limited financial resources and time for participation (Ansell and Gash 2008). There may be inequitable approaches around informing potential participants (Johnston *et al.* 2011), failure to ensure demographic and geographic diversity of possible participants (Larson and Lach 2008), or a lack of attention to affective (e.g. emotional) interactions among participants (Morales and Harris 2014).

Nevertheless, inclusive groups are a necessary component of successful collaborative governance of groundwater resources in California, and now mandated by law with the *Sustainable Groundwater Management Act* requiring involvement of weaker and disadvantaged groups. Approaches for creating inclusive participatory and collaborative groups include ensuring stakeholders have adequate incentives to participate; evening out resource advantages among participants (Ansell and Gash 2008; Lukasiewicz and Baldwin 2014); creating trustworthy and safe spaces (Ansell and Gash 2008; Wondolleck and Yaffee 2000; Reilly 1998); and allowing for affective modes of participation (Davies *et al.* 2012; Morales and Harris 2014). These inclusionary approaches can benefit from having experienced facilitators (Conrad 2012; Johnston *et al.* 2011; Ansell and Gash 2008).

Systematic evaluation of collaborative governance in the context of groundwater decision-making in California is lacking. In part, this is due to confusion around definitions. Our literature review provides clarity around the distinct and overlapping use of the terms participatory, adaptive, and collaborative for environmental management. Moreover, benefits of collaborative governance are outlined by numerous researchers, but problems are less critically examined. We utilize insights from scholars looking at power imbalances in participatory management to more critically evaluate potential problems with exclusion in collaborative governance groups. While there is some literature detailing actions for better inclusion in collaborative governance groups, we expand on this in our study.

### 3. Case study

We situate our research in California where diverse stakeholders, including state and non-state actors, are supposed to take part in groundwater decision-making groups. Collaborative governance goals are specified in a variety of state planning activities (Conrad 2012; Nelson 2012). The *Groundwater Management Act* of 2002 encourages agencies requesting state funds to prepare plans with stakeholder groups (Nelson 2012). The *Sustainable Groundwater Management Act* of 2014 requires stakeholder groups, including disadvantaged communities, to develop sustainable groundwater management plans (State of California 2014). Other types of laws around water in California also entail stakeholder inclusion. *Integrated Regional Watershed Management* legislation advises agencies to implement watershed management programs making them eligible for grant funding, and disadvantaged stakeholders are required to be involved (Conrad 2012). *Urban Water Management* legislation also “requires a water supplier to involve disadvantaged groups in the planning process” (Nelson 2012, 4). As expansive as the call for participatory management is in California, engaging all stakeholders in these processes remains difficult (Nelson 2012).

The diverse Pajaro Valley, in central coastal California, is an ideal site for this research on collaborative governance and groundwater decision-making. Over 80% of the population is Hispanic/Latino. Poverty rates are highest in this community for people of color (US Census Bureau 2014). Expensive real estate prices raise the cost of living

Table 1. Pajaro Valley Demographics.

Location	Population	Per capita money income	Median household Income	High school graduate	Bachelor degree graduate	Persons below poverty
Watsonville	53,111	\$16,263	\$43,905	54.2%	9.3%	20.7%
California	38,802,500	\$29,527	\$61,094	81.2%	30.7%	15.9%

and force many workers into long commutes (Glickman, Kelly and London 2008). The Mexican migrant population in the Pajaro achieved some political leadership over the past two decades, but undocumented workers (e.g. 75% of berry workers) continue to struggle for rights (Glickman, Kelly and London 2008). About 30% of the land is agriculture, 14% is urban space, and half is undeveloped native grassland (Levy and Christian-Smith 2011). The economy is based on a multi-million dollar agricultural industry employing thousands of farmworkers. High-value crops dominate, but the area is well known for berries (Hanson 2003). There is one small city, Watsonville, and other outlying towns in the region (Table 1).

About 98% of domestic and irrigation needs in the Pajaro Valley are met through groundwater (Levy and Christian-Smith 2011). Domestic sources use 17% and agricultural sources use 83% of groundwater (Levy and Christian-Smith 2011). Heavy groundwater reliance poses a significant and unique challenge. Bordering the Pacific Ocean, groundwater aquifers are prone to seawater intrusion (Hanson 2003). The California Department of Water Resources (DWR) categorized the Pajaro Valley with critical conditions of groundwater overdraft where “present water management practices will result in significant negative impacts upon environmental, social, or economic conditions at a local, regional, or state level” (DWR 1980). Pajaro Valley users pump almost twice the ‘sustainable yield’ of groundwater annually (Rudestam and Langridge 2014), and seawater intrusion reaches up to three miles inland (Nico Martin 2014). Overdraft and seawater intrusion threaten the local agricultural economy and the social and ecological resilience of the region.

To reduce groundwater overdraft, the Pajaro Valley Water Management Agency (PVWMA), a state-chartered organization, was formed in 1984 (PVWMA 2014). While the agency attempts to address problems of groundwater overdraft, they face difficulty decreasing local reliance on groundwater pumping due to a lack of available surface water, shifts to more water-intensive crops in agricultural areas (e.g. from apples to berries), long-term adverse litigation regarding charges for groundwater pumping, and rising domestic groundwater needs in nearby cities and towns. Despite past setbacks, PVWMA developed several major projects to reduce groundwater overdraft including an Aquifer Recharge and Recovery Facility in 2002, a Water Recycling Facility in 2009, and a Coastal Distribution System in 2009 with 20 miles of irrigation pipeline. The agency supplements these projects with agricultural and residential conservation programs.

There are numerous state and non-state actors (e.g. governmental, agricultural, business, residential, and environmental) participating in groundwater decision-making in the region. PVWMA frequently consults with stakeholder groups around groundwater management issues. They recently assembled a comprehensive advisory committee of stakeholders to draft an updated Basin Management Plan in 2012. There are also other

formal and informal groups taking part in groundwater decision-making. A few of these groups include Action Pajaro Valley (formed in 1998 to address land-use issues but now defunct), Central Coast Agricultural Water Quality Coalition (formed in 1999 and now helps farmers meet water quality requirements), and Community Water Dialogue (CWD) (formed in 2010 by a corporate farming operation to advocate for agricultural-focused groundwater solutions). The different groups involved in groundwater decision-making in the Pajaro Valley provides an interesting case study of interactions between various actors on multiple scales.

#### 4. Research design

Our study analyzes three aspects of collaborative governance groups and practices through a case study of groundwater decision-making in a coastal California community. First, it evaluates existing groundwater decision-making groups to see if they meet criteria of collaborative governance groups. Second, it identifies types of people excluded from participating in these groups and practices of exclusion within these groups. Third, it analyzes practices for better inclusion within these groups. We use secondary data, participant observation, and individual interviews for this analysis.<sup>4</sup> Individual interviews comprise the bulk of our qualitative methods. We conduct and analyze semi-structured individual interviews with 22 participants. Participants include various stakeholder groups including agriculture, government, labor force, environment, business, government, tribal, business, and media. Our sampling methods include quota techniques, with participant representation from different stakeholder groups, and chain referral techniques, allowing study participants to suggest other potential interviewees (Miles and Huberman 1994). We outline a deductive and inductive coding scheme using NVivo 10. Deductive codes derived from the literature review (Weiss 1994), and they were: (1) formal collaborative governance; (2) informal decision-making; (3) processes of exclusion; and (4) methods of inclusion. We inductively analyze qualitative data after completing deductive coding (Emerson, Fretz, and Shaw 1995).

There are a few limitations to our research design. While we use quota sampling to interview people from diverse categories, there is a lack of participation from certain stakeholder groups. Informal farmworkers are under-represented with only one representative from this stakeholder group. Accordingly, we revise interview questions during the research study to ask all interviewees about farmworker concerns. Residents not part of any existing groundwater decision-making group are also underrepresented. To account for their absence, we ask all interviewees about processes of exclusion around groundwater decision-making. This study engaged in non-representative sampling, and the sociological findings cannot be replicated or validated. Instead, the value of this study is to identify active collaborative governance groups for groundwater decision-making in the Pajaro Valley, general processes of exclusion around groundwater decision-making, and actions for improving inclusion in groundwater decision-making groups.

#### 5. Findings

##### 5.1. Collaborative governance group structures

This research study employs a combined version of the Ansell and Gash (2008) and Connick and Innes (2003) frameworks to see if participatory groups mentioned in Pajaro Valley interviews meet collaborative governance group criteria (Table 2). There were



Table 2. Six characteristics of successful collaborative governance groups.

Number	Characteristic
1	Public agencies or institutions (often) initiate the forum.
2	Participants include state and non-state actors (as well as representatives from all interests).
3	Participants engage directly in decision-making and are not merely consulted.
4	Group is formally organized and meets collectively.
5	Group aims to make decisions by consensus (even if consensus is not achieved).
6	Public policy or public management is the focus of collaboration.

numerous groups frequently mentioned in Pajaro Valley interviews, but not all of them are collaborative governance entities (Table 3). A basic definition of collaborative governance groups indicates that they consist of state and non-state actors that meet regularly for participatory decision-making. Groups either solely a non-profit organization or a state entity not leading a clear collaborative governance process are omitted from this article's analysis.<sup>5</sup> We evaluate remaining groups – Pajaro Valley Watershed Management Agency, CWD, Central Coast Regional Water Quality Control Board, and Resource Conservation District (RCD) – using the six collaborative governance criteria outlined in Table 2.

Four participatory groundwater decision-making groups have been active in the Pajaro region for many years. The PVWMA is a statutory organization that manages groundwater resources with local stakeholders. They have a board with community representatives and sub-committees of different stakeholders. The CWD is a voluntary organization for participants to address groundwater deficiency while ensuring agricultural viability, and was initiated by a large agricultural company. They have government and non-profit representatives that participate in their meetings, and they collaborate closely with PVWMA. The Central Coast Regional Water Quality Control Board (Control Board) is a regional branch of state government whose goal is to develop and enforce water quality objectives and plans. The Control Board has nine appointed members with two people from Watsonville, and they consult the general public when drafting management plans. The RCD is not a participatory groundwater decision-making group, but stepped into a leadership role with the CWD. None of these groups meet all successful collaborative governance criteria (Table 4), specifically Criteria 2 (i.e. state and non-state actors, all interests) or Criteria 3 (i.e. direct and meaningful engagement).

Table 3. Frequency of group references in interviews.

Group name	Sources	References
Pajaro Valley Watershed Management Agency	21	122
Community Water Dialogue	10	50
Central Coast Water Quality Control Board	5	16
Resource Conservation District	3	11

Table 4. Collaborative governance criteria and active participatory groups in the Pajaro Valley.

Name	1 <sup>a</sup> Public agency initiation	2 <sup>b</sup> State and non-state actors, all interests	3 <sup>b</sup> Direct and meaningful engagement	4 <sup>a</sup> Formal group	5 <sup>a</sup> Consensus-oriented	6 <sup>a</sup> Public policy or management
PVWMA	Yes	No	No	Yes	Yes	Yes
CWD	No	No	No	Yes	Unknown	Yes
Control Board	Yes	No	No	Yes	Yes	Yes
RCD	No	No	No	Yes	Unknown	Yes

<sup>a</sup>Criteria 1, 4, 5, and 6 are examined in mission statements and websites.

<sup>b</sup>Criteria 2 and 3 are examined only in interview transcripts.

PVWMA falls short of including all stakeholders. A couple of respondents indicate farmers form the board majority. Others said that PVWMA also does not necessarily promote meaningful participation.

- “A lot of big farmers have a big say.” - *City official*
- “...to say that PVWMA board meetings are not widely attended is an understatement.” - *Current PVWMA board member*
- “Most of the decisions are made by the PVWMA Board and voters who occasionally have the opportunity to express decisions on specific topics.” - *Local non-profit employee*

Responses about CWD are similar. This comment sums them up:

- “I see most of the larger agricultural businesses (Driscoll’s, Martinelli’s), some of the bigger and more progressive groups with bases in the valley, participating. They see a risk to their future. You see the environmental community. You see the governmental agencies (technical and regulatory). In some ways, I’m just picturing who shows up for CWD meetings.” - *Local non-profit employee*

Two other respondents note they attend CWD meetings only in observer roles. Respondent reflections about the least mentioned groups – the Control Board and RCD – also revolve around feelings that these groups are only for specific subsets of the community (i.e. regulators or farmers, respectively).

Results of our interview analysis indicate that active participatory groundwater decision-making groups in the Pajaro Valley often fail to meet successful collaborative governance criteria outlined by Ansell and Gash (2008) and Connick and Innes (2003) due to a lack of representatives from all interests and meaningful participation. For a process to be truly collaborative, it must engage all impacted stakeholders, including weaker and disadvantaged communities, in a substantial way (Nelson 2012; Ansell and Gash 2008; Connick and Innes 2003). We now turn to examine power dynamics inside these groups to see which subsets of the community are excluded and how processes of exclusion occur.

## 5.2. Exclusion and groundwater decision-making

Participatory and collaborative groups are rarely evaluated to discern power dynamics or, explicitly, processes of exclusion. This article fills that gap. Many people believe

Table 5. Reasons people might not join participatory decision-making groups.

Reason	Detail
Limited knowledge	Individuals are unaware of participatory decision-making groups. Sometimes, people are not invited to participate for various reasons such as being seen as weak or illegitimate (Johnston <i>et al.</i> 2011, Buanes <i>et al.</i> 2004) or there are limited efforts to obtain demographic or geographic diversity of potential group members (Larson and Lach 2008).
Limited trust	Individuals do not join groups due to feelings of mistrust, including distrust towards governmental authorities (Reilly 1998). All impacted stakeholders must be invited in order for group participants to have trust in participatory decision-making process (Johnston <i>et al.</i> 2011).
Limited resources	Individuals may not join groups due to a lack of resources (e.g. time, money, etc.). Potential group members might not have time or energy to participate (Ansell and Gash 2008), or there might not be financial incentives for attendance (Lukasiewicz and Baldwin 2014).

participatory and collaborative groups are automatically accessible, but in reality inequitable power dynamics may result in people not joining or leaving after a short period of time. Individuals may not be aware of these groups, or may seek alternative venues for decision-making. All people come into groups with different power and resource advantages, and ineffective collaboration results if these imbalances are not mitigated. We identify main stakeholders excluded from these groups in the Pajaro Valley and central reasons why certain stakeholders might not join or leave participatory or collaborative groups. People might not join them due to limited knowledge, trust, or resources (Table 5). People might leave them due to limited comfort, trust, or resources (Table 6).

Our findings demonstrate that main stakeholders excluded from groundwater decision-making in the Pajaro Valley include small farmers, the Hispanic/Latino community, and the general public. Large agricultural stakeholders dominate

Table 6. Reasons people might leave participatory decision-making groups.

Reason	Detail
Limited comfort	Individuals may not be qualified to take part in scientific arguments (Ansell and Gash 2008) or are more inclined to participate in groups that allow for affective interactions (i.e. sonorous, discursive, affective) (Davies <i>et al.</i> 2012). Specific emotional and subjective approaches can create more equitable group experiences (Morales and Harris 2014).
Limited trust	People may not feel comfortable participating in discussions if a group is seen as not being inclusive (Ansell and Gash 2008; Johnston <i>et al.</i> 2011).
Limited resources	Individuals may leave groups due to a lack of resources (e.g. time, money, etc.) by themselves (Lukasiewicz and Baldwin 2014; Ansell and Gash 2008) or facilitators who are needed to foster an inclusive environment (Connick and Innes 2003). Special attention must be given to including weaker and disadvantaged communities (Ansell and Gash 2008; Connick and Innes 2003; Nelson 2012).

groundwater decision-making groups. There are also comments from non-growers mentioning the absence of small growers at participatory decision-making meetings. Equally disconcerting is minimal Hispanic/Latino representation at meetings given that the Pajaro region is over 80% Hispanic/Latino.

- “There are all kinds of companies made out of smaller growers, but those growers don’t participate. They always send the head of the corporation or somebody within the company.” - *Hispanic/Latino farmer*
- “There are a couple of small nurseries involved. But I think the growers are too busy working. Most of the people that come work for large companies who have enough labor to spare a person for a day. Or there are government agencies or non-profits with a representative.” - *Local non-profit employee*
- “Latino minorities or farmworkers. They are not involved. They either don’t have the time, or there is a language barrier.” - *Hispanic/Latino farmer*

The general public, including urban and rural residents relying on groundwater wells or small water systems, also appear somewhat uninvolved in participatory decision-making groups.

According to interviews, processes of exclusion around groundwater decision-making groups in the Pajaro Valley are related to limited knowledge, trust, and resources. In terms of limited knowledge, multiple interview respondents state that many people are not attending meetings and thus are not accessing information about groundwater management practices. One potential reason for their absence is because stakeholders such as absentee landowners, rural landowners, and urban dwellers are not aware of participatory decision-making groups. This is evidenced by some of our interviews:

- “Over the years I get calls from [absentee] landowners who say, ‘What is this water charge? Who is PVWMA?’ I say, ‘Really? We’ve been in business for 18 years, they’ve been on your taxes for 18 years, and you’re just noticing this now!’ ” - *Federal government employee*
- “The people on their own wells, or people on their own private community wells with like 10 homes on one well that might be dealing with effects of high nitrates in the water. Those are the folks that are served the least.” - *Local wastewater treatment plant employee*
- “I suspect there are many people in the urban area who are not alerted to the importance of conservation.” - *Current PVWMA board member*

In addition, there is *limited trust* around participatory decision-making processes focused on PVWMA and large-scale farms. Interview respondents frequently mention not trusting PVWMA:

- “My impression is that there was suspicion in the growing community about PVWMA. It has been criticized around that pipeline issue, but, in general, there was a lot of bad talk about PVWMA among the growers. Since the board rejected the pipeline as part of the solution, since we had that BMP committee that involved many growers, there is now a more constructive relationship between the farmers and PVWMA.” - *Current PVWMA board member*
- “PVWMA has a history of being disliked so there are definitely growers who don’t show up at those meetings.” - *Person active with Farm Bureau*

- “Not so much. I’m not as fearful of groundwater overdraft as I am of bureaucratic overdraft. We brought in the agency to deal with the problem and ever since we brought them in the problem’s gotten worse and worse and worse.” - *Large-scale organic farmer*
- “There is PVWMA. There are certain people that will not come because they do not like the agency.” - *Organizer active with CWD*

There is also *limited trust* of large-scale farms. Interview respondents say:

- “No, the big corporate farmer that doesn’t give a shit and when they get what they want they’ll go. Pretty discouraging.” - *Large-scale orchard manager*
- “A lot of big farmers have a big say, and not too many of them are even at the board meetings, more at the basin management planning meetings looking at various plans.” - *Small grower*
- “Driscoll’s is such a big player that other groups feel like the vote has been rigged already. Their voices will not be heard. They don’t want to come together if certain players are there.” - *Organizer active with CWD*
- “There are plenty of big users that don’t want to deal with anyone else. So we have some farmers that don’t participate, but we have a lot of them that do.” - *Vocal environmental advocate and farmer*

And finally, there are *limited resources* keeping people from attending participatory decision-making meetings around groundwater in the Pajaro Valley. These resources consist primarily of money and time of individuals attending these meetings. Interview respondents state:

- “Retired people, people with money to take time off, anyone that works for an agency and that is part of their job, those are the people making the decisions. The decisions are not being made by the people that are directly impacted unless there is a rate increase or something like that.” - *Hispanic/Latino farmer*
- “I’m really busy to be attending these meetings, I’m participating in all sorts of meetings, I haven’t too much time on my hands to be attending any other meetings.” - *Academic*
- “We have a mutual system - two wells for 70 homes. I was part of the board there, but I didn’t have time to keep up with the needs of working, etc.” - *PVWMA employee*
- “I think this would be a low issue on their mental agenda. They are more concerned about food, rent, and clothing for kids, etc. Water is not front and center. It has been a concern of mine for them, but I think they just assume that it [the water] is okay.” - *Farmworker representative*

Processes of exclusion highlight a potential need for more information about, increased trust in, and additional resources for participation in Pajaro Valley groundwater decision-making groups.

### 5.3. Inclusion and groundwater decision-making

Existing research shows multiple avenues for creating inclusive participatory and collaborative governance groups. There are actions such as ensuring stakeholders have adequate incentives to participate (Ansell and Gash 2008; Lukasiewicz and Baldwin

2014); evening out resource advantages among participants (Ansell and Gash 2008, Lukasiewicz and Baldwin 2014); creating trustworthy and safe spaces (Ansell and Gash 2008; Wondolleck and Yaffee 2000; Reilly 1998); and allowing for affective modes of participation (Davies *et al.* 2012; Morales and Harris 2014). In this study, we asked interview respondents what they believe are the best methods for inclusion in groundwater decision-making groups.

Interview responses around creating inclusive groups emphasize better education and awareness as essential, along with providing incentives for people to participate in groundwater management decisions. One way to fill this gap is to develop an education and awareness campaign for various subsets of the community including small farmers, the Hispanic/Latino community, and the general public (i.e. absentee landowners, rural residents, and urban dwellers) as well as for farmworkers and landscapers. Material should be provided in English and Spanish. Some individuals state:

- “But they have to know this is a shared community asset. Much greater awareness and education is needed. The CWD has already done that. The farmers that are there are already kind of aware.” - *Vocal environmental advocate and farmer*
- “For farmers, just give them the information. Awareness and information is key. Giving the information they need, just explaining in a way so they understand. Not just going and telling them to conserve. It’s just explaining.” - *PVWMA employee*
- “It would be good to get them [farmworkers] involved in understanding.” - *Hispanic/Latino farmer*
- “The landscapers should be educated. The counties should be more involved in drought landscape planning.” - *Local water district employee*
- “I think it is [important] to create awareness for everybody. We do have a problem. We are over-drafting our aquifer, and we need to all work together to find solutions and make changes.” - *PVWMA employee*
- “But when you get more people to the table, things go better. Making sure that they feel comfortable that there is someone there they [monolingual Spanish speakers] can understand.” - *Hispanic/Latino farmer*

Other incentives that could improve participation were provided by interviewees:

- “If they [farmworkers] went to meetings, they would get paid or get a certificate to something. Otherwise, they would want to be with their families. But if you pay them or give them an incentive, I could see that could generate a lot of interest over time. Incentives could be: certificate for pizza, 25 dollars for going to meetings, school supplies for kids, gift certificate to Target or K-mart, or gift certificates to grocery stores.” - *Farmworker representative*
- “It gets to the whole question ‘shared pool resources’ where there is no incentive for individuals to take action without economic incentives or regulatory stick.” - *Organizer active with CWD*

Experienced facilitators might help ensure more equitable group environments, help even out resource advantages, or even allow for affective modes of participation.

## 6. Discussion

This study opens up the door to more critical examinations of the stakeholder approach to local groundwater management, inherent power dynamics present in collaborative

governance groups, and broader political and economic factors that shape these groups. We find that participatory groups in the Pajaro Valley are not meeting the definition of collaborative governance groups as put forth by Ansell and Gash (2008) and Connick and Innes (2003). These multi-stakeholder groups lack representatives from all interests as well as a direct participation among members. Additionally, we find that people excluded from decision-making in the Pajaro Valley are small farmers, the Hispanic/Latino community, and the general public (i.e. absentee landowners, rural residents, and urban dwellers). Reasons for exclusion posited by interviewees include group unawareness, limited trust, and lack of resources. Finally, we document suggestions offered by interviewees who recommend increased access to information and incentives for improving group inclusion. We suggest that concerted governmental efforts should be directed towards these issues to ensure successful collaborative governance strategies and to meet new state regulations calling for engagement of weaker and disadvantaged stakeholders in groundwater decision-making.

Our research indicates that the stakeholder approach for groundwater decision-making in the Pajaro Valley is characterized by exclusions that exacerbate inequity and class dominance. Previous studies suggest that any person affected by the issues, who cares about the issues, or who can affect the issues should be considered a stakeholder (Nelson 2012; Weech-Maldonado, Benson, and Gamm 2003). We find that important stakeholders are absent from participatory and collaborative groundwater decision-making in the Pajaro Valley. That said, we propose that further examination is needed to better define the category of stakeholder and to understand efforts for stakeholder outreach and processes of stakeholder inclusion. New proposals to reduce inequitable participation in groundwater decision-making in California are also needed.

All individuals come into groups with different resources and power advantages (Ansell and Gash 2008) which can often be linked to gender, race, or class (Goldin 2013). For example, we found that large-scale farmers or those with established jobs and positions at organizations tend to form the majority of group participants, while small farmers, the Hispanic/Latino community, and the general public (e.g. absentee landowners, rural residents, and urban dwellers) form the minority of group participants. Nelson (2012) and Ansell and Gash (2008) highlight a need to empower weaker and disadvantaged people in participatory and collaborative groups, and we believe a deeper understanding of gender, race, and class dynamics can inform these efforts. Such empowerment approaches might also help avoid a situation where more powerful entities co-opt participatory and collaborative decision-making processes (Goldin 2013; Ansell and Gash 2008).

While governmental efforts for better inclusion in collaborative decision-making are integral, there must also be increased comprehension of social processes that result in group unawareness, limited trust, and lack of resources. State agencies hoping to use collaborative governance efforts can reduce exclusion by employing experienced facilitators, using empowerment approaches, and examining the actual need for collaborative governance in any particular setting (Conrad 2012; Johnston *et al.* 2011; Ansell and Gash 2008). Our research begins to analyze these components and points to the necessity for further studies to help inform future equitable collaborative governance planning efforts.

Broader political and economic factors are certainly shaping the push for collaborative management of groundwater supplies in California. The recent *Sustainable Groundwater Management Act* of 2014, the first comprehensive statute on groundwater management in the state, requires multi-stakeholder inclusion whereas its predecessor, the *Groundwater Management Act* of 2002, lacked this requirement. This change signals an important shift in groundwater management priorities, and more attention should be

given to comprehending why the new *Sustainable Groundwater Management Act* includes this definitive call to incorporate weaker and disadvantaged communities. This future research need aligns with calls from other scholars who believe deciphering context is essential when examining participatory and collaborative decision-making (Lukasiewicz and Baldwin 2014; Morales and Harris 2014; Morinville and Harris 2014; Goldin 2013). Our study provides an important step in this direction.

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### Notes

1. The United States Geological Survey calls a ‘water year’ the 12-month period from 1 October to 30 September the following year. The driest years in California were 1924, 1977, and 2014. California is now in the 2015 water year.
2. In California, a correlative doctrine exists stipulating that each landowner overlying a groundwater basin has the right to withdraw groundwater with limited restrictions (California Supreme Court 1903).
3. *Collaborative governance* is similar to *adaptive governance* and *participatory management* approaches, but there are a few differences. This paper draws primarily on collaborative governance literature supplementing understandings from participatory management literature.
4. Secondary data (e.g. media articles, litigation documents, and entity documents) allowed us to create a list of individuals and organizations involved in Pajaro groundwater issues. We attended five community groundwater events, engaged in participant observation (Emerson, Fretz, and Shaw 1995), drafted detailed field notes, and held research team meetings to compare observations (May and Pattillo-McCoy 2000).
5. Some groups, like the City of Watsonville, Santa Cruz County, Land Trust of Santa Cruz County, or Natural Resources Conservation, have representatives that officially take part in collaborative governance groups. Other groups, like the Farm Bureau, have members that are participants of other collaborative governance groups. These groups, however, are not inherently collaborative governance entities.

### References

- Ansell, Chris, and Alison Gash. 2008. “Collaborative Governance in Theory and Practice.” *Journal of Public Administration Research and Theory* 18 (4): 543–571. doi:10.1093/jopart/mum032.
- Buanes, Arild, Svein Jentoft, Geir Runar Karlsen, Anita Maurstad, and Siri Søreng. 2004. “In Whose Interest? An Exploratory Analysis of Stakeholders in Norwegian Coastal Zone Planning.” *Ocean & Coastal Management* 47 (5–6): 207–223. doi:10.1016/j.ocecoaman.2004.04.006.
- California Supreme Court. 1903. *Katz v. Walkinshaw* 1903. 74 P. 766, 771-2 (Cal. 1903). Sacramento, California.
- Connick, Sarah, and Judith E. Innes. 2003. “Outcomes of Collaborative Water Policy Making: Applying Complexity Thinking to Evaluation.” *Journal of Environmental Planning and Management* 46 (2): 177–97. doi:10.1080/0964056032000070987.
- Conrad, Esther. 2012. “Multi-Level Collaborative Governance of California’s Water Resources: Emerging Lessons from the Integrated Regional Water Management Program.” Paper presented at Earth System Governance Conference Tokyo: Complex Architectures, Multiple Agents. Tokyo, Japan, January 28–31.



- Davies, Sarah R., Cynthia Selin, Gretchen Gano, and Ângela Guimarães Pereira. 2012. "Citizen Engagement and Urban Change: Three Case Studies of Material Deliberation." *Cities* 29 (6): 351–57. doi:10.1016/j.cities.2011.11.012.
- Department of Water Resources. 1980. *Bulletin 118-80: Ground Water Basins in California*. California, CA: Department of Water Resources. [http://www.water.ca.gov/pubs/groundwater/bulletin\\_118/ground\\_water\\_basins\\_in\\_california\\_\\_bulletin\\_118-80\\_\\_b118\\_80\\_ground\\_water\\_ocr.pdf](http://www.water.ca.gov/pubs/groundwater/bulletin_118/ground_water_basins_in_california__bulletin_118-80__b118_80_ground_water_ocr.pdf).
- Emerson, Robert M, Rachel I Fretz, and Linda L Shaw. 1995. *Writing Ethnographic Fieldnotes*. Chicago: University of Chicago Press.
- Ferreira, Cecilia, and Phil Beard. 2007. "Participatory Evaluation of Collaborative and Integrated Water Management: Insights from the Field." *Journal of Environmental Planning and Management* 50 (2): 271–96. doi:10.1080/09640560601156532.
- Glickman, Andrea, Trish Kelly, and Jonathan London. 2008. "Rural Economic Development in a Diverse and Rapidly Changing Land," Paper submitted to National Rural Funders Collaborative: Closing the Gap Conference, 1 August 2008. <http://community-wealth.org/sites/clone.community-wealth.org/files/downloads/article-glickman-et-al.pdf>.
- Goldin, Jacqueline. 2013. "The Participatory Paradigm: Anathema, Praise and Confusion." In *Contemporary Water Governance in the Global South: Scarcity, Marketization and Participation*, edited by Leila M. Harris, Jacqueline A. Goldin, and Christopher Sneddon, 179–184. Abingdon: Routledge.
- Groundwater Resources Association of California. 2014. 23rd Annual Conference and Meeting: '2014 – The Year of Groundwater', October 15-16, 2014. Sacramento, CA. <http://www.grac.org/am14.asp>.
- Hanson, Randy. 2003. *Geohydrologic Framework of Recharge and Seawater Intrusion in the Pajaro Valley, Santa Cruz and Monterey Counties, California*. Sacramento: Geological Survey.
- Harris, Leila. 2013. "Framing the Debate on Water Marketization." In *Contemporary Water Governance in the Global South: Scarcity, Marketization and Participation*, edited by Leila M. Harris, Jacqueline A. Goldin, and Christopher Sneddon, 111–117. Abingdon: Routledge.
- Harvey, David. 2005. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.
- Johnston, Erik W., Darrin Hicks, Ning Nan, and Jennifer C. Auer. 2011. "Managing the Inclusion Process in Collaborative Governance." *Journal of Public Administration Research and Theory* 21 (4): 699–721. doi:10.1093/jopart/muq045.
- Larson, Kelli L., and Denise Lach. 2008. "Participants and Non-Participants of Place-Based Groups: An Assessment of Attitudes and Implications for Public Participation in Water Resource Management." *Journal of Environmental Management* 88 (4): 817–830. doi:10.1016/j.jenvman.2007.04.008.
- Levy, Morgan, and Juliet Christian-Smith. 2011. *Groundwater Management in the Pajaro Valley*. Oakland: Pacific Institute. [http://www.pacinst.org/wp-content/uploads/2013/02/groundwater\\_management\\_in\\_pajaro\\_valley3.pdf](http://www.pacinst.org/wp-content/uploads/2013/02/groundwater_management_in_pajaro_valley3.pdf).
- Lukasiewicz, Anna, and Claudia Baldwin. 2014. "Voice, Power, and History: Ensuring Social Justice for All Stakeholders in Water Decision-Making." *Local Environment* Sep.: 1–22. doi:10.1080/13549839.2014.942261.
- May, Reuben A. Buford, and Mary Pattillo-McCoy. 2000. "Do You See What I See? Examining a Collaborative Ethnography." *Qualitative Inquiry* 6 (1): 65–87. doi:10.1177/107780040000600105.
- Miles, Matthew B, and A. M Huberman. 1994. *Qualitative Data Analysis: An Expanded Sourcebook*. Thousand Oaks, CA: Sage.
- Morales, Margaret C., and Leila M. Harris. 2014. "Using Subjectivity and Emotion to Reconsider Participatory Natural Resource Management." *World Development* 64 (Dec.): 703–12. doi:10.1016/j.worlddev.2014.06.032.
- Morinville, Cynthia, and Leila M. Harris. 2014. "Participation, Politics, and Panaceas: Exploring the Possibilities and Limits of Participatory Urban Water Governance in Accra, Ghana." *Ecology and Society* 19 (3): 36. doi:10.5751/ES-06623-190336.
- Nelson, Rebecca L. 2012. "Assessing Local Planning to Control Groundwater Depletion: California as a Microcosm of Global Issues." *Water Resources Research* 48 (1): W01502. doi:10.1029/2011WR010927.
- Nico Martin, Julie. 2014. *Central Coast Groundwater: Seawater Intrusion and Other Issues*. Sacramento: California Water Foundation. <http://www.groundwatervoices.com/wp-content/uploads/2014/08/Central-Coast-Groundwater-Report-Aug-2014.pdf>.

- Office of Planning and Research (OPR). 2014. "California Ground Water." [http://opr.ca.gov/s\\_groundwater.php](http://opr.ca.gov/s_groundwater.php).
- PVWMA (Pajaro Valley Water Management Agency). 2014. <http://www.pvwma.dst.ca.us/>.
- Reilly, Thom. 1998. "Communities in Conflict: Resolving Differences through Collaborative Efforts in Environmental Planning and Human Service Delivery." *Journal of Sociology and Social Welfare* 25 (3): 115–142.
- Rudestam, Kirsten, and Ruth Langridge. 2014. "Sustainable Yield in Theory and Practice: Bridging Scientific and Mainstream Vernacular." *Groundwater* 52 (S1): 90–99. doi:10.1111/gwat.12160.
- State of California. 2014. *S.B 1168*. Sacramento, California. [http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=201320140SB1168](http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB1168).
- United States Census Bureau. 2014. "Watsonville (city) QuickFacts." <http://quickfacts.census.gov/qfd/states/06/0683668.html>.
- Weech-Maldonado, R., K.J. Benson, and L.D. Gamm. 2003. "Evaluating the Effectiveness of Community Health Partnerships: A Stakeholder Accountability Approach." *Journal of Health and Human Services Administration* 26 (1): 58–92.
- Weiss, Robert S. 1994. *Learning from Strangers: The Art and Method of Qualitative Interview Studies*. New York: Free Press.
- Wondolleck, Julia M. and Steven L. Yaffee. 2000. "Making Collaboration Work: Lessons from a Comprehensive Assessment of over 200 Wieranging Cases of Collaboration in Environmental Management." *Conservation in Practice* 1 (1): 17–24. doi:10.1111/j.1526-4629.2000.tb00156.x.