

## SALMON AND CATTLE COEXISTENCE IN OREGON ESTUARIES: PARTNER ASSESSMENTS OF ELINOR OSTROM'S GOVERNANCE SCHEME

Daniel Nuckols and Jason Nuckols

### Abstract

Various natural and human factors have adversely affected watersheds and estuaries, harming both ecosystems and economies. Unions of diverse partners address these negative impacts through conservation and restoration actions, often with negligible government influence. This research is a case study of partner governance pertaining to how seven participating alliances developed a project to improve damaged wetlands and farmlands, to benefit juvenile salmon and cattle. Their project took place in the Winter Lake area of the Coquille estuary of Oregon. Elinor Ostrom, recipient of the 2009 Nobel Memorial Prize in Economics, identified global cases in which successful non-state partner governance of common-pool resources existed. After being educated on Ostrom's core design principles, the seven project collaborators judged whether Ostrom's governance framework existed within their partnership. The purpose of this study was to allow core collaborators to analyze the presence or absence of each design principles and to reflect on whether their partnership had a de facto governance framework. While none of the partners was initially aware of Ostrom's work, they acknowledged and elaborated on how parts of her governance framework existed within the project, but also questioned whether some elements of successful governance of a commons were missing. This case study expands the research on commons governance by prompting interviewees to offer and evaluate their own perceptions of successful governance of the commons, offering new and varied experiences about its management.

*Keywords:* common-pool resources, core design principles, ecosystems, estuaries, governance, Elinor Ostrom, tide gates, watersheds

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## **Introduction**

To address the decay of the nation's watersheds and estuaries through conservation and restoration, alliances of diverse partners often govern with minimal state command over the nature of their collaboration. For ecosystem care, the partners' management interplay calls for alignment in understanding, approving, and working within their governance structures, which have characteristics that partners may be unaware of. To add to the varied context found in the collaborative and co-managed natural resources literature, this case study focused on enabling a diverse group of core stakeholders to overtly uncover and share their own reflections of, and identify possible flaws in, their governance scheme. Such self-awareness by stakeholders can not only help mediate problematic issues surrounding their own governance but also help in identifying areas where their governance succeeds (Bouwen & Taillieu, 2004; Aligica, 2019). Moreover, case studies contribute to the commons study by supplying new and varied experiences regarding commons management, by offering improvement of both governance design principles and new forms of common-pool resource (CPR) management. This can be seen when the day-to-day decision-making of local actors is not heavily influenced by government, but instead the local actors are co-managing resources with varied external entities (Duram, 2000; Bouwen & Taillieu, 2004; Poteete et al., 2010; Gari, 2017). We also searched for project evidence supporting the importance of receptivity to citizen home rule and the need for public entrepreneurs (McGinnis & Ostrom, 2012; Aligica, 2019; Aligica et al., 2019).

To convey the issues surrounding stakeholders' governance scheme, the authors engaged all the core partners who created, implemented and monitored the project governance framework of the Winter Lake area of the Coquille estuary, located along the coast of southern Oregon. "An estuary is a partially enclosed body of water or wetland that periodically receives freshwater and seawater inputs and extends from its connection to the ocean to the limit of the tidal influence, defined by salinity gradients or tidal inundation" (Brophy, 2019, p. 4; Prichard, 1967; Wolanski, 2007).

Part of the economic value found in America's estuaries comes from housing ecologically critical habitats that provide crucial space for juvenile salmon and other species, such as lamprey and migratory birds; space that can at the same time hold productive farmland (Rouleau et al., 2021). Like other wetland areas across the United States, multiple natural (e.g., droughts, sea level rise) and human factors (e.g., damming, toxic chemicals) have adversely impacted Oregon's tidal wetlands, including the Winter Lake region of the Coquille estuary (Adamus et al., 2005; Barbier et al., 2011; Oregon Department of Fish and Wildlife [ODFW], 2017). The self-organized local stakeholders of Winter Lake recognized the deterioration of natural resources and its impact on juvenile salmon and on cattle production.

With the goal of improving the health of both ecosystems and economies, the Winter Lake project brought together a variety of collaborators to install a state-of-the-art tide gate system to better control the flow of water onto and off of the land during changing tides and seasonal flows. In addition, extensive tidal wetland enhancement took place behind the tide gates. The project allowed ranchers to pasture their cattle for additional weeks each summer, enabling them to grow larger and stronger while also improving conditions for juvenile salmon in the winter. Early estimates show that these changes will support as many as 300,000 additional juvenile fish each year; these salmon are often larger than those previous to the improvements, substantially increasing survival rates (The Nature Conservancy, 2019).

However, this dual use for valuable land and water resources can prove challenging, as the project's different partners (advocates for juvenile salmon and for livestock production) voiced their preferences for how and when the spaces and boundaries created by the new tide gate system were to be used. Hence, the Winter Lake partners strove for a solution and a corresponding governance scheme, accepted by advocates for both juvenile salmon and livestock.

### ***Core Design Principles for Managing Commons***

To enable the Winter Lake project partners to reflect on their governance scheme, the authors provided the collaborators with Elinor Ostrom's Core Design Principles for successful non-statist management of a commons. Dr. Ostrom, recipient of the 2009 Nobel Memorial Prize in Economics, compiled and analyzed a worldwide database of local groups that manage common pool resources (CPRs). "The term 'common-pool resource' refers to a natural or man-made resource system that is sufficiently large as to make it costly (but not impossible) to exclude potential beneficiaries from obtaining benefits from its use" (Ostrom, 1990, p. 30). She observed partners with dispersed decision centers sustainably managing shared resources (Ostrom, 1990). This led her to identify eight Core Design Principles (CDPs) found in an effective CPR governance structure (Ostrom, 1990, 1999; Ostrom et al., 1994; Ostrom & Walker, 2003). These principles are: 1) "Clearly defined boundaries; 2) Congruence between appropriation and provision rules and local conditions; 3) Collective choice arrangements; 4) Monitoring; 5) Graduated sanctions; 6) Conflict-resolution mechanisms; 7) Minimal recognition of rights to organize and: 8) Nested enterprises." (Ostrom, 1990, p.90).

Ostrom and others (Bouwen & Taillieu, 2004; Cox et al., 2010) have commented on how self-organized, non-statist systems have solved many Commons Dilemmas. Common Dilemmas occur when parties engage with a common resource such as water, grasslands, or forests, and make decisions out of self-interest that eventually create a deterioration of the resource (Ostrom, 1990, 2010). Her work was supported by further empirical evidence showing how collective stewardship in the management of common resources can successfully respond to resource deterioration without top-down central authority or changes in private property arrangements (Ostrom, 1990, 1992; Ostrom et al., 1993; Hanna et al., 1996; Cox et al., 2010; Robbins, 2012; Sattler et al., 2015). Collective stewardship can be seen, for example, with pastures from Morocco to India, fisheries from Maine to Turkey, and forests from Madagascar to Japan (Robbins, 2012). The compiled empirical evidence is too vast to survey here (see National Research Council, 1986; Feeney et al., 1990; Burger & Gochfeld, 1998; Cox et al., 2010).

### ***Ostrom's Argument for Common-Pool Resource Governance***

The entirety of Ostrom's research (e.g., Ostrom, 1990, 1999, 2010, 2015) is broad in scope. Ostrom challenged the narrative that communities need heavy state intervention or court-induced private property scheme solutions to use natural resource systems sustainably. She wrote on how to deepen local democratic governance of the commons in two ways: (1) strengthen the process of citizen participation through new forms of inclusion, consultation and mobilization, and (2) strengthen the accountability and responsiveness of institutions via changes in institutional design, with the goal of facilitating structures for good governance (Gaventa, 2003).

Our study of the Winter Lake project highlights a subset of Ostrom's broader literature by having partners concentrate on her CDPs. Ostrom noted that at times court-enforced private property rights may protect resources from exhaustive, suboptimal use. However, this mission can be problematic if resources (e.g., water and air) are difficult to privatize, due to the complexity that results when social systems intensify their interaction with natural systems (Ostrom, 1990, 1999, 2010).

Before Ostrom, leading social theorists emphasized the need for intervention by top-down and/or central government planning (command and control, taxes, subsidies, quotas), or private ownership. Both strategies are exemplified by the theories, in part, of Pigou (1920), Gordon (1954), Coase (1960), Olson (1965), Hardin (1968), and Axelrod (1984). After Ostrom, however, separate research has identified other strategies to restore, protect, and sustainably manage common environmental goods (Eguavoen & Laube, 2010; Fernandez-Gimenez et al., 2015; Brinkley, 2020; Reid et al., 2021). Ostrom's global case studies pinpointed how community-based stakeholders self-organize to create governance frameworks for managing CPRs, with little or no dependence on external schemes for their formation or routine functioning. She argued that successful commons governance has long-lasting, repeated attributes, but can also be diverse and malleable as it adjusts to local and regional conditions (Ostrom, 1990, 2010; Stern, 2011; Gari et al., 2017).

*Governance* in the context of Ostrom’s work is defined broadly as the operation that establishes and enforces rules for participants’ access to and use of the public’s collective goods and services. Ostrom’s method “refers to generally agreed-upon and enforced prescriptions that require, forbid or permit specific actions for more than a single individual” (Schlager & Ostrom, 1990, p. 88). Ostrom’s field research also identified these governance patterns and rules, inducing her to devise CDPs for the governance of local-scale CPRs (Ostrom, 1990). As Ostrom explains, “Collective-action problems occur when individuals choose actions—such as whether to build and maintain an irrigation system—in an interdependent situation. If everyone in such situations selects strategies based on a calculus that maximizes short-term benefits to self, individuals will take actions that generate lower joint outcomes than could have been achieved” (Ostrom, 2010, p. 155). The partnership formed to govern the health of salmon and private cattle production associated with the Winter Lake project provides a good case study of the effectiveness of Ostrom’s local-scale governance structure.

### **Context of the Partnership in the Coquille Estuary Management at Winter Lake**

With the goal of installing modern tide gates, interested Winter Lake stakeholders partnered to improve both the conditions for juvenile salmon and the soil for livestock grazing. Table 1 lists the core partners in the Winter Lake Project.

**Table 1:** *Core Partners in the Winter Lake Project*

<b>Core Partners</b>	<b>Mission</b>	<b>Project Challenge</b>
Beaver Slough Drainage District	Flood Risk Management and Land Drainage; a drainage district is a legally established area where landowners have organized to drain lands for agricultural purposes.	If alone, the district faced the financially insurmountable task of replacing aging and failing tide-gate infrastructure.
Oregon Department of Fish & Wildlife (ODFW)	To protect and enhance Oregon’s fish and wildlife and their habitats for use and enjoyment by present and future generations.	ODFW is tasked with ensuring the continued viability of Oregon coast coho salmon to achieve a desired status that provides substantial ecological and societal benefits.
Coquille Watershed Association	501(c) (3), a community-driven organization working collaboratively with landowners to	Put forth and enhance activities that promote healthy and resilient ecosystems, along with viable

	develop and implement voluntary watershed restoration.	commercial economies in the Coquille watershed.
The Nature Conservancy	To conserve the lands and waters on which all life thrives, and people act to conserve nature for its own sake and its ability to fulfill human needs and enrich lives.	To manage tidal wetland restoration and coordinate Winter Lake stakeholders ensuring both ecological and economic returns on investments.
The Coquille Indian Tribe	As a tribe living in Oregon’s southwestern corner for thousands of years on land encompassing more than 750,000 acres, the tribe continues to manage the resources of the Coquille area to promote healthy ecosystems and prosperous communities.	To engage other stakeholders to ensure that protection and nurturing is provided for a sustainable, resilient ecosystem for its tribe during and after the construction of tide gates.
NOAA Fisheries	An office of the National Oceanic and Atmospheric Administration within the Department of Commerce. NOAA Fisheries is responsible for the stewardship of the nation’s ocean resources and their habitats.	To work with Winter Lake partners to ensure that its estuary maintains a healthy habitat for not only salmon but for all fish.
Wild Rivers Coast Alliance	A grant-making department of Bandon Dunes Golf Resort. Their purpose is to fund project on Oregon’s southern coast that are committed to yielding triple-bottom-line results (conservation, community and economy), with a focus on approaches that blend innovative ecological initiatives while driving economic opportunity.	To ascertain the ecological viability of the Winter Lake project, while at the same time investigating if the project creates a robust setting for the commercial health of livestock owners.

### ***Tide Gates***

A *tide gate* is a device used to control the water volume on incoming and outgoing tides (Nuckols et al., 2021). Tide gates use pressure differences in the water to passively open and close a flap that keeps incoming tides out of pasture lands and drains freshwater running through the watershed. While properly engaged tide gates could be beneficial to Winter Park livestock producers, they blocked passage for juvenile salmon by disconnecting wetlands from the estuary system. Since approximately half of the tidal wetland in Oregon is private agricultural lands, traditional protection and restoration alone are not enough to meet the conservation objectives of Oregon’s estuaries (Nuckols et al., 2021). This fact led multiple Winter Lake partners to focus their estuary work and concerns on the dysfunctional, aging tide gates on private lands. A partnership was needed to create a new tide gate infrastructure that would be expensive but would provide landowners with more control over the flow of water to

meet drainage and irrigation needs that would lengthen the livestock grazing season (from late spring to early fall), while allowing fish species like juvenile salmon easier entry into tidal wetland nurseries (from late fall to early spring) (Huff & Claire, 2019; Nuckols et al., 2021).

The project site includes 1,700 acres of tidal wetland and pastureland (Huff & Claire, 2019). Partner discourse cultivated a belief that healthy wildlife and profitable livestock operations could coexist. As argued by Ostrom (1999, 2005, 2015), McGinnis (1999), Eguavoen et al. (2010), and Arnold (2018), governance tactics containing some inherent yet unbeknown design principles would begin to emerge as the alliance of collaborators began to seek clarity around decision-making, mutual reliance, transparency, accessible interaction, and respect for differences in philosophy and expert opinion.

The Winter Lake tide gate replacement and restoration project appears to be meeting the coordinated goals of collaborators set forth in the *Winter Lake Restoration Effectiveness Monitoring* report (Huff et al., 2020). The new tide gates created eight-plus miles of constructed tide channels that enabled approximately 110,000 trees and shrubs to survive, providing shade that will further enhance future water management to support improved cattle grazing. Moreover, juvenile coho salmon captured at Winter Lake are significantly longer, heavier, and more robust in body condition than juvenile coho captured in the mainstream Coquille river (Huff & Claire, 2019).

## **Methodology**

### ***Case Study***

This case study joins prior arguments that spotlight how the shared, collective capacity of multiple partnerships can be strategically leveraged to improve the environment (Eisler, 2008; Andersson & Chan, 2014) and accelerate restoration projects (Boyd & Folke, 2012; Gari et al., 2017; Arnold, 2018). Through interviews, we investigated how the Winter Lake partners responded to their own self-imposed governance structure,

and any reservations they had about the associated CDPs. As shown by studies of CPR management around the world, a case study approach is advantageous in “identifying and illuminating the questions of common property and the institutional structures that lead to success or failure in dealing with resources used in common” (Burger et al., 2001, p. 5).

### ***Data Collection***

Each agency freely provided their lead core person for interviewing. After their consideration of Ostrom’s CDPs, we compiled every lead core partner’s reflection towards their governance. Before each interview, the authors provided the Winter Lake partners with a succinct history of Ostrom’s work relating to citizen participation, local non-state governance of the commons, and again, her CDPs. Partners were asked whether Ostrom’s CDPs were in play and to elaborate on any misalignment.

Interviews followed a conversational style and flowed from an interviewee’s reflections on the project’s governance. All the interviews were recorded. Most interviews were conducted in-person, while others were conducted online. One author of this study, Daniel Nuckols, has frequently toured the Winter Lake project premises, while the other, Jason Nuckols, helped extensively with implementation, internal operation, and outcome measurement (e.g., tide gate success, salmonid use). This familiarity improved the authors’ ability to understand and probe further into the partners’ responses, adding to the richness of the interviews. Viewing and working within the project also supplied internal validity, since we could observe operational details referenced in the interviews.

The interviews, conducted from August to December 2021, ranged from 48 to 82 min. After transcribing, Daniel Nuckols shared with each core partner their individual remarks for accuracy. Partners were assured complete anonymity, both by name and organization, to protect them from any unwelcome consequences resulting from their comments and to increase the prospects for more enriched, candid remarks. The transcribed interviews ranged between 6 and 12 single-spaced pages. Immediately

before we queried partners specifically on their governance structure and how it aligned with Ostrom's eight CDPs, we asked, "Why do you feel the Winter Lake project is working or not working?"

### ***Coding of Interviews***

To help generate a robust sample of interviewee quotes to include in the research, after proofreading we coded the texts with Ostrom's eight CDPs using qualitative data analysis software (ATLAS.ti Scientific Software Development GmbH, 2023).

### ***Data Analysis***

The data were analyzed using a grounded theory approach. "Grounded theory methods consist of systematic, yet flexible guidelines for collecting and analyzing qualitative data to construct theories from the data themselves.....Grounded theory begins with inductive data, invokes iterative strategies of going back and forth between data and analysis, uses comparative methods, and keeps you interacting and involved with your data and emerging analysis" (Charmaz, 2006, p. 1; Arnold, 2018). This inductive method was applied to Winter Lake partners' explanation of their governance that came from their experiences and reflections.

### ***Ethical Framework***

To provide an ethical framework (Wilmer et al., 2021; Human Research Protection Program and Institutional Review Board, n.d.) for each interviewee, we: (1) clearly stated the nature and framework of our research, and relayed the expected length of time of the study visits; (2) confirmed that all partners were aware of each other's legitimate role in the project, and that all the project's core partners were included in the interviews; (3) established that each partner represented and approved of not only the philosophy and role of their institution in the project, but the project itself; (4) made certain that partners realized their comments would be held in confidence and not associated with their organization; (5) confirmed with partners that they would be able to see their comments once transcribed, with the opportunity to revise before being made public; (6) for reciprocity, by sharing the results of our research, we made

clear partners will receive a benefit in hope of improving the Winter Lake governance scheme.

## Results

### *Partner Reflections*

This section presents selected reflections on Ostrom's CDPs in the context of the Winter Lake Project. Individual respondents are not identified, to maintain anonymity. Here are some responses to the question on whether the partners believed the Winter Lake project was working successfully.

I think this project is working from a watershed, ecosystem health and fish perspective. I think this project is also working from the more human-element side; we all stuck with it until the project was implemented and fulfilled those goals and objectives that were set forward.

I think, ultimately, the success we've had is because all the stakeholders had a pretty significant piece of the action; we all had something to gain.

I do think the Winter Lake group is functional. I do think the project is doing what it wanted to do. I do think there are two, maybe three, pieces of primary glue that hold the project together. One was the conservationist who launched it, despite a lot, and stuck with it. Two, his initiating project partner, a rancher, persistence was important. Three, the agriculture/conservation combo was an unusual bedfellows' concept that brought a different cachet, as opposed to a traditional conservation project.

Landowners, agencies, NGOs and all groups were sitting at a table and making collective decisions. Even though they are not all getting 100% of what they want, they are willing to agree to some percentage of what they want because there

is a collective and common purpose that they are all shooting towards. For us, that was a success.

There was a common goal to manage water, and none of the groups specifically said we need our goals to dominate the other goals. There was a little bit of willingness to have some “give” between everybody.

There were a lot of meetings, some 400-plus, over the course of the entire project. So, I think the intention of communication has been there.

Some partners met four times a week for 10 years; we didn’t hide anything. Everything we did was public; the public was involved. Everybody we met loved the collaboration part of this. We never said “no” to anybody. When people wanted us to give a presentation, we were there; just tell us when and where, and we will be there. That developed trust between us, and it developed trust between community members.

I think what was really strong is the common purpose and agenda of the team .... All the core participants are really committed to the partnership and have a deep sense of respect and trust for everyone.

***Insights and Lessons.*** The above comments parallel Ostrom’s emphasis on the significant role of trust and public entrepreneurship in the governance of CPR restoration and conservation. An ecology-minded cattle rancher and conservationist were singled out for their persistence in convincing other landowners, partnering agencies, and community members of the project’s importance. Such public partnerships are important and are affected by how receptive the institutional environment is to new collaborative undertakings (Aligica et al., 2019). Respondents also revealed how transparency developed from the many face-to-face meetings, leading to trust, reciprocity, and collective action. As argued by Ostrom, repeated interactions help identify common goals, signal reciprocity, and help constituents

realize how they are linked (Ostrom et al., 1994; Ostrom, 2010; Ostrom & Walker, 2003). However, Ostrom and others have shown that the benefits derived from trust, cooperation, and reciprocity are not self-fulfilling; *design principles* must be embedded in the governance structure of the commons (Ostrom et al., 1994; Ostrom & Walker, 2003). Without design principles the long-term health of any local group's effort to find solutions pertaining to a *Commons Dilemma* remains in jeopardy (Ostrom et al., 1994; Braithwaite & Levi, 1998; Ostrom & Walker, 2003).

Below are Winter Lake partners' reflections on the degree to which their governance aligns with Ostrom's eight CDPs.

***CDP 1: Clearly defined boundaries***

Individuals who have the right to draw resource units from the CPR must be clearly identified, along with the boundaries of the CPR itself. Different agents of the governance group know their roles in defining boundaries and know the rights and obligations of membership (Ostrom, 1990, 2005).

All partners throughout this project have worked to understand everyone's sideboards [strengths and weaknesses].

The structure [use boundaries] was built into this because of the sources and conditions of the funding.

[The project funding] all came from nonprofits, government programs, grants and that sort of thing. It came with strings attached, which the landowners understood.

Overall, I think there could be clearer articulation of the boundaries .... There could just be a better definition and agreement on whose role is what.

[A] lack of recognition, or proper recognition, affected and slowed the amount of restoration work that we were able to be involved with.

The period of inundation onto private property for fish and wildlife benefits, versus the months remaining for livestock grazing, lacks some degree of clarity.

We [conservationists] often want more water on us than will work with the agricultural community, even during the period of the year when everybody is tolerant to have more water and agreed to have more water.

***Insights and Lessons.*** Different partners felt they knew their role in the Winter Lake project and trusted others to follow through on their roles. However, some partners' comments effectively challenged Ostrom's "well-defined boundaries" principle. These comments relate to property ownership, access, and the group's recognition of each partner's role. This first CDP may be too rigid, given that although the Winter Lake project showed success, and the geographical and social boundaries seemed fuzzier than Ostrom implied, possibly calling for spatial boundaries and rules for access to be more fluid (Cox et al., 2010).

### ***CDP 2: Congruence Between Appropriation and Provision Rules and Local Conditions***

This principle addresses proportional equivalence between benefits and costs and local conditions. "When the rules related to the distribution of benefits are made broadly consistent with the distribution of costs, participants are more willing to pitch in to keep the resource well-maintained and sustainable" (Ostrom, 2005, pp. 262-263).

I guess the word "equal" sticks out because that could be something that is subjective. Whether it was equal, I think that could be a little about "perception."

I think both ranchers and conservation groups perceive themselves as giving a lot, bending a lot. I think there is a lack of clarity surrounding what is equal and what is fair as far as benefits and costs. I think it could threaten future projects.

Some people thought this was a giveaway to the ag. folks, but what they don't realize is that the ag. folks are still paying to this day, like in the case of increased tax assessments in the Drainage District .... And they are still paying for all the maintenance.

I feel like I want to be part of salmon restoration. If I grow a bunch of beef and make a bunch of money, but the ecosystem is not more productive and diverse, then I am not interested in that.

The people and the place are one and the same. You can't separate things like animals and plants from that place, or from the people. They are one. I think the same goes for improving a habitat. If you improve the habitat for fish, wildlife and plant species, you are also uplifting the people as well.

There is still a push to extend the grazing period.

Most people from the biodiversity perspective are interested in what happens here in December, January, February and March, and there is not much disagreement, but come April is when we've got a difference of needs.

I think it is sort of like a person who shows and donates \$1 to a charity, and yet that is 10% of their income. And yet another guy donates half-million dollars, but that is only 2% of their income. Who gave more?

***Insights and Lessons.*** Partners differed over both their own proportional costs and benefits and those of others. For example, some felt the ranchers were offering their land for the benefit of the *ecosystem* but doing so within a setting that put their economic well-being at risk. Others felt ranchers were rewarded for their ecological efforts through financial aid for new tide gates, greater livestock value, and the monetary appreciation of their lands. It was also argued that these benefits were countered by costs: landowners now must pay higher property taxes. One partner

challenged the notion of being able to monetize land and wildlife and the effects on area residents, given land, wildlife and people should not be differentiated.

Differences also existed regarding the appropriation and provision rules used to isolate costs and benefits. For instance, partners felt the rule was ambiguous for determining which months cattle can return to dry land. Further, no alignment of rules existed for how different stakeholders' costs and benefits were weighted, which proved difficult within the context of different institutional missions (e.g., conservation agencies, tribes, grant-funding agencies, and landowners). These partner concerns were anticipated by Ostrom (1999). She claimed that crafting rules to equalize benefits and costs for construction and maintenance must account for the unique features of each partner and project. There needs to be a shared sense of equity that matches the sustainability of the management system (Cox et al., 2010).

### ***CDP 3: Collective-Choice Arrangements***

Collective-choice arrangements mean that most individuals affected by operational rules can participate in modifying the operational rules (Ostrom, 1990, 2005).

We had group meetings with all the agencies, their representatives, the drainage district, the board of directors, and the local landowners. We included the drainage district board members in every major decision, and it was always a unanimous vote, which gave us huge political power. So, with regards to inclusive decision-making, we just tried to involve everybody.

There were several years of conversation and troubleshooting and making decisions on how we are going to communicate .... I think that this is a good example of self-regulation among the partners.

There was an opportunity at the table for collective decision-making and for the people to contribute in a way that sort of made them feel that their voice and their needs were being met.

You still had federal and state rules that manage both the grant money and how you impact the land with the direct restoration actions. So, it was sort of a hybrid here; it was never a fully free decision-making framework as would align perfectly with Ostrom's rule #3, due to state and federal wetland rules that partially affect the decision-making process.

*Insights and Lessons.* These remarks show evidence of partners' attempts to be inclusive in decision-making. Comments revealed that many partner and community meetings were held for the purposes of integration, idea generation, and transparency. Ostrom showed that rule compliance does not have to originate from formidable, high-level authorities. Rather, many self-organizing governance structures, as exemplified by the Winter Lake Project, have few, if any, external state authorities affecting day-to-day operations. The field evidence shows that as environment and project needs change, local agents can still craft project-specific, local governance rules that satisfy distant officials (Ostrom, 1999, 2005).

#### ***CDP 4: Monitoring***

Monitors are those who actively audit biophysical conditions and rule-breaking behavior; they are at least partially accountable to the users and/or the users themselves (Ostrom, 1990, 2005, 2015).

We wanted as strong of a monitoring process in this as we can get to document what we were doing and what the effects of it were.

The thing about the water management monitoring plan is that it facilitates change to meet the conditions on the ground, and it is also an opportunity for all stakeholders to have input.

We have set up a really strong monitoring committee that meets quarterly, and we talk about everything ranging from velocity at the tide gates, gate door openness, how is the vegetation surviving, how many fish we are seeing, how long they are staying here ... you know, all kinds of metrics.

Having one or two backstop monitoring pieces also helps the partnership, ones that can't be altered by free will—in part for the funders, but also in part for when there is a regime shift.

***Insights and Lessons.*** Winter Lake collaborators generally felt their monitoring had safeguarded both the project's chance for operational success and their own ability to observe other partners' behavior. Both the water management plan and the many stakeholder meetings were thought to generate transparency and accountability and hence, there existed information-sharing and collective preparedness. Prior studies of CPR local management schemes have shown that such information-sharing leads to more operational success compared to partnerships that depend on monitoring information supplied by multiple external authorities (Cox et al., 2010).

#### ***CDP 5: Graduated Sanctions***

Users who violate operational rules are likely to receive graduated sanctions (depending on the seriousness and context of the offense) from other users, from officials accountable to these users, or from both. Day-to-day, successful local CPR monitoring and sanction agreements do not come down from, or are micro-managed by, external authorities; rather, they are established by the project partners themselves (Ostrom, 1999, 2005).

I didn't really observe or see any need for that kind of action [sanctions].

Even if there were sanctions, I don't know if they would enforce it. Some of my partners signaled that repeated interactions, transparency and trust would prevent any need to establish and invoke sanctions.

I think we have enough structure in this thing that we can resolve any of those things down range.

***Insights and Lessons.*** Winter Lake agents offered little evidence that formal sanctions were in place, with some believing they were unnecessary. Some interviewees asserted that if a need for noncompliance penalties arose, the partners could work through it. It may be that the contingent nature of the Winter Lake project's commitments was lessened simply by repeated partner interactions, whereby they could confirm collective compliance (Levi, 1988). Moreover, it has been claimed that people prefer to spend more time hammering out consensus than creating and implementing sanctions (Levi, 1988; Cleaver, 1999).

#### ***CDP 6: Conflict-Resolution Mechanism***

Rule infractions must be identified, and access to a conflict-resolution mechanism is needed to resolve disputes among users or between users and officials (Ostrom, 1999, 2005; Cox et al., 2010).

We haven't had to go down that route of conflict management. I know, ideally, when you are going into a partnership like this, you would have a system set up to say, "Hey, if we come to a disagreement, this is how we will move forward to resolve it." We definitely don't have anything like that.

There were places where we had issues. We found ways to resolve those issues that benefit both parties.

The collaborative is set up to resolve the differing needs for water management through consensus. One partner mentioned the need for a mediator for project area users.

***Insights and Lessons.*** Some partners expressed that there had been no conflicts to date, possibly signaling there was no need for a conflict resolution plan. Other partners stated that when conflicts did arise, ways were found to address them, including a third-party mediator. No mention was made of any existing formal document that would address fair, agreed-upon conflict resolution. Ostrom contends that some mechanism must be in place to both identify a rule infraction and formulate fair remedies agreed

upon by partners. “While the presence of conflict resolution mechanisms does not guarantee that users are able to maintain enduring institutions, it is difficult to imagine how any complex system of rules could be maintained over time without such mechanisms” (Ostrom, 1999, p. 81).

### ***CDP 7: Minimal Recognition of the Rights to Organize***

The rights of users to devise their own institutions are not challenged by external governmental authorities (Ostrom, 2005). Group members have the authority to manage their own affairs, create their own social organizations, and make their own decisions. This is the opposite of top-down regulation, asserting that externally imposed operational rules typically do not align with local conditions (Ostrom, 2005; Cox et al., 2010).

For this particular project, there was not necessarily that outside governmental agency pushing our group one way or another.

I will say that while we have a fair amount of autonomy, there definitely is a hand on what we can do as far as implementing the project on the ground.

I felt like we had enough autonomy within the rules. The project was guided, but our actions were not dictated.

Nobody tells the project collaborative team what to do. That said, there is a state and federal permit framework for the project. Overall, the project partners have largely independent autonomy to manage the project and make decisions.

***Insights and Lessons.*** Some Winter Lake partners felt there was no effective external interference, while others recognized that state regulations affected only the initial project implementation and monitoring of outcomes for fish and cattle. Most partners believed they were given sufficient *de facto* autonomy. They believed the state did not interfere with their rights to create their own institutional arrangements and devise strategies for handling their CPR dilemma—namely, to tackle both estuarial and

livestock producers' needs. In addition, partners seemed to depend on open, face-to-face communication with all affected parties, making the Winter Lake project's rule-making framework and day-to-day operations transparent to both local citizens and external authorities. Ostrom argued that such tactics lessen the chance of any CPR project being challenged in courts and in administrative and legislative settings (Ostrom, 2015).

### ***CDP 8: Nested Enterprises***

This principle (literally “many-centered” governance) applies to common-pool resources that are parts of larger systems, and refers to multiple layers of nested enterprises engaging CDPs 1-7 and where robust CPR groups can invoke cross-scale governance with their counterparts (Ostrom, 1990).

The Winter Lake project was not a one-and-done project. Our goal is to have this done up and down the coast, and to do that, we have to build in these enabling conditions, like the tide gate partnership. This will happen at a statewide scale, elevating this project and bringing people together, increasing awareness and bringing farmers to the table.

The initiating rancher and I [conservationist] have discussed this a lot. We have tried to figure how we can get around this agency/landowner divide, rural/urban divide, all those divides that we deal with nowadays. As you expand into bigger realms, you just don't have that much time to develop that trust thing.

For it to work, you need those key community members, like this case, where you have a key agricultural landowner who is willing to interact and engage. You need to have that kind of buy-in at the local level, someone that is influential in the community or the group to make it happen; that is a critical piece. I am not aware of another project that is working quite like the Winter Lake project.

### ***Insights and Lessons***

The core partners addressed the possibility that the Winter Lake Project will eventually become nested within a wider cross-scale governance framework. Respondents believe that cross-scale governance needs an early-entry coordinating institution or public entrepreneur(s) who have respected credentials and funding. A question for further research pertaining to design schemes becomes, “Are the variables that explain cooperation in social dilemmas of small groups relevant to the study of larger groups and vice versa?” (Burger et al., 2001, p. 8).

### ***Partner Concerns***

The below partner reflections pertain to their concerns with how Ostrom’s CDPs may not fully address needed components for successful project delivery.

Did Ostrom say anything about how these principles are constantly reset; how they have to be reinstated as trust fluctuates?

When a new person [partner] comes in, you have to start from scratch. When this person exits, I feel like although the project may not go back to square one, you have to revisit those relationships and that could slow down those [CDPs] principles.

I think the only layer that may be missing is the private funders. They are one orbit out of the circle, or they are an attachment circle, but their belief in the project and their continued investment and that flexible cash has not only helped Winter Lake but has also helped create that polycentric management. If you just wait for government funding to allow this to happen, that is not how their management and grants work. They want to fund you after all these partnership dynamics are worked out. So, I do think that private philanthropy can play a critical role.

Where is the emphasis on funding? Because you have to start it [the project] early on, like when the initiating conservationist convinced a private individual

funder to purchase the property at Winter Lake. The project is great to theorize about, but if you don't have the funding to put into it, it's just a lot of talk.

***Insights and Lessons.*** Collaborators had concerns over partners exiting, causing a possible need for project resetting. Interviewees also expressed the importance of initial private funding—the funding required at the idea stage of the project. Partners questioned why early private individual funders were not formally recognized in design principles as crucial partners in the mix. Private philanthropy offers malleable cash for a *project idea* they believed in, which is given birth by long-developed relationships, trust, and transparency.

## Conclusion

The Winter Lake project owes its existence to an ecology sensitive, tenacious citizen rancher and persistent conservationist, providing evidence that voluntary public entrepreneurs can lead to successful home rule and local autonomy (Ostrom, 2015; Aligica, 2019). Partner comments indicated that Clearly defined boundaries (CDP 1) may be too firm, but that the Winter Lake project was succeeding even though the geographical and social boundaries were fluid. Further, Congruence between appropriation and provision rules and local conditions (CDP 2) was not agreed upon as being clear in the project, given the different perceptions of what is benefit and what is cost and whether one is able to monetize land and wildlife equitably. Repeated partner interaction successfully speaks to the project Fulfilling Collective-choice arrangements (CDP 3). Monitoring (CDP 4) was in place, given the project's water management plan; its success was attributed to the many stakeholder meetings, ones that generated accountability and transparency.

Stakeholders felt that Graduated sanctions (CDP 5) and Conflict-resolution mechanisms (CDP 6) were effectively not in place, yet the project succeeded. Why? Again, frequently repeated partner interactions that were meant to hammer out consensus in an environment of transparency and trust, making such sanctions and conflict

resolutions unnecessary. Moreover, partners argued that top-down statist management was not the initial spark for the project's success, nor did it exist within the project's day-to-day governance, satisfying Minimal recognition of rights to organize (CDP 7).

Nested enterprises (CDP 8), partners clearly intend to help create and engage many other nested organizations interested in cross-scale governance throughout Oregon and beyond. Polycentric Governance, leads to a topic for future governance design research; that cross-scalar governance may require many robust intertwined public-private partnerships along dispersed decision centers, calling for longer time frames to develop trust and transparency (HM Treasury, 2000; Eisler, 2002; Bloomfield, 2006; Morrison et al., 2012; Tomkins and Hurston, 2012; Levkoe et al., 2024). Another task for future research in commons governance design comes from collaborators who pondered: (1) how can the design principles be modified to help deal with partners entering and exiting, causing a possible need to reset the project and; (2) where is the importance of funding conveyed in the design principles, monies needed at the idea stage of the project? Public funds are routinely not forthcoming for a "theoretical" scheme, and instead *malleable* cash from private philanthropy is needed at the "*project idea*" stage. Partners argued that such philanthropy germinates through long-developed relationships, trust and transparency, which are crucial governance components that can be facilitated by initiating public entrepreneurs; in the case of the Winter Lake project, a resolute conservationist and ecologically minded livestock producer.

Winter Lake partners believed their vibrant array of associations has led to the coexistence of a robust ecosystem and profit-making agricultural land, all within a hybrid governance structure (Pinkerton and Weinstein, 1995; Gibson, 2001). They believed the project was robust, given most remain effectively engaged with its internal operation. Collaborators attributed the success of project's implicit governance structure to members' trust, transparency, and reciprocity. The project's mission has succeeded, as partners reported that the new tide gates have improved water management, and the fish and livestock results are satisfying both conservation groups and private landowners.

Significantly, when allowing partners to reflect upon their *own* governance structure, collaborators expressed mixed reactions toward how it aligned with Ostrom's CDPs. Future study will need to probe whether the Winter Lake project can continue to be sustainable, as partners ponder Ostrom's call to incorporate all aspects of her governance structure. Questions remain over whether the project can carry on, given the partners' stating that not all of Ostrom's governance structure is in place with the Winter Lake project. These include Ostrom's argued need for well-defined boundaries, proportional costs and benefits, graduated sanctions, and conflict-resolution mechanisms. Importantly, concerns were also expressed over Ostrom's eight governance design principles not addressing the problems that exist when partners enter/exit the project, nor the need for pliant funding from private philanthropy at the initial proposition stage and beyond. However, at its core, the Winter Lake Project has successfully held together a network of resilient people and organizations to advance the shared vision of ecologists, livestock producers, non-profits and funders. As with all community voices, the vibrant Winter Lake project partners face struggles but know that in many important instances more can be gained collectively than individually.

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Daniel Nuckols holds the John T. Jones Chair of Economics and is Associate Professor of Economics at Austin College. He was chair of the Board for Holistic Management International and a co-founder for the Council for Healthy Food Systems.

Jason Nuckols is the Estuaries and Freshwater Project Manager for The Nature Conservancy Eugene, Oregon. He help lead the freshwater and coastal programs to address in-stream, floodplain, wetland and estuarine habitats.

Correspondence about this article should be addressed to Daniel Nuckols at [DNuckols@austincollege.edu](mailto:DNuckols@austincollege.edu)