

Brokering Water Quality Narratives: The role of boundary organizations in a collaborative governance approach to agricultural nonpoint source pollution

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Summary: In complex social-ecological systems, collaborative governance approaches reliant on *boundary organizations* are theorized to facilitate cooperation between actors in conflict and build the trust necessary to achieve desired policy outcomes. These boundary organizations or “policy brokers” can serve as leaders to empower stakeholders to participate in governance and decision-making processes and mediate challenging discussions to resolve points of conflict. In addition to brokering policy options, boundary organizations also play a role in brokering *policy narratives*, thus shaping different actors’ perceptions of the policy process, willingness to participate, and policy preferences. This paper integrates policy process theories, and specifically the Narrative Policy Framework, with literatures from science communication, translational ecology and organizational management on boundary organizations in a novel way to explore the use of narratives by boundary organizations. To concretize this theoretical integration, I present an empirical case study of boundary organizations serving to implement a nonpoint source water pollution regulatory program in California. As the first regulatory nonpoint source program in the United States, California’s Irrigated Lands Regulatory Program takes a decentralized, collaborative governance approach, in which local water quality coalitions operating as boundary organizations build cooperation among stakeholders and implement regulations to reduce nonpoint source pollution from agriculture. Using a mixed methods approach to integrate interview, survey and participant observation data, I evaluate when and how the coalitions use policy narratives, what narrative strategies they employ, and the efficacy of those narratives in establishing themselves as effective boundary spanners and reaching collaborative governance goals.

Introduction

Policy process and collaborative governance literature suggests that in highly contentious, multi-actor policy situations, actors that serve to build bridges across competing advocacy coalitions are essential to policy learning, policy change and truly collaborative outcomes (Sabatier & Weible 2007). These boundary organizations or “policy brokers” can serve as leaders to empower stakeholders to participate in governance decision-making processes and mediate challenging discussions to resolve points of conflict (Ansell and Gash 2008; Christopoulos and Ingold 2011). However, discussion among policy process literature as to who these actors are, what their incentives are to do this boundary-spanning work, and in what settings their actions matter, has been limited, indicating a theoretical gap (Ingold and Varone 2012). Pulling from other literatures that discuss boundary spanning, including organizational management, science communication and translational ecology, it is thought that boundary spanners must display a number of traits from the outset that demonstrate their understanding of the context in which they work, in order to be taken seriously from the start. These include being embedded in both communities they span across, holding the trust and respect of multiple stakeholder groups in which they interact, and displaying a thorough understanding of the various perspectives held by different members of the community (D. H. Guston et al. 2000; Safford et al. 2017). Recent literature seeks to better integrate theories on policy brokers and the policy process, like that focused on the Advocacy Coalition Framework, which shows that brokering actors have their own strategic behavior, knowledge of the situation between coalitions, and act on self-interests to influence final policy design (Ingold and Varone, 2012). However, bridging between policy brokerage literature and the Narrative Policy Framework, which describe the importance of narrative in processes of policy change, has not yet, to our

knowledge, gained attention. This paper seeks to address this gap and contribute to the integration of these bodies of theory, by arguing that in addition to brokering policy options, boundary spanners also broker policy *narratives*.

In order to demonstrate the utility of integrating these frameworks, I present an empirical case study of boundary organizations operating to implement California's Irrigated Lands Regulatory Program (ILRP). As the first nonpoint source regulatory program in the United States, the ILRP created local boundary organizations, known as water quality coalitions, which operate between the state regulatory agency and nearly 40,000 farmers across the state to negotiate regulatory design components, translate needs and requirements, and implement the program's required monitoring, reporting and sanctioning in order to reduce nonpoint source pollution. Using a mixed methods approach, I assess the water quality coalitions in their role as boundary organizations and evaluate when, how and why they use policy narratives.

Background

Agricultural Nonpoint Source Pollution: Managing agricultural nonpoint source (NPS) water pollution is a complex challenge, given the diversity and dynamism of agro-ecological systems, the often-politicized nature of agricultural and environmental regulations, and a reliance on participation and management decisions of individual farmers. Nonpoint source (NPS) pollution is the leading source of water quality impacts on freshwater resources in United States, with the agricultural sector being the largest contributing source (Patterson, 2013; EPA 2017). Sediment, nutrients and pesticides from agricultural operations enter freshwater streams, rivers and lakes through surface runoff, tile drainage, excess irrigation water from the field, or by leaching through the soil into groundwater aquifers. Elevated nutrient levels in surface water

bodies can cause ecological disturbance through eutrophication and when found in surface and ground drinking water supplies, threaten human health, causing blue baby syndrome (i.e. methemoglobinemia) in infants and gastric cancers in adults (Dowd, Press, and Huertos 2008; Royer, David, and Gentry 2006).

Yet, historically agricultural NPS pollution has been severely under-regulated (EPA 2017). The U.S. Clean Water Act of 1972 (CWA) focused attention on point-source polluters only (i.e. pipes, ditches, channels, wells where confined and discrete pollutants are/ may be emitted) (CWA, Section 502). It was not until the 1987 amendments to the CWA (Section 319) that diffuse source, NPS pollution was considered a concern to water quality at all. NPS pollutant limits (i.e. Total Maximum Daily Loads or TMDLs), were defined under Section 303(d) of the CWA, but agricultural runoff was exempt from these limits. The Act called only for voluntary action from the agricultural sector, making grant resources available to resource agencies and farmers to implement Best Management Practices (BMPs) that reduce pollutant runoff and leaching, but did not directly regulate farming activities. Only recently have some states, including California as one of the first, begun to insist that TMDL limits must apply to agricultural pollutants as well, due to in large part to advocacy and pressure from environmental and social justice interests (Dowd, Press, and Huertos 2008).

NPS water pollution as a governance challenge: The lack of regulation may in part be to the challenging nature of regulating agricultural NPS pollution: pollution contributions are diffuse in nature, coming from vast areas of farmland, relatively minimal from any single particular farm or farmer, and occur non-uniformly over long time frames. Thus monitoring efforts to trace pollutant discharges back to individuals are prohibitively expensive (Patterson et al. 2013). Implementing BMPs that reduce NPS pollution requires the farmer to invest their

personal time, money, and effort, and may or may not return that expended value to the farming enterprise. Furthermore, there is a widely held social norm that it is in the best individual interest of the farmer to liberally apply agrochemical inputs (fertilizer and pesticides) to ensure maximum crop yields, as inputs are a relatively available and inexpensive form of “crop insurance” for farmers in the United States’ industrialized agricultural landscape (Good and Beatty 2011). Thus, each farmer has an incentive to neglect implementing BMPs that reduce their own pollutant contributions and free ride on the efforts of others, typifying a classic collective action dilemma (Lubell and Fulton 2008). In this setting, traditional point-source pollution abatement regulation approaches, including voluntary programs (i.e. rewarding voluntary participation or efforts to abate), command-and-control regulations (i.e. performance or design standards), and economic instruments (i.e. tax, subsidies to incentivize abatement behavior, tradeable permits), all have major downfalls in their ability to overcome the collective action tragedy and reach desired reduced pollutant loads (Dowd, Press, and Huertos 2008). The limited literature on NPS pollution management suggests that geographical scope and social context of the NPS management plan are critical to determining which policy instruments may be more appropriate, and even then, collaborative approaches and hybrid policy designs are likely preferable (Dowd, Press, and Huertos 2008; O’Shea 2002; O’Shea and Wade 2009; Patterson 2013; Romstad 2003; Shortle, Abler, and Horan 1998).

Collaborative governance approaches in social-ecological systems: Collaborative governance has grown in popularity over the past few decades in both research and practical settings, as a viable alternative governance approach in environmental issue settings, where traditional “downstream implementation” approaches have failed to solve challenges and where new regulations are often obstructed by politics (Leach, Pelkey and Sabatier 2002; Lubell et al

2007). As a relatively new approach to policy, it suggests both public and private actors should be engaged with one another to collectively determine goals and determine joint responsibilities for implementing, monitoring and enforcing reaching those goals. In complex social-ecological systems where knowledge on the problem is specialized and distributed across multiple actors or organizations, collaborative governance approaches also allow for the necessary coordination to share knowledge and resources, jointly administer activities, and develop institutional capacity to manage for complexity.

The collective action nature of NPS pollution contributes to an already socially, politically and institutionally complex social-agroecological system, where multiple actors and multiple scales of decision-making must coordinate to develop resource management strategies and solutions to environmental damage (Patterson et al. 2013). Thus a collaborative governance approach to NPS pollution management appears to make sense for coordinating actions occurring at different scales (e.g. national, state, regional, local), with different stakeholders (e.g. crop and livestock growers, urban, rural), and across jurisdictional and hydrologic boundaries. This coordination could also be effective in managing “stacked” policies in effect at different scales (e.g. pollution cap at California state level, incentive programs for best management practices at USDA national levels) (Bendor 1987).

Boundary organizations in collaborative governance: Collaborative governance literature suggests that boundary organizations may promote cooperation, shared learning and co-produced knowledge, aiding to effectively organize multi-stakeholder, multi-level decision-making venues (Carr and Wilkinson 2005; Crona and Parker 2012; D. Guston 2001). These organizations exist at the frontier between two or more fairly distinct social worlds and have accountability to both (Guston 2001). Thus, they are able to bridge across the differing

perspectives, problem framings, and ways of knowing of various stakeholders, which is essential for being able to find shared understandings and develop shared goals in collaboration settings (Armitage et al. 2009; Patterson 2013). Furthermore, collaborative decision making and policy implementation is understood to be an inherently political process, where conflicting interests compete for power (Pritchard and Sanderson 2002). In these settings, boundary organizations with salience, credibility and legitimacy can serve to bridge across interests and negotiate compromises with differing groups of stakeholders who all feel their perspectives are adequately being recognized (Cash et al. 2003).

The collective action nature and policy instrument challenge of NPS pollution contribute to an already socially, politically and institutionally complex social-ecological system, where multiple actors and multiple scales of decision-making must coordinate to develop resource management strategies and solutions to environmental damage (Patterson et al. 2013). At policy and organizational levels, collaborative governance approaches may help to coordinate actions occurring at different scales, with different stakeholders, and across jurisdictional and hydrologic boundaries (Ansell and Gash 2008). This coordination will be particularly important to link various hybrid policy designs, where certain policy tools may be in effect at different scales (e.g. pollution cap at state level, with incentive programs for best management practices operated at regional levels). The efficacy of these collaboration efforts may be influenced by a large number of factors, including the historical contexts of conflict or collaboration in the region and between stakeholders, existing institutional arrangements, stakeholders' willingness to engage, vision and strategize, resource access, leadership, adaptive policy learning, knowledge building and, importantly, mediating and brokering carried out by a boundary organization (Patterson 2013).

Narrative Policy Framework: Narrative and discourse have been key research foci for decades across communication, psychology, marketing and political science disciplines, and have recently become an area of interest in policy process work, as narratives have a significant influence on how individuals process information, communicate, reason and make decisions relevant to policy preferences (Molle 2008; Shanahan et al. 2013). In the context of environmental decision-making, strategically constructed narratives that link an issue to the values and norms of the sector involved have been shown to increase stakeholder buy-in, and thereby increase the efficacy of governance efforts around that issue (Runhaar et al. 2017). In the context of public policy, research suggests that narratives may be more influential than scientific information in prompting policy learning and policy change (McBeth, Jones, and Shanahan 2014).

The Narrative Policy Framework, or NPF, is a relatively new framework in the family of policy process theories (Sabatier and Weible 2007) that has been developed to serve as a tool to systematically characterize the use of strategic, constructed and sometimes even manipulated policy narratives employed by stakeholders to construct a policy reality and influence the policy process (McBeth, Jones, and Shanahan 2014; Shanahan et al. 2013). This has led to recent surge in interest and empirical policy process studies that have employed the NPF to study the use of policy narratives by different actors in the policy process (Shanahan et al. 2018). The NPF defines a few core features to all policy narratives (i.e. setting, characters, plot and moral), suggests that there are some consistent narrative strategies employed to evoke specific responses (i.e. defining scope of conflict, suggesting causal mechanisms, employing “devil/ angel shift”), and suggests hypotheses that can be tested at multiple levels or units of analysis (i.e. individuals,

groups/ advocacy coalitions/ policy subsystems, and culture/ public opinion) (McBeth et al. 2014).

While the NPF provides a very useful tool in helping to characterize narratives, there has been less progress as of yet in suggesting when, how and why narratives are used by different actors in different policy settings. I posit that policy narratives are a tool frequently used by boundary organizations who are operating in complex, multi-actor, and oftentimes contentious policy processes. Drawing from both the NPF and its subsequent body of work in policy process literature, as well as the literatures on boundary organizations, I explore the following questions in my case study:

- (1) Why do boundary organizations use narratives?
- (2) What narrative strategies will boundary organizations use under different contextual conditions?
- (3) Are boundary organizations effective in using policy narratives?

Case Study: California's Irrigated Lands Regulatory Program

In this paper, I present a case study of the California Irrigated Lands Regulatory Program (ILRP), the first agricultural NPS regulatory program implemented in the U.S. The ILRP regulates NPS pollution across 40,000 farms and 7.5 million acres of irrigated agricultural land across the state, and is implemented through a sub-regional coalition structure in the Central Valley. This case study applies a mixed methods approach, employing qualitative data collected through a series of interviews with farmers and relevant policy stakeholders, as well as many hours of participant observations at stakeholder-relevant meetings, workshops, hearings and outreach events across the state from 2016-2018. I first discuss the evolution of NPS policy in

California, paying particular attention to the hybrid policy design that created the water quality coalitions (hereafter “coalitions”) as boundary organizations to implement the policy in the Central Valley. Qualitative observational data and interviews are used to examine how the coalitions exhibit characteristics of boundary organizations, including their use of narrative to establish themselves to be effective boundary spanners. I examine the Coalitions’ narratives, describing differences between the narratives delivered to the state regulators and to their farmer members, looking closely for the use of different narrative strategies in each of these contexts. Then I assess the efficacy of the narratives used to achieve the policy goal of increasing farmers’ participation in water-protective farming practices. Finally, I discuss the effects of the ILRP structure being dependent on the coalitions as boundary organizations brokering the policy discussion and driving implementation, thus leaving policy outcomes (i.e. compliance and pollution abatement) vulnerable to vary across sub-regions, due to differing narrative approaches of the coalitions.

Methodological approach:

This paper incorporates qualitative data from farmer and key informant interviews and participant observations, along with quantitative survey data from Central Valley farmers, used to assess their motivations. I present data from the 18 semi-structured interviews I conducted with farmers across the Central Valley between June and November 2017. These typically were in person conversations, on the individual’s farm or home property, and lasted between 45 minutes and one and a half hours. I built my initial interviewee contact list of farmers using contacts nominated by key agricultural advisors from Cooperative Extension, the USDA Natural Resources Conservation Services, and county level Resource Conservation Districts. I asked

each interviewee for nominations of their own peers or neighbors who would be willing and interested in also interviewing, and occasionally was able to expand my contact list through this snowball method. Interviews took one hour on average and all but two were conducted in-person on the farmer's property. Interviews were semi-structured with follow up questions pursuing emergent themes unique and interesting to specific interviews. Interview questions asked farmers about the NPS pollutant management strategies they employed on-farm, the influences and information sources that influenced decisions to implement those strategies, their perceptions of NPS regulations and their familiarity and opinions of the Water Quality Coalition groups. Additionally, I interviewed the ILRP program director and two staff from the Central Valley Regional Water Quality Control Board in September 2017 at their office in Sacramento, CA. This interview focused on the Board's perceptions of the major barriers to successful implementation of the ILRP and the roles and efficacy of the Coalitions.

*[***Please note: I am in the process of interviewing Coalition staff and leadership to incorporate into this work; due to recent policy changes at the state, this part of the work has been delayed].*

Additionally, I incorporate observational data from over 70 hours of participant observations that I have collected between 2016-2018 while attending ILRP educational, outreach and implementation meetings in three sub-regional coalitions. The contextual characteristics of each of these coalitions is summarized in Table 1. In order to preserve confidentiality in a contentious policy setting, I will refer to these Coalitions as "North Coalition", "Central Coalition", and "South Coalition". I have attended the past six quarterly statewide public meetings ("ILRP Stakeholder Meetings") and eight Coalition-specific member meetings ("Annual Grower Education Meetings") as an observing researcher and take notes on

the narrative delivered by different Coalitions in multiple settings with variable audiences, ranging regulators to farmers to mixed stakeholder groups. Agenda topics differ across these spaces, from ‘Q&A sessions’ on regulatory updates to educational and training resources for on-farm BMP implementation, yet some general themes and tones arise for the different Coalitions that are consistent across venue and specific topic. In addition to my field observations, I pull narrative elements from the written content Coalitions deliver to their farmer members via online notices on their websites and printed brochures. All regulatory requirements are explained and required reporting paperwork is available for farmers on their Coalitions’ websites. The websites convey the Coalitions varying perspectives and approaches to handling the ILRP and the regulatory agencies’ requirements, as well as educational and outreach resources

Finally, I incorporate quantitative survey data from in-person questionnaires conducted with farmers in the Central and South Coalitions in Winter 2017. These real-time surveys (i.e. participants respond anonymously using “clickers” or a one page paper questionnaire) asked growers about their use of 10 different N management practices, potential barriers or motivators to adoption and implementation of those practices. We are most interested for this paper in using on what motivates them to adopt new best management practices. We collected 565 survey responses (~30% response rate of meeting attendees) and the sample was fairly representative of farm size and crop type for the sampled regions, when compared to Coalition and USDA census statistical data.

All data collection methodologies has been reviewed and approved by the UC Davis Internal Review Board at UC Davis #HRP-226.

[INSERT TABLE 1 HERE]

Results

Evolution of the ILRP: As discussed above, historically the federal Clean Water Act had not mandated agricultural BMP adoption, and left any type of enforceable NPS pollution abatement up to states' discretion. From 1982 to 2002 in California, agricultural dischargers were operating under Conditional Waivers that granted exemption from most regulatory standards of Waste Discharge Requirements (WDRs) (Fulton and Lubell 2007). Toward the end of the century, multiple state and federally-conducted studies coalesced and were published, reporting significant impacts of pesticides and nitrates contaminating drinking water sources for communities in the Central Valley (Hundley 2001). Then in 2002, the State of California was sued by the California Public Interest Research Group (CALPIRG) and Waterkeepers of Northern California for its negligence toward agricultural NPS pollution that had caused significant ecological damages and threats to clean drinking water access for many communities across the state (Dowd et al. 2008). The state responded with the passage of a legislative measure (Senate Bill 390) that removed the agriculture sector's exemption from WDRs and brought the sector fully under the regulatory requirements of The Porter Cologne Water Quality Control Act of 1969 (i.e. California Clean Water Act). The California Environmental Quality Act (CEQA) required an Environmental Impact Report (EIR) to be completed to evaluate the economic, policy, and environmental implications of various policy instruments that could be implemented to meet this new requirement. From the suite of instruments examined, including more traditional approaches like a command-and-control design, the State Water Board selected the

structure they saw best suited to achieving the goals of NPS pollution reduction from the vast agricultural areas of the state (Coalition for Urban/Rural Environmental Stewardship 2009).

Under the new law, the implementing regulatory agencies, the Regional Water Quality Control Boards, developed the Irrigated Lands Regulatory Program (ILRP) in 2003. Each of the Regional Water Quality Control Boards across the state with agricultural lands (Central Valley, Central Coast and South Coast Regional Boards) were permitted to implement the ILRP independently in order to accommodate their regional and industry differences. In the Central Valley, a hybrid pseudo-regulatory, pseudo-voluntary design was crafted, using newly formed local agencies, ‘Water Quality Coalitions’, to foster cooperation among farmers and carry out implementation activities. This may be in part because state regulators realized that reaching rural, farming populations in a robust manner, on a contentious issue like water quality concerns, would require the assistance of local, trusted entities. The locally-based coalitions could play this part. The historical precedence of under-regulated NPS pollution and litigious debates between the agricultural sector and multiple stakeholders that disproportionately received the impacts of NPS pollution for years has resulted in the heated and contentious debate around the ILRP and its implementation that continues today across agricultural, environmental justice, and governmental actors (Community Water Center 2016).

Henceforth, I focus on the coalition-based policy structure chosen for ILRP implementation in the Central Valley, the largest and most diverse agricultural region in the state. The Central Valley Regional Water Quality Control Board (henceforth called “Regional Board”) created a coalition-based policy structure by dividing the Central Valley into fourteen different Water Quality Coalition sub-regions, approximately following eco-hydrological boundaries of watersheds and groundwater basins (see Figure 2 for map of Coalitions). The

coalitions establish a local governing body that serves as an intermediary boundary organization between individual farmers (i.e. primary polluters), environmental justice groups, and the Regional Board regulators. Farmers within the boundaries of each coalition have the choice to either become a member of the coalition or apply directly to the Regional Board for an individual WDR. In the Central Valley, the vast majority of farmers (>75%) have joined their respective coalition, preferring to share the costs of water quality monitoring and interact with local governing officials, rather than state regulators who are perceived to lack local knowledge or respect for farmers' privacy (Lubell and Fulton 2007).

Water quality coalitions as boundary organizations: The coalition structures are intended to facilitate communication on regulatory requirements between the Regional Board and individual farmers, taking advantage of local knowledge and greater trust in local oversight, assist farmers in complying with water quality monitoring, reporting, and farm practice modification requirements, and serve as a collaborative structure through which many agricultural and other policy stakeholders can engage in discussion and share feedback on the program (ILRP 2016). Given this role as translator and communicator, the coalitions have become boundary organizations between farmers, regulators, and all other engaged policy stakeholders (see Figure 3). Success of this NPS pollution reduction effort thus hinges on the coalitions' abilities to effectively monitor and report on water quality concerns, convince both their farmer members and state regulators on the aspects of the policy that are and are not working, and ultimately to motivate program participation and BMP adoption among their farmers, such that NPS pollution is reduced at a landscape scale. Their navigation of this boundary and ability to maintain the credibility, saliency and legitimacy that boundary literature

suggests is necessary (Cash et al. 2003), is crucial to achieving policy success and reducing overall agricultural NPS pollutants in surface and groundwater across the state.

Based on the qualitative data from interviews with farmers in different coalitions throughout the Central Valley and with the Regional Board, the coalitions are perceived with relatively similar saliency, credibility and legitimacy by those on either side of the boundary they fill—their farmer members and the Regional Board. On saliency, both the farmers' and the Regional Board's comments seem to suggest that the coalitions' role is relevant and valued in the policy implementation process. To summarize a perspective held by many interviewed farmers, the coalitions are seen as “safety shields”, necessary to implement the requirements of the ILRP and helpful in farmers being able to maintain their distance from the regulators. The regulatory agency staff see the coalitions more as a functional apparatus that facilitate communications with farmers, explaining that there was “*no way our central agency could personally contact all farmers*” with locally appropriate information in a timely way. They see that the coalitions are necessary to deliver regulatory messages, and that those messages are better heard when coming from the coalitions, rather than the state. In terms of salience and credibility, the coalitions seemed to be adequately fulfilling expectations of both the farmers and regulators whom they operate between.

However, when evaluating perceptions on the credibility and legitimacy of the Coalitions, there may be some questioning as to whether the coalitions do a great job communicating the policy intention and goals accurately. As one farmer said of his coalition, “[*The Coalition Director*] *does an OK job... but he's trying hard to be 'part of the boys' and doesn't explain things enough or emphasize the point of the program*”. On the other hand, one farmer commented that they thought the Coalitions acted “*to voice our side of the story*” and

push the regulators to delay or altogether avoid implementation of stricter regulations. In this sense, some farmers saw the Coalitions as being clear allies and advocating for farmers in the ever confusing and contentious debates around NPS.

In contrast, the regulatory agency staff explained, “[We’re] here to stay until there’s no [longer] a threat to water quality... and that reality doesn’t appear to be anywhere on the near horizon... hopefully the coalitions realize that”. The agency’s comments seem to suggest that any messages farmers are receiving from their Coalitions that suggest regulations should or will be delayed or avoided are misleading and neglect to reflect the purpose of the regulations and enforcing agency. In the eyes of the Regional Board, if Coalitions are arguing for regulatory relief and lamenting that farmers are being hit with regulations from every corner, they contribute to creating barriers and slow progress on achieving the ILRP goals and NPS pollution reduction overall. It is unclear based on this data alone if the Coalitions succeed at earning the trust or perceived legitimacy the literature suggests as necessary for groups on either end of the boundary to understand one another. A better understanding of the varying levels of trust different coalitions hold in the eyes of their farmers and the state constitutes an area of continued research, currently being investigated through a quantitative survey of farmers.

Brokering policy narratives: The Coalitions are intended to serve as the primary voice through which ILRP goals are funneled from regulators and communicated to farmers, and in turn farmers’ feedback is returned to the regulators. The messaging of the coalitions therefore, is an essential component in motivating farmers to adopt BMPs and reduce their NPS pollutant contributions, and thus to achieving the intended policy outcomes.

In this section, we examine characteristic narratives delivered by the coalitions to both their farmer memberships and to state regulators. These example excerpts are demonstrative of

more common themes that appear across the narratives from different coalitions, and show that coalitions appear to employ two *different* narratives to their farmer members and to the regulating Water Boards. This is consistent with earlier predictions that coalitions may use narratives functionally in order to gain legitimacy and credibility with both farmers and the Water Board, by shifting the story such that it aligns with these different audiences' worldviews and needs. With regards to narratives coalitions deliver to farmers, there appears to be variation in the strategies used by different coalitions to create a "farmer-friendly" message. These narratives begin with the coalition leaders' understandings of the specifics of the ILRP and other relevant agro-environmental regulations in California. Each of the three coalitions' leaders demonstrate expert understandings of the basic legal structures and regulatory requirements set by the Regional Board through the ILRP (i.e. monitoring, reporting, reduction in NPS pollutant levels through BMP adoption). However, communicating what the goals of these regulations are to their member farmers varies significantly across coalitions. In the North Coalition, the strategy appears to focus on the synergies between agricultural *stewards* and healthy ecosystems and communities:

"Connection between the economic sustainability of [North region's] agriculture and water quality is ingrained in the legacy of family farmers who settled the Valley generations ago. So in 2003 it was a logical extension of the [North region's] Water Association... to improve water quality for Northern [region] farms, cities and the environment." "[Our] mission is to enhance and improve water quality in the Sacramento River Basin, while sustaining the economic viability of agriculture... and sources of safe drinking water"

This may be characterized in the terminology of the NPF as employing the 'angel shift', in which the story paints the farmers as possible heroes and allies of this effort to reduce NPS. In contrast, in the South Coalition tends to frame the regulators as presumptuous in assuming that all farmers are polluters: *"The CA Water Code has been interpreted to presume that, if you irrigate crops*

and any irrigation or storm water leaves your property... you are a 'discharger' subject to regulation". This might be characterized in the NPF as a devil shift strategy, by focusing on painting the regulators and state law as villain. Furthermore, the Southern Coalition also spends more time lamenting on the regulatory burden of the program and in some senses framing themselves as the messenger caught in between – perhaps an NPF victim in this way—between needing to follow the required monitoring but not wanting to increase costs to their farmers:

"Do better on common sense [BMPs]-this saves you money, because it saves the Coalition money with respect to the monitoring we have to do and this makes the Coalition less expensive to maintain... The more monitoring we're required to do, the more it costs you".

The difference in this framing is significant and paints the ILRP in completely different light for farmers in the North Coalition versus those in the Central and South Coalitions. This is particularly interesting considering the boundary role of the coalitions as the primary communicators of the ILRP goals and suggests that farmers across the state potentially may have entirely different conceptions of the goals of the ILRP and thereby attitudes and motivation to work toward NPS pollution reduction.

In public stakeholder meetings, each Coalition gets an opportunity to report back to the Regional Board and other interested stakeholders in attendance on how the ILRP implementation is going in their region. In these settings, the coalitions appear to more consistently focus on how challenging their role is in implementing the regulations. This theme is apparent across all three coalitions, though the coalitions vary in their tone and approach with the Regional Board. The North Coalition seems to lean toward complementing and expressing gratitude toward the Board:

"We appreciate the Regional Board coming to do farm visits, which helps us because then people who are complying see the value in the actions they are doing... we always want to inform them and improve the process of collaboration with the Board."

This might suggest the use of the angel shift again, in positively framing the Regional Board as helping the coalition to achieve their mandates. The Central and South Coalitions on the other hand, emphasize the immensely challenging role they have as the boundary organization negotiating with two parties in this complicated and heated policy setting:

“This [past fall] was the least angry [the farmers] have ever been with me.”

“The Regional Board has the tendency to light up our phone lines... [please] don’t put my name on compliance letters... [we just] tries to keep people out of trouble as much as possible.”

They paint themselves as victims in this process and appeal for empathy from the Regional Board by saying they have taken the heavy hit of the farmers’ anger toward the program.

In another forum, the coalition-specific farmer education meetings, where Coalitions share with their farmer members new updates to regulatory requirements, reminders for upcoming reporting deadlines, and recommendations of BMPs that reduce NPS pollutant losses from the farm, Coalitions shift to paint themselves as farmer advocates (the angels), acting in a shared battle against regulations and the State (the villains):

“Yes I know it is a pain... but it’s the world we live in now in California.”

“The Water Quality Coalition can help remove you from the ‘outlier’ category so you won’t be targeted by the Board for enforcement, especially when there are other reasons why you’re yields are low.”

“We have to prove we’re not over applying nitrate fertilizer, to get regulators off our backs”

Finally, the Coalitions’ most recent conversations around the evolution of the ILRP revolve around new revisions to the regulatory order that will require more monitoring, reporting and aggressive adoption of BMPs to address continuous and severe nitrate contamination of groundwater aquifers (State Water Board Fact Sheet 2016). The process of writing, soliciting public feedback, implementing, being litigated and revising another draft of the regulatory orders

has been an ongoing and cyclical process for the past two years (2016-2018) and has built tension between the Coalitions and the Regional Board. In fall 2017 public stakeholder meetings, Coalitions took two different approaches to addressing the impending changes. The North Coalition seemed to threaten leveraging their power as the gatekeepers to the farmers in order to demand more transparency on the process of developing the final version of the new regulation:

“We can do this in a group setting or as guerilla warfare... you [gesturing toward Board] choose how to implement the changes.”

The South Coalition, backed by other Coalitions’ leaders (including the Central Coalition) took a more submissive approach, seeming to return to the tactic of victim-claiming in front of the Board:

“This change threatens the existence of the Coalitions. We’ve begun a process... now it’s being changed... growers are going to be frustrated at us.”

Both approaches appear to follow in suit with self-protection strategies and express more of their concern over the challenges they will face in their boundary role if and when the regulatory changes take place. The differing tactics may reflect a deeper level of confidence in the Coalition’s self-perceptions of their abilities to mobilize their farmer members.

Discussion & Conclusions:

This research investigates the implementation of the Irrigated Lands Regulatory Program, and its operation through boundary organizations, the Water Quality Coalitions. The coalition-based structure of this program was intended as a decentralized approach that would build trust between two different groups (i.e. farmers and regulators) around a contentious policy issue and foster collaboration that would aid in addressing the problem. Furthermore, the coalition

structure was thought to offer flexibility in regions implementing on-farm nonpoint source pollution control strategies appropriate to the environmental and agronomic variables of the vast Central Valley region. Through my interviews and participant observations, I demonstrate how the coalition policy structure promotes a boundary spanning role of the coalitions and how as boundary spanners, the coalitions end up brokering a policy narrative that is highly influential in shaping the perceptions and behaviors of both state regulators and farmers.

The similarity of approaches across coalitions in their characterizations of the Regional Board, their farmers, and themselves demonstrates a shared experience—that is one of “being stuck between a rock and a hard place”, navigating the complex and contentious policy process as an entity intended to be a neutral, negotiating and mediating body. This narrative strategy may indeed be one of self-protection (i.e. “don’t shoot the messenger”), trying to maintain their local authority, but at the same time be resolved of blame from their farmers. In this sense, the coalitions seem to understand the challenging role they fill as boundary organizations that must maintain their trust and legitimacy with both sides. However, though the coalitions may appreciate the challenging seat they sit in, they do not always exemplify the neutral position that boundary organization literature suggests they should. At times, the coalitions use their position to advocate for the farmers’ perspectives, “*acting like one of the boys*”, as one farmer described. While this may be a tactic employed strategically in order to preserve the farmers’ trust, it must be recognized that the coalitions do not always hold a completely neutral position and this boundary organization structure may slow the process of achieving the ILRP goals.

This case study illuminates ideas of environmental governance literature through an example of a hybrid policy approach to manage NPS pollution in a complex social-ecological system. Managing agricultural nonpoint source water pollution has been well established as a

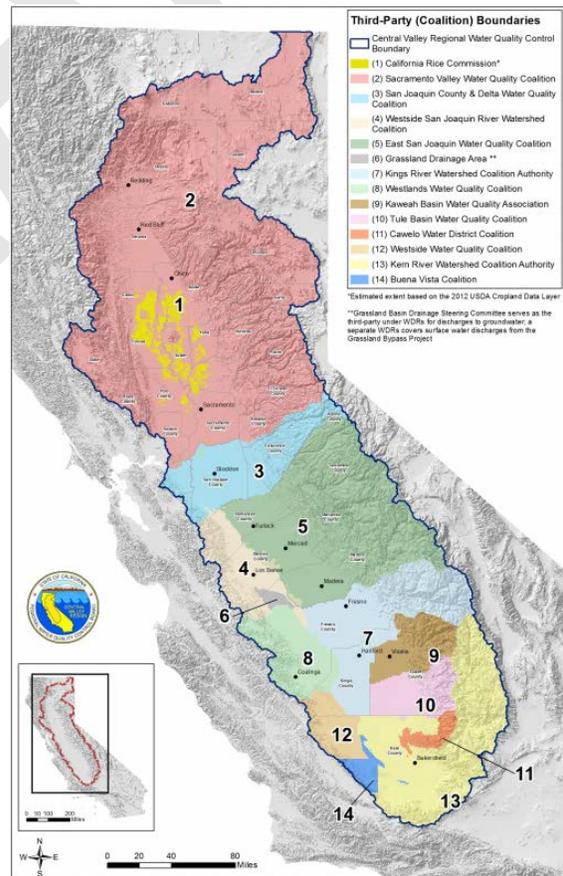
“wicked problem”, one in which simply providing more scientific information will not contribute to finding a solution. Governance of nonpoint source is a complex task, challenged by the inherent unpredictability of agro-ecological systems, the political context of agricultural and environmental regulations, and the reliance on participation and practice adoption by individual farmers. These factors are easily seen in the case of nonpoint source pollution management in California, where multiple environmental, environmental justice and agricultural interests are at stake and a new experimental approach to regulating via boundary organizations is being tested. Long term research in this area will be important for understanding how effective this policy structure is for meeting intended policy goals.

Table 1: Contextual variables for each Water Quality Coalition

Water Quality Coalition	North coalition	Central Coalition	South Coalition
Number of Counties	21	7	6
Crop acreage	1.1 million acres	620,000 acres	700,000 acres
Average farm size (acres)	128 acres	150 acres	199 acres
Top commodities	41% orchard 27% pasture/ hay 20% row crops 5% vineyards	45% tree nuts 33% stone fruits/ grapes 12% row crops 4% vegetables/ melons	63% tree nuts 18% row crops 12% stone fruits/ grapes 4% vegetables/ melons
Coalition structure	Governing board same as existing water association; 13 sub-watershed groups through an MoA	Governing board: same as existing Resource Conservation District; Steering Committee Meetings provide feedback to board	Voluntary board of Directors (irrigation districts, Farm Bureau, private operators/ growers) with Executive Director
Number of farmer members in Coalition	8,600	4,100	3,502

(Data sources: CA Ag Statistics from CDFA 2015)

Figure 1: Map of Water Quality Coalitions



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