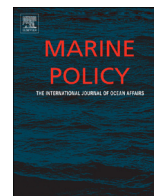




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# Hana Pa'a: Challenges and lessons for early phases of co-management



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## ABSTRACT

This case study provides in depth analysis of an early phase of natural resources co-management, rule making. Co-management involves shared management responsibility between resource users or community groups and governmental agencies, and is recommended as a key management approach for nearshore marine resources. This article explores collaborative rulemaking based on traditional management practices for a small, rural nearshore Hawaiian fishery important for local subsistence. Legislation mandated the state of Hawai'i's natural resource management agency work with community residents to co-create and enforce rules for the fishery. By selecting a model case in which rule making has taken seven years longer than predicted, despite the presence of many established enabling conditions, this study elucidates new factors for consideration in early phases of co-management. These include legal uncertainty regarding statutory mandates, the role of bridging organizations in capacity building, cross-generational leadership development, and connection of the co-management rule-making process to the target geography. Through in depth analysis of a model collaborative rule making effort and the delays it faced, this research reveals new critical challenges while also offering suggestions to address them to build lasting collaborative capacity in other fledgling co-management efforts.

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## 1. Introduction

This research considers an early phase of natural resources co-management: collaborative creation of rules to govern a nearshore fishery. Co-management partnerships, involving shared management authority and responsibility between resource users or community groups and governmental agencies [1] are a recommended means of engaging local community groups and government agencies to manage nearshore marine resources [2–4]. Though understudied, **initial stages of co-management are important because they can foreshadow long-term outcomes, such as ecological health and enhanced management capacity** [5–9]. Co-management partnerships often fail to engage local resource users meaningfully or effectively at early enough phases of decision-making [10]. For example, community members might be asked to provide input on or help to implement already developed management plans [11], instead of actively participating in management plan creation.

Rulemaking is an especially important early phase of co-management because rules dictate how resource management

decisions will be made [12,13], as well as how partners interact with one another and with the natural resources they seek to manage [12]. While the finalized rules are clearly important, our focus here is how rulemaking occurs within a co-management partnership. Early collaborations that achieve specific goals, such as drafting a rules package, are thought to lead to enhanced capacity for future co-management endeavors when certain “success factors” are in place [14,8]. Success factors consistently identified in past studies include enabling legislation mandating collaboration, facilitation by a third party bridging organization, leadership capacity, and strong local-level relationships with marine resources [8,15,1,7] (see Table 1).

The purpose of this study is to focus on a model case in which all of the above success factors were in place: Ha'ena, a rural subsistence fishing community on the North West shore of the island of Kaua'i, Hawai'i. Ha'ena is one of only two Hawai'i communities legislatively mandated to collaborate with State resource management agencies to develop customarily based rules for coastal management, and the first whose rules have passed into law.<sup>2</sup> The Ha'ena process is a model for 19 other Hawai'i fishing

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<sup>1</sup> Mehana Blaich Vaughan completed all the primary data collection and analysis. She also had the primary role in writing.

<sup>2</sup> Ha'ena's rules were unanimously approved by the state Board of Land & Natural Resources on 10-24-2014 and currently await the Governor's signature to become law.

**Table 1**  
Success factors' often described as necessary for implementing early phase co-management of nearshore marine resources.

Success factor	Reference(s)
Strong enabling legislation	[8,29]
Mandating early collaboration between government and community groups	[10]
Facilitation by a bridging organization	[1]
Leadership capacity	[30,15]
Prior relationships and trust between individual members of the partnership	[8]
Design of co-management to reflect customary systems	[2]

communities interested in co-managing coastal resources based on traditional and customary practices [16–18]. The Ha'ena community has persevered in the rulemaking process despite challenges that have progressively narrowed the scope of rules [19] and delayed rule adoption seven years longer than predicted. We address the following questions in the context of this Ha'ena case:

1. What challenges emerge in collaborative rulemaking for co-management of coastal resources?
2. How do these challenges both reinforce and question previously identified success factors for co-management?
3. What solutions does this case suggest for addressing these challenges in early phases of other co-management partnerships?

Through in-depth analysis of collaborative rulemaking in a model case, this research suggests the need to characterize challenges faced in early phases of co-management, along with potential solutions to address those challenges.

## 2. Theoretical framing and review of related literature

Collaborative partnerships, or co-management agreements, in which management authority and responsibility are shared between resource users or community groups and governmental agencies [1] are a recommended tool for sustainable management of nearshore marine resources [2–4]. Suggested advantages of shared authority include: learning and creative solutions generated by diverse partners [20]; integration of local knowledge [21]; decreased conflict and mistrust among stakeholders [20]; and increased community buy-in and stewardship leading to enhanced compliance [22,23]. Partnerships with government agencies can also strengthen local-level systems eroded by external stressors (e.g., economic shifts) [24,12] and internal pressures (e.g., changing community demographics and weakened communal norms of harvest) [25,11].

Early stages of co-management are crucial to building processes for adaptive learning, in which partners modify management strategies, policies, and even decision-making rules [6,1]. These modifications are adopted in response to external ecosystem feedbacks and generated through collaborative learning processes within the partnership [26,27]. Through adaptive learning, early phases of collaboration to achieve specific goals are expected to increase capacity for future success on broader endeavors [1,27].

Research identifies multiple “success factors” likely to foster effective, adaptive co-management [28,1], particularly of nearshore marine resources [7,21] (Table 1). These success factors include: strong enabling legislation [8,29] mandating early collaboration between government and community groups [10]; facilitation by a bridging organization [1]; leadership capacity [30,15]; prior relationships and trust between individual members of the

partnership [8]; and design of co-management to reflect customary systems [2].

While much literature assesses the presence or absence of these success factors [7,2], few studies discuss the processes underlying their establishment in early phases of co-management. This study addresses this gap in the literature by characterizing new critical challenge areas associated with success factors in early phases of co-management, while also offering solutions to address them.

## 3. Study site

As in other parts of the Pacific, management of nearshore coastal fisheries in Hawai'i has shifted from the local-level [31] to centralized government management [21]. Historically, traditional local-level resource management sustained healthy nearshore fisheries which were the primary source of protein for a population greater than that of Hawai'i today, on every island but O'ahu [32,31]. However, formal local-level rights to manage nearshore fisheries gradually eroded as Hawai'i became a territory of the United States, and management shifted to centralized control. Today, Hawai'i's State Department of Land and Natural Resources (DLNR) governs marine resources through its Division of Aquatic Resources (DAR) [33–35].<sup>3</sup> In keeping with the renaissance of community based management in other parts of the Pacific [36,21] and in response to perceived declines in nearshore fisheries under state level management, residents of rural Hawai'i communities who depend on local marine resources for subsistence have advocated restoration of local management based on traditional and customary practices [37,33].

### 3.1. Community based subsistence fishing areas

Recognizing the effectiveness of traditional and customary Hawaiian management, and the ongoing importance of subsistence fishing in Hawai'i [38,32], Hawai'i enacted legislation in 1994 [39] allowing DLNR to designate community based subsistence fishing areas (CBSFAs) for “reaffirming and protecting fishing practices customarily and traditionally exercised for purposes of Native Hawaiian subsistence, culture, and religion” [39]. DAR manages Hawai'i fisheries using standard Western management tools (size, catch, and gear limits and seasonal fishing closures), rules that apply uniformly across the state though research shows that individual species reproduce at different times throughout the archipelago [37,33]. Achieving a CBSFA designation allows community members to assist DLNR in creating place-specific management strategies based on Native Hawaiian values and ancestral practices, “engaging communities in direct management of resources they depend on for survival” [33], (page 2). As one of only two Hawai'i communities to achieve a permanent CBSFA designation, and the first to work with DAR to co-create rules formally adopted as state law, Ha'ena is a precedent-setting case for at least 19 other Hawai'i communities, including three entire islands, pursuing co-management of local fisheries [18,33].

“Ha'ena is important because they are going to set the precedent for how (co-management of inshore fisheries) might happen in the

<sup>3</sup> DLNR's Division of Aquatic Resources (DAR) manages Hawai'i fisheries using standard Western management tools: size, catch, and gear limits and seasonal fishing closures (Haw. Rev. Stat. § 187A-2 (5, 8) (2005), Haw. Code. R. §§ 13-49 to -52 (2008), available at [http://hawaii.gov/dlnr/dar/admin\\_rules.html](http://hawaii.gov/dlnr/dar/admin_rules.html)). These rules apply uniformly across the state though research shows that individual species reproduce at different times throughout the archipelago (Poepoe et al. [37], Higuchi [33]).

future (in Hawai'i). If it is a complete mess, (DLNR) is (not) going to go down this route again anytime soon. But if it works out, then you might actually see this trend towards gradual re-empowerment of communities" (DAR administrator).

### 3.2. Presence of 'success factors'

Many factors contributed to Ha'ena's singular ability to achieve CBSFA designation and submit a rules package. In addition to securing enabling legislation mandating DLNR to engage in collaborative CBSFA rulemaking [33], Ha'ena maintains ancestral subsistence fishing practices [38], and its coastal waters support thriving marine resources [40]. Ha'ena's community includes a nonprofit organization representing Native Hawaiian families with long time genealogical ties to the area. Experienced community leaders have a history of collaborating with government agencies to manage other natural resources. External funding from government agencies and NGOs also supported steps necessary to achieve CBSFA designation [41] (see Table 1).

### 3.3. Impacts of economic and demographic change

While many elements facilitating local management remain strong in Ha'ena, the community and its marine resources have also faced substantial changes and stresses within a short time. In interviews, community members describe Ha'ena as recently as 30 years ago with plentiful fish, open space along the coast, and less than 10 Hawaiian families gathering nearshore resources through fishing and shelling. Today, Ha'ena is a popular visitor destination hosting more than 750,000 tourists per year, with up to 2000 per day using the coast for recreational pursuits including snorkeling, swimming, and scuba diving [42]. The area is also a popular site for Kaua'i residents to surf, windsurf, kite board and pursue other recreational activities. In the past 50 years, land privatization [41] and extensive coastal development of vacation and luxury homes in Ha'ena [33] has driven escalating property values and declining public beach access, leading many long time Ha'ena families to move out of the area.<sup>4</sup> Only half of Ha'ena's 322 homes are occupied as primary residences [43], with the rest utilized as vacation rentals.

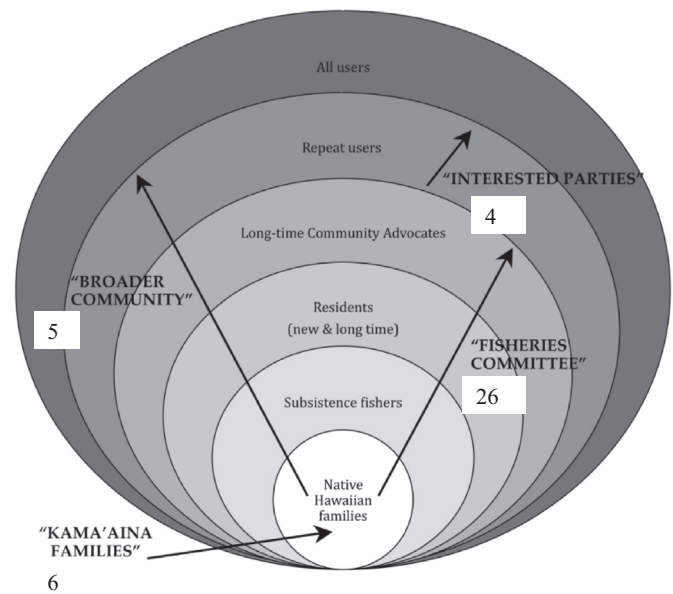
There is widespread community concern that increased recreational use (and associated sunscreen use, direct contact with and damage to corals, and disturbance of marine species) and development of luxury vacation homes (affecting fresh water flows, sedimentation, and pollution from septic tanks) are impacting the health of Ha'ena's marine resources [33]. Community goals for the CBSFA rulemaking process are to increase resource health by addressing ecosystem-based threats, reduce user conflicts and impacts to subsistence fishermen, and perpetuate Hawaiian cultural resource management practices [44].

### 3.4. Community planning process

Co-creating CBSFA rules based on customary norms for Ha'ena's fishery has taken 9 years (see Timeline, S3). The "Ha'ena fisheries committee," a group of 12 Ha'ena community members, most of whom represent families with ancestral ties to Ha'ena,<sup>5</sup> has

<sup>4</sup> From 2000–2010 the Native Hawaiian population declined from 36% to 23% (U.S. Census 2010, Stokes, K. Kauaian institute personal correspondence). Over the same period, the number of housing units doubled, while the number of units used as primary residences increased by only 43%.

<sup>5</sup> The Ha'ena fishery committee included Native Hawaiian board members of Hui Maka'ainana o Makana (the community nonprofit representing descendants of families living in Ha'ena prior to 1850), Ha'ena residents, fishermen and longtime community advocates who reside outside Ha'ena. The committee was roughly 40% female, and 60% male, 80% Native Hawaiian, and 60% fishermen.



**Fig. 1.** Multiple levels of Ha'ena community participation in rulemaking and number of meetings held at each level. The fisheries committee was composed of representatives of the inner four rings, including long time community advocates residing outside the Ha'ena area. The "broader community" engaged through public meetings roughly included all circles but the widest. Meetings with "interested parties" focused on individuals in the regular user (labeled here repeat users) circle, both commercial and recreational users. Finally, public hearings mandated in the approval process afforded input from any individual, including those not in the diagram who have never been to Ha'ena.

worked since 1996 with a nonprofit conservation group, Hawai'i Community Stewardship Network (HCSN) – now Kua'aina Ulu 'Auamo (KUA) – to create the rules.<sup>6</sup> This small nonprofit works with a statewide network of 25 Hawai'i communities who request assistance to improve community capacity to plan, implement, fund, evaluate, and adapt resource management practices.

To facilitate rulemaking after passage of Ha'ena's CBSFA legislation, the nonprofit first worked for a year and a half with members of the Ha'ena community to compile data on traditional management practices, conduct baseline marine health assessments, set objectives for the rules package, survey community members on trends in resource health, perceived threats, and solutions, then integrate all of this information into a draft rules package. Feedback on these draft rules was solicited through another two years of community gatherings for "kama'aina families" (those with Hawaiian ancestral ties to Ha'ena), consultations with representatives of other "interested parties," (including commercial groups operating in the Ha'ena area), public meetings to engage the "broader community" of area residents and regular users (Fig. 1), and multiple rounds of review by DAR staff and representatives of other DLNR divisions (See S3 Timeline). After reaching agreement on the basic content of the rules, it took two more years to translate this content into legal language in collaboration with DAR staff and legal experts, then an additional three years of review by DLNR after the rules were submitted in June of 2011 (see S3). After five and a half years and over 15 different rules drafts, the rules entered the formal rulemaking process in June, 2011. Hawai'i's governor signed the rules into law four years later on August 4, 2015. Analysis of the lengthy process of state and community negotiation to arrive at the proposed rules package

<sup>6</sup> A formal rules package is only one vehicle by which the Ha'ena community is pursuing restoration of local management and improved health of natural resources including their fishery. The community recognizes that the rules cannot meet all local management goals. Other efforts include education and enforcement activities associated with the rules [19].

now awaiting state approval, and the factors leading to delays offers important lessons for other early phase co-management processes such as collaborative rulemaking.

## 4. Methods

### 4.1. Data collection

This research used three methods: (1) interviews, (2) document analysis, and (3) direct observations of rulemaking meetings. Researchers attended 20 meetings, recording both verbatim minutes and notes on proceedings, and analyzed minutes of 20 meetings held before the research process began, along with 12 separate iterations of rules drafts. The lead author conducted 15 in-depth, semi-structured interviews from June 2009–September of 2011 with community members (9), as well as with nonprofit and government agency staff (6) involved in the rulemaking process. Due to the small size of both the Hā'ena community, and the government agencies involved, this sample allowed for inclusion of all key respondents close to the rulemaking process. Government interviews represent all participating agencies and multiple levels of decision-making authority. Interviewees evidenced varying degrees of support for the rules process and ranged in age from 20 to 76, with experience in past co-management efforts varying from 30 years to none. Interviews, averaging an hour and a half, asked participants to reflect on the collaborative rulemaking process and focused on topics identified in prior studies as important for early phase co-management: adaptation and evaluation of rules, relationships between participants, power sharing, definitions of community, capacity building needs, and learning in order to investigate processes underlying these factors [45] (see S1 for interview questions).

### 4.2. Data analysis

Researchers analyzed interviews using a grounded theory approach [46,47]. Research reflections, an initial set of interviews, and meeting notes were used to derive initial themes [48,49] and develop a code list. Three separate individuals then coded all interview transcripts, meeting notes, and policy documents, using HyperResearch analysis software. By analyzing data related to each theme, researchers were able to derive larger categories of findings presented below in results.

## 5. Results

This study explores an early phase of co-management: collaborative rulemaking, in which multiple established success factors (see Table 1) were already in place, yet the process faced substantial delays. Results highlight new considerations for early phases of co-management, each related to an established factor of success. Table 2 displays the number of interviewees who mentioned related themes within each of these key overarching challenges: (1) substantive and procedural legal uncertainty, (2) role of bridging organizations in capacity building, (3) cross-generational leadership development, and (4) connection of process to target geography.<sup>7</sup>

<sup>7</sup> Within the themes presented in Table 2, some were emphasized more by community members (capacity building, leadership, and youth), while others were stressed more frequently by policy makers (e.g., legal translation). However, all were mentioned in interviews with both groups (see S2 for the top themes, identified by frequency of mentions in interviews, for community members and policy makers independently).

**Table 2**

Counts of key findings grouped by theme and sub-theme emerging from participant interviews.

Theme	# Interviews
1) Substantive and procedural legal uncertainty	
Uncertain, bureaucratic process	7
Role of public vs. community	7
Unresolved legal questions	6
Agency jurisdiction	5
2) Role of bridging organization in capacity building	
Bridging organization/facilitation	8
Capacity building needs/learning	8
Capacity building needs of community	8
Capacity building needs of government	5
3) Cross-generational leadership development	
Youth	9
Need for leadership	7
Trust and respect, relationships	8
4) Connection of process to target geography	
Connection / responsibility to place	8
Monitoring	8
Enforcement	8
Meeting Location	5

Note: This table lists the number of interview participants, including both community and government interviewees, who discussed each theme. Each theme listed here was discussed in at least one third of interviews, with the majority in at least half ( $n=15$ ).

### Substantive and Procedural Legal Uncertainty:

"Constitutionally, the department is the steward of the resource. And devolving that to any degree then gets into interesting places that people do not know how to go" (DAR administrator). *Uncertain bureaucratic process*

"I cannot think of any point in this process where DLNR has said 'No forget it you cannot.' What they say is 'We are constrained by the constitution, we are constrained by the system,' but they have always worked with us through the process" (Hā'ena community member). *Unresolved legal questions*

### 5.1. Substantive and procedural legal uncertainty

In the Hā'ena CBSFA rulemaking process, uncertainty about legal interpretations created substantial delays. Legal uncertainties centered on two areas: (1) substantive concerns regarding agency jurisdiction and (2) procedural uncertainties regarding (a) substantive criteria for rules review, (b) the required degree of public input, and (c) how "community" would be defined. In response to these legal uncertainties, DAR adopted progressively narrowing interpretations of its legal authority. These progressively narrower interpretations were more difficult to challenge because they emerged relatively late in the process.

#### 5.1.1. Jurisdiction

The first substantive legal uncertainty to cause delay was whether formal rules were limited to regulating activities directly under DAR jurisdiction (e.g., catch limits, and gear restrictions on fishing) or could extend to issues and uses regulated under other divisions within the broader authority of DLNR (e.g., fresh water, land based pollution, boating or recreational impacts). Initial Hā'ena community goals for the CBSFA aimed to address multiple ecosystem-based threats to resource health. CBSFA legislation named DLNR as the responsible governing agency, however, DLNR delegated CBSFA rulemaking to DAR, narrowing the interpretation of statutory authority to the specific jurisdiction of DAR. The Hā'ena community spent 18 months gathering input from another DLNR agency, the Division of Boating and Ocean Recreation (DOBOR), only to be informed that rules related to boating and



**Table 3**

Number of meetings, mean attendance, and presence of various interested parties during Ha'ena's rulemaking process between 2006 and 2014.

Year	Fisheries committee	Kama'aina families	Interested parties	Broader community	DAR	DOCARE or DOBOR	DLNR chair
2006	1						
2007	6	4					
2008	5		1		1	1	1
2009	4	1	2	4			
2010	2				1	2	
2011	5	1		1			1
2012	1						
2013			1		1		1
2014	2				1		
Total meetings	26	6	4	5	4	3	3
Attendance	(4–12) Mean=8	(19–60) Mean=40	Mean=5	(18–65) Mean=32	(2–10) Mean=4	(1–3) Mean=2	(2–10) Mean=6

Note: These are meetings with community members present. HCSN had multiple other meetings with DAR staff other DLNR divisions and the DLNR chair.

recreational uses could not be considered. Had official Attorney General (AG) review indicated that rules must fall exclusively under DAR's limited jurisdiction earlier in the process, participants might have sought legal assistance to challenge this narrow interpretation and advocate for a more flexible legal frame in the management plan.

### 5.1.2. Unresolved legal questions and uncertain, bureaucratic process

There was also significant legal uncertainty regarding procedural mandates of the CBSFA statute. These open questions centered on decision rules used in the approval process including: (a) review criteria at multiple stages of approval; (b) the required degree of public support, and (c) a clear definition of who is included in "community." CBSFA legislation sets out multiple levels of review that Ha'ena's rules must undergo to become law [17].<sup>8</sup> However, there was no explanation of criteria for review at each stage. It was also uncertain whether changes recommended at any step of this approval process required community agreement before proceeding to the next level. The approval process also required consideration of public input at multiple stages including a public hearing [17,33]. However, the required level of public support remained undefined throughout the process.

#### Substantive and Procedural Legal Uncertainty:

"There needs to be some degree of the community of various levels behind it. You will never get 100% but you need to feel folks are legitimately speaking for a critical mass" (DAR administrator). *Role of Public vs. Community*

"My take on the community is really more the lineal families and long-term residents of Ha'ena *ahupua'a*. For me there is a tiered level of stakeholders but technically if you are with the state, everybody's equal right?" (DAR staffer). *Role of Public vs. Community*

"When I put out a public meeting notice, it is for the public in general. I am not overly concerned with who and what is community. I am just concerned that the announcement reaches the county, people are affected and that they will show up and give us their opinions" (DAR administrator). *Role of Public vs. Community*

<sup>8</sup> DLNR, BLNR, Attorney General, Small Business Review Board, and Governor's review along with a public hearing (Haw. Rev. Stat. § 91-6. Haw. Admin. Rules § 13-1-26.) Note: this process for rulemaking by administrative agencies is laid out in The Hawai'i Administrative Procedure Act, codified as Chapter 91 of the Hawai'i Revised Statutes (See Kittinger et al. [17]).

### 5.1.3. Role of public versus community

Most challenging of all, the CBSFA statute failed to define "community" [33], which left DAR in control of the meaning of the term for the purposes of implementing the law. The significance of the term "community" was particularly salient in the face of DAR staff's repeated warnings that community support for rules would be crucial to securing their approval.<sup>9</sup> In the case of the only other Hawai'i community designated a CBSFA, opposition to proposed rules at a public hearing – by area residents, fishermen, and outside commercial interests – tabled the rulemaking process [33]. However, DLNR did not provide explicit guidance regarding whom to include in "community" (e.g., qualifying criteria such as residency or proof of regular use) or what percentage of those qualifying individuals need to agree (e.g., by consensus or a simple majority). Ha'ena's rules were developed through an intensive, inclusive community input process. The fisheries committee negotiated agreement on rules with diverse user groups, including permitted commercial operators, or "interested parties," over two years. They also held 11 different community outreach meetings averaging 36 attendees, 6 with Hawaiian descendants of the area, or "kama'aina families," and five with the broader community (see Table 3, Fig. 1).

The committee used various means to advertise these meetings, two attended by more than 60 participants, including phone trees, email list serves, door-to-door flyers, public radio spots, and coordination with standing meetings of area community associations. Unofficial opinion polling conducted by the facilitating organization at these meetings (including thumbs up or thumbs down counts of support, as well as stickers placed on poster paper to indicate level of support for each role) reflected over 90% agreement with the content of the rules. At the final public hearing, 632 testimonies (99.1%) supported Ha'ena's rules, while only 4 opposed. Yet throughout the process, the threat remained that DAR would decide there were insufficient levels of "community" support.

The cloud of legal uncertainty regarding jurisdiction, review criteria, public support, and the definition of "community" caused disparate expectations among individual community members and agency personnel. These differing expectations remained unresolved for much of the process, causing long delays, particularly as changes in administration brought new interpretations of these

<sup>9</sup> The dual requirements that DLNR consult with as broad a group as possible of *ahupua'a* inhabitants (ACT 241), and that "all interested persons" be afforded the opportunity to comment (Chapter 91), "risks contradicting the CBSFA statutes' requirements and intent" to protect customary practices [33]. This problem is exacerbated by uncertainty about where to hold the required public hearing, whether in neighboring Hanalei town, or in Honolulu, which would make it difficult for Ha'ena residents to attend and provide input due to the prohibitive costs of airfare.

legal requirements for implementation of the statutory mandate.

### 5.2. The role of bridging organization in capacity building and facilitation

Rulemaking in Hā'ena was coordinated by a third-party non-profit conservation organization, Hawai'i Community Stewardship Network, now called KUA (Kua'aina Ulu Auamo). HCSN's involvement and facilitation expertise filled in gaps where government and community members lacked capacity and was pivotal to completing the rules package. Yet this case also illustrates how Hā'ena and DLNR may have over-relied on the services provided by HCSN. This dependence decreased interactions and capacity building of both parties as the rules were being developed, and may have prevented them from questioning narrow legal interpretations described in the last section.

#### Role of Bridging Organization in Capacity Building:

"In my opinion it is difficult for the community to organize the community" (DAR administrator). *Bridging organization/Facilitation*

"The capacity that it takes to run a meeting, to gain consensus, to work with people is so needed and so rare and so different than the skill sets people have if they are (trained as fisheries) biologists. . . . How do you get those skills to your staff?" (DAR staffer). *Capacity building needs of government*

"My advice to other communities? Find a (names process facilitator)" (Hā'ena community member). *Capacity building needs of community*

"Let us say it was an NGO that I did not think was going to run a good process. Do you think I would be pushing it as hard?" (DAR administrator) *Bridging organization/facilitation*

"When we started the process I think we were all a little naive about what the results were going to be, how it was going to empower the community . . . I guess when I go to the next community I will bring a more realistic view of what to expect. When I came to Hā'ena, I always said, it is not sovereignty, but I really realize the depths to which that is true now" (Process facilitator). *Capacity building needs/learning*

While the Hā'ena CBSFA legislation provided a clear mandate for collaborative rulemaking, it provided no personnel, funding, or process to develop rules. Neither government agency staff nor community members had the resources, time or facilitation skills required to plan and coordinate collaborative rulemaking. This crucial coordinating role fell to HCSN and later KUA. The non-profit's executive director obtained and administered grants, led strategic planning, facilitated fisheries committee and broader Hā'ena community meetings, set deadlines for community deliverables, and followed up to ensure tasks were completed. Fisheries committee members helped to publicize, secure venues, and provide food for broader community meetings. However, members mainly relied upon the director to describe the rulemaking process and proposed rules, and to facilitate verbal feedback from attendees.

#### 5.2.1. Capacity building needs of both government and community

The nonprofit executive director also served as liaison between Hā'ena, DLNR, and DAR staff. This role was especially critical because the HCSN office is located on O'ahu where the facilitator could interact more easily with state level DLNR and DAR staff than Hā'ena community members located on Kaua'i. The nonprofit executive director submitted the final Hā'ena rules proposal to DAR on behalf of the community and wrote the accompanying

management plan based on strategic planning conducted early in the process. Both government and community participants expressed respect for this facilitator's integrity and abilities. Nearly every interviewee suggested that rulemaking would not have been achieved without the non-profit executive director whose leadership was cited as one of the most effective aspects of the process. After long delays caused by leadership transitions at the state level or differing interpretations of legal mandates, the bridging organization always initiated continuation of the process by arranging meetings with newly elected officials or through community strategy sessions to regroup.

#### 5.2.2. Capacity building needs/learning

However, relying on HCSN allowed for progressively less direct interaction between government staff and Hā'ena community members during the rule development process. Both parties met in person three to four times per year in early years of the process, but only met once in the two years before proposed rules were submitted. During this time, the fisheries committee had to revise the twelve draft rules reflecting community consensus, and translate them into legal language based on feedback from DAR, DLNR, and third party experts (i.e., marine ecologists). In this process, the facilitator articulated and interpreted each group's input and responses back and forth between all parties. Hearing these instructions indirectly through her, rather than from DLNR administrators, may have dissipated community member frustration with the agency's progressively narrowing interpretations and prevented direct confrontation with DLNR.

In this case, a small bridging organization was critical to achieving the short-term goal of a rules package and to overcoming delays in the process. However, relying so heavily on this organization to facilitate the entire rulemaking process may have overtaxed its capacity as the only organization exclusively dedicated to increasing community capacity for local-level coastal resource management in the State of Hawai'i. The organization's extensive work on this process reduced staff time for non-rule-making efforts both in Hā'ena and the 24 other communities the organization supports. At the same time, by delegating their responsibility for rule development within the local community to HCSN, DAR and DLNR were able to avoid formally dedicating staff time to the CBSFA rulemaking process until 2012 when local foundation funding created a CBSFA coordinator position within DAR. Until this time, no DAR positions included co-management efforts or collaborative rule making within any staff job descriptions or formal responsibilities.

### 5.3. Durable cross-generational leadership development

The Hā'ena community possessed substantial capacity for co-management, including interpersonal relationships with individuals in state government built through past CBRM efforts [41]. However, capacity and relationships can be insufficient in complex, lengthy processes like rulemaking, unless they are transmitted to new leaders and across generations. This study reveals not only community capacity and leadership development needs, but also those of government. In this case, agency staff lacked capacity in many of the same areas as did community members.

#### 5.3.1. Trust and respect, relationships

The small group of Hā'ena community leaders who drafted and secured passage of the CBSFA legislation had already worked together for 20 years engaging with the state on natural resource management issues, including planning for increased community management of the local state park. Together they held extensive experience in policy processes, community organizing, meeting

facilitation, grant writing, county and state environmental laws, as well as nonprofit and Hawaiian resource management. Relationships between these community leaders and key individuals in DLNR helped facilitate the CBSFA rulemaking process.

5.3.2. *Youth and need for leadership*

However, leadership transitions at both the government and community level required constant building of new relationships. In the 9-year duration of this process, government faced high turnover in key personnel, with three governors, four DLNR chairs, and five different heads of DAR. Positions remained unfilled for up to six months and additional delays of up to a year resulted as new hires started over in building trust and familiarity with the process. At the same time, key Ha'ena community leaders increasingly took on professional responsibilities and leadership roles beyond the community. In interviews, some expressed frustration with their inability to translate their leadership skills, relationships and experience to developing other local community leaders, including Ha'ena youth who were less comfortable with skills such as organizing meetings and serving as spokespeople. Similar leadership capacity gaps on the government side also presented challenges. DAR staff lacked key skills for engaging effectively with communities including organization and facilitation of meetings. In addition, lack of communication, consensus and spokespeople within the agency made it difficult for DAR to develop or convey official agency positions.

Durable Cross-Generational Leadership Development:

"If you really care about something then you have to make sure it can be sustained when you are not there" (Ha'ena community member). *Youth*

"In 20 years (my agency) could be a different landscape. What we need is more students going and learning, then coming in with new ideas and passion and a different perspective" (DAR staffer). *Trust and respect, relationships*

"That has been kind of a reoccurring theme for us, the inability to take the human resources we have in our community and . . . get them into a stronger leadership role" (Ha'ena community member). *Need for leadership*

"Who from the younger generations in Ha'ena can we build up and empower and educate so that they can take over my job?" (Ha'ena community member). *Youth*

5.4. *Connection of process to target geography*

A final key challenge was connecting the rulemaking process to the target geography – the local people and resources – that the rules were intended to manage. The lengthy rulemaking process required substantial commitments of community member time, reviewing rules drafts by email and attending meetings. The average time commitment for 12 Ha'ena fisheries committee members was 12 h per month, with up to 25 h per month per person in intensive periods. Many attended 40 meetings over six and a half years, some held for up to eight hours on Saturdays. Weekends, when fewer people work, are the main time for both Ha'ena community members and outsiders to camp and fish in Ha'ena. Community rulemaking meetings thus reduced community presence on the coast at exactly the times when Ha'ena's resources are most threatened.

5.4.1. *Monitoring and enforcement*

However, monitoring efforts piloted in parallel with the rule-making process had the opposite effect of increasing community presence on the coast. To facilitate future assessment of the

impacts of CBSFA rules, seven Ha'ena community members were employed as surveyors to walk the coast in three-hour blocks eight times per month, conducting baseline studies of human use and fishing effort. Community surveyors expressed satisfaction being out on the coast of their home area more regularly, talking with people to raise awareness of community efforts, and being able to work taking care of places their ancestors had lived and fished. Community surveyors always brought along volunteer helpers – friends, children, cousins and siblings – further extending community connections to the coast. Surveyors were less positive about the formal data collection aspects of the job, particularly the repetitive data sheets and protocols revealing only what participants described as obvious patterns of coastal use. Though these observations helped identify previously undocumented user groups including immigrants and illegal fishers harvesting late at night, community members expressed frustration at not being able to start enforcing proposed rules they were developing through the CBSFA process. They wanted not just to record, but to halt observed behaviors they believed were harmful, such as overharvesting, harassing turtles, interfering with fishermen, and walking on the reef.

5.4.2. *Connection/responsibility to place*

Though not located on the coast, the community taro patch site (lo'i), managed through an earlier co-management agreement with the state, provided an important resource to sustain the fisheries rulemaking process in two ways. First, though restoration and maintenance of the area declined at busy times in the rule-making process (i.e., leading up to the public hearing), the lo'i provided a place for community members to work and see tangible progress, even when fisheries rulemaking stalled. Monthly community lo'i work days provided a regular meeting time to discuss developments in CBSFA rulemaking and to host and feed government and non-profit collaborators, while showcasing community stewardship in another co-management partnership with the state. Government officials participating in meetings held at the lo'i or on the coast of Ha'ena were impressed with community members' knowledge of and dedication to caring for the area. Community members appreciated government's commitment in traveling so far, and expressed pleasant surprise at how comfortable they felt interacting with them informally on the community's "turf."

Connection To Target Geography And Resources

"They are doing the studies in the office" (Ha'ena fisherman). *Monitoring*

"If you are going to do this stuff you better actually go up and engage with community. . . You better not just sit in an office and assume that it will work. This is the problem of trying to

**Table 4**  
Mean community attendance and community travel times for various community-government meeting locations. Note that these data exclude fisheries committee meetings, all held in Ha'ena.

Meeting location	Round-trip distance from Ha'ena	Round-trip time	Mean community attendance
Ha'ena	< 1 mile	< 10 min	60
Hanalei (nearest town)	16 miles	40 min	115
Lihu'e (country capital)	62 miles	3 h	2
Honolulu	244 miles	9 h (and \$220 airline ticket)	20

**Table 5**  
Selected interviewee suggestions to address challenges faced throughout the Ha'ena CBSFA rulemaking process.

Selected suggestions for addressing challenges	Challenges			
	Unresolved legal interpretations	Overreliance on bridging organization	Cross generational leadership development	Separation of process from natural resources
Make decision making process transparent	X	X		V
Rapidly resolve legal uncertainties	X	X	V	
Invest in facilitation for capacity building		X	X	
Mentor new leadership		X	X	
Co-design monitoring and enforcement			X	X
Place more agency staff in field		X	V	X

NOTE: These suggestions were selected because each addresses more than one challenge. X's indicate challenges directly addressed by each solution. V's indicate those the solution may address indirectly if designed according to criteria described in the text. For example, field based agency staff and legal advisors engaged to resolve legal uncertainties could both mentor new government and community leaders.

interface local communities with centralized government that sits on a whole different island!" (DAR administrator). *Connection/responsibility to place*

"Every time I go out there, I learn something new" (Ha'ena community member describing participating in coastal monitoring). *Connection/responsibility to place*

#### 5.4.3. Meeting location

During the rulemaking process, the most well attended meetings, and those cited as most effective by participants (see Table 4), took place in closest proximity to Ha'ena, which is located at the end of an eight-mile stretch of winding two-lane highway. The well-attended community meeting to develop rules, attracting 60 community members, was convened in the backyard of one of Ha'ena's longtime families, just across the street from the coast. The public hearing held 20 min from Ha'ena, in the nearest school cafeteria, attracted approximately 200 individuals. However, all but three meetings with DLNR personnel at higher state levels of decision-making authority took place in DLNR's Honolulu offices, 9 h round trip by car and airplane (a \$220 fare), from Ha'ena, (see Table 4)<sup>10</sup>, making it harder for community members to attend. Members of the Board of Land and Natural Resources (an appointed, seven member, state-level decision-making body) did not attend the public hearing, but voted on approval of Ha'ena's rules at a hearing in Honolulu one week later, attended by only 20 individuals from the Ha'ena community.

## 6. Discussion

By selecting a model case in which rulemaking has taken seven years longer than predicted, despite the presence of many established success factors, this study elucidates new factors for consideration in early phases of co-management. These factors include substantive and procedural legal uncertainty, the role of bridging organizations in capacity building, cross-generational leadership development, and connection of the co-management rulemaking process to the target geography. Below, challenges associated with these success factors are presented followed by suggestions for overcoming them and avoiding delays in other early phase co-management efforts (see Table 5).

<sup>10</sup> HCSN's facilitator was located on O'ahu, making it possible for her to interact in person with DLNR state-level staff and administrators more easily. While Section 5.2 describes drawbacks to relying on her to conduct meetings with DLNR, the cost and distance made it difficult to avoid.

### 6.1. Substantive and procedural legal uncertainties

Uncertainty about, and failure to expeditiously resolve, competing legal interpretations of statutory mandates can hinder early phases of co-management. In Ha'ena, failure to resolve legal questions in a timely manner unnecessarily lengthened the rule development process and led to proposed rules based on legal interpretations that were ultimately rejected by the State. Community members often have broader expectations of a process than government agency personnel [10] who tend to define process outcomes much more narrowly [11].

Much literature on co-management assumes that setting limited goals in early phases leads to enhanced capacity for future collaborative efforts [8,28,20,15]. However, his research illustrates an important distinction between limited goals agreed upon at the start of a process, and progressively narrowing and discretionary legal interpretations that restrict potential outcomes. Allowing process outcomes to be determined by the latter approach can produce differing expectations, disillusionment, and attrition of participants. While monopolizing limited community time for other local-level efforts [19], such processes potentially decrease collaborative management capacity within a partnership. Therefore, it is important to achieve clarity on the legal parameters of any co-management process and its potential outcomes at the beginning, while also ensuring legal capacity to inform and challenge legal interpretations, expanding process goals.

Procedural uncertainties regarding the definition of community repeatedly delayed the Ha'ana rule making process. Some Maori scholars propose collaborative management as a distribution of power among those whose interests are "most keen" [11]. In the case of CBSFA rule development for Ha'ena, community could be defined more narrowly than the general public or all stakeholders based on the original purpose of the enabling statute, reaffirming and protecting subsistence fishing. To inform the designation of "community," empirical research can characterize particular user communities and their interactions with specific resources [38].

Suggestion 1: Maximize decision-making transparency

Transparent decision-making rules allow participants to set realistic expectations. One solution could include articulating every step in a rulemaking process at the outset. These include stages of the approval process, criteria for output review, set opportunities for public comment and input, standards for evaluating this input, delegation of responsibilities including who has authority in case of a key decision-maker's absence, as well as a clear timeline for each stage and for the overall process.

Suggestion 2: Rapidly resolve legal uncertainties

Availability of third-party legal experts can help resolve



uncertainties regarding interpretation of the statutory mandate and process requirements. Legal experts can help challenge unnecessarily narrow interpretations of statutory authority, provide clarity on legal constraints, and opportunities, and facilitate forward progress on broader community goals. For example, when California's Marine Life Protection Act (MLPA) initiated a state-wide effort to establish a network of marine protected areas, differing expectations, rooted in conflicting legal interpretations, were resolved expeditiously. Outside legal consultants provided timely legal input and guidance [51]. For example, staff turned to legal experts for opinions on whether policy issues raised by stakeholders fell within the lead agency's statutory authority or conformed to the State Constitution. Committees were convened to separately address issues outside the scope of the process without derailing the (MLPA) goals and timeline [51].

#### Suggestion 3: Define community

Explicitly define community within co-management and collaborative rulemaking. Previous cases involving indigenous communities support the importance of clearly delineating the relevant community who should have input in decision-making [11,50]. In Aotearoa, researchers argue for narrowing the definition of community. "With a collaborative approach, the final agreement defining the common good is not the proclamation of the ruling elite or the result of political logrolling and majority rule, but rather a consensus agreement among those chiefly involved [50] (page 118). We suggest differentiating roles and rights of the community from the general public in decision making processes based on statutory mandates and empirical research [19].

### 6.2. Role of bridging organizations in capacity building

This research reinforces the importance of bridging organizations in co-management [1,52,2], while challenging the assumption that their involvement automatically leads to capacity building. In this study, the crucial role of a bridging organization in facilitating collaborative rulemaking may also have reduced interaction between government and community groups. Face-to-face interaction [6], and communication [28,51], particularly in small groups [51] fosters learning, trust, and respect, which are each key to building capacity for co-management [14,53,10]. If bridging organizations help partners accomplish specific tasks such as rulemaking, without addressing underlying conflicts, power inequities, or capacity gaps, they may ultimately compromise the long-term durability of a collaborative resource management partnership.

#### Suggestion: Invest in facilitation for capacity building:

An investment should be made in professional facilitation explicitly designed to build capacity by fostering learning and trust while also providing facilitation training to both community and government participants. Facilitated formative evaluation of co-management processes should assess capacity building alongside progress towards more immediate outcomes such as rules. Facilitation should cultivate understanding of legal and policy processes, as well as agency and community culture. Facilitators can mentor and train community and government representatives in both conflict resolution and consensus building skills. Key decision-making meetings should include representatives of all parties.

### 6.3. Cross-generational leadership development

This study supports past research emphasizing the need for capacity building, not only for community participants in co-management, but also for government agencies and personnel [11]. While past studies differentiate community and government capacity needs [14], in this case both required training in conflict

resolution [1,14,2,7], communication [14], and facilitation [20] as well as legal [21,51] and scientific expertise [54]. Capacity building may be insufficient, however, if restricted to a small group of individuals [9]. The need to build leadership [55–57] with legitimacy in the eyes of the whole community [58] is well established. However, few studies on co-management emphasize the importance of building cross-generational leadership capacity. Failure to transmit traditional ecological knowledge (TEK) across generations is one of the primary challenges to the continued resilience of community level resource management [59]. This study extends the need for knowledge transmission to include, not just TEK, but understanding of legal and policy processes. To build local leadership for community-level administrative structures and natural resource management institutions [2], community youth should be engaged and mentored along with younger government agency staff.

#### Suggestion: Mentor new leaders

New leaders should be mentored and "apprenticed" in all aspects of the co-management processes. Young people with leadership potential could shadow community leaders, agency staff and facilitators as well as legal and scientific advisors. Mentoring should include diverse community engagement opportunities such as leadership of place-based children's education programs, roles in resource monitoring, hosting visiting groups from other communities, board positions in community nonprofits, and speaking about community efforts with opportunities for communication training and practice beforehand. Seeking opportunities to create jobs and internships that employ community members, particularly youth, in support of process goals is critical.

### 6.4. Connection of the co-management rulemaking process to the target geography

Co-management processes such as rulemaking can separate participants from the very places they seek to care for by concentrating decision-making far away and monopolizing limited community member time in non-resource based activities, such as meetings, lobbying, and grant writing. Because customary management constantly evolves through observation and harvest of resources [56], co-management processes may inadvertently contribute to stagnation of the very customary management they are designed to protect. Lengthy processes may decrease both government and community participants' time for monitoring and using marine resources, and distance decision-making from changing conditions of resource health and patterns of use. Regular opportunities to engage with natural resources within the target geography, such as community workdays, monitoring programs, and restoration work are crucial to sustain community involvement.

#### Suggestion 1: Conduct site visits and hold meetings in close proximity to resources

Site visits and meeting locations close to resources are two ways of decreasing this separation [14,60,51]. During the 1980s, a protracted, litigious conflict over management of salmon fisheries in the Pacific Northwest was resolved after a newly hired State Fisheries Director instituted face-to-face meetings through retreats with indigenous tribal partners. These meetings increased trust between tribal and state parties and opened the door for increased cooperation and capacity [25]. However, these meetings were not possible without leadership change in the Washington State Fisheries agency, significant staff turnover, and a change in organizational culture [25]. In South Africa and The Philippines, local-level meetings were an integral component of early co-management and conservation efforts [6,67]. On Apo Island in the Philippines, workers helping implement a MPA moved into the village to get to know the area and conduct planning and decision-

**Table 6**  
Proposed modifications to 'success factors' often described as necessary for implementing early phase co-management of nearshore marine resources.

Success factors	Proposed modification(s) to enhance success
*Strong enabling legislation	– Maximize decision making transparency – Rapidly resolve legal uncertainties
Mandating early collaboration between government and community groups	
*Facilitation by a bridging organization	– Invest in third party facilitation for capacity building
*Leadership capacity	– Enhance cross-generational leadership development by mentoring new leaders
Prior relationships and trust between individual members of the partnership	
Design of co-management to reflect customary systems	
*Connect the co-management rulemaking process to the target geography	– Conduct site visits and hold meetings in close proximity to resources – Co-design monitoring and enforcement mechanisms – Place more agency staff in the field and initiate restoration efforts

\* Denotes either a new 'success factor' or proposed modification to enhance success.

making activities in the local setting [67]. Site visits and meetings should include decision-making, and key decision-makers, not solely information-gathering by agency staff.

#### Suggestion 2 Co-design monitoring and enforcement

Co-designing participatory monitoring and enforcement efforts from the outset of rulemaking processes could promote adaptive decision-making based on resource health, increase local enforcement and monitoring capacity, and strengthen connections between people and natural resources. Participatory monitoring (engaging community members in working together to monitor resource health and use) [52] can strengthen community engagement in management [61,62,52,2]. Piloting education and community outreach efforts to enforce informal rules, rather than waiting until they become law, potentially increases community ownership of rules, and thus their effectiveness.

Suggestion 3: Place more agency staff in the field and initiate restoration efforts:

Increasing the number of resource management agency staff in the field would increase interactions with community members and resources, potentially building relationships, trust, knowledge of on the ground conditions, and capacity for adaptive co-management. Restoration efforts should also be initiated alongside rulemaking. Efforts such as weeding invasive seaweed or out-planting native coastal species could sustain engagement by helping community members see tangible improvements in resource health. Hands-on work together also could help build agency staff and community member relationships while maintaining connections to the resources being managed.

## 7. Conclusion

Co-management of marine resources has emerged as a successful management alternative where neither government agencies nor community groups can effectively manage coastal resources on their own [63]. Although long-term evaluation of co-management outcomes is needed to assess social and ecological success [7,64], short-term outputs of early stages of collaboration such as rulemaking are thought to set the foundation for successful co-management [6]. Long-term capacity building of all participants is as important an outcome of early partnering efforts as specific outputs such as rules. However, capacity building may be jeopardized when protracted process delays occur [65].

While co-management transitions can require as long as a decade to attain positive ecological and social benefits [8,66], here, merely *planning* for co-management through rulemaking required nearly a decade. Despite the challenges, and setbacks encountered

in this process prior to implementing the shared management arrangement, parties in this process persevered, from government, the non-profit sector, and at the community level. This case study shows that the presence of established success factors is insufficient without careful attention to how they are implemented within early phases of a partnership (see Table 6). In certain contexts, enabling legislation (without establishment of clear legal authority or a transparent decision-making process), and facilitation by a bridging organization (without addressing shared gaps in the capacity of both community and government partners), may reduce long-term capacity to co-manage. Yet, starting out with a long-term view to future leadership, while reinforcing relationships between people and natural resources, may increase ability to overcome challenges in early phases of co-management. More contextual in-depth analysis of implementation of early phases of collaborative management is needed to understand, not only critical challenges, but also sources of resilience for long-term success.

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## Appendix A. Supplementary material

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