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Participation and Power in the *Gataifale*:  
A Comparative Study of Samoan Coastal Marine Comanagement

A Dissertation submitted in partial satisfaction of the  
requirements for the degree Doctor of Philosophy  
in Geography

by

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December 2019

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Participation and Power in the *Gataifale*:  
A Comparative Study of Samoan Coastal Marine Comanagement

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by

Barbara Suzanne Quimby

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Dedicated with love to Maira.

*Fa'afetai Lava*

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Small-scale fisheries, human-environment dynamics, coastal communities, feminist political ecology

## ABSTRACT

Participation and Power in the *Gataifale*:

A comparative study of Samoan Coastal Marine Comanagement

by

Barbara Suzanne Quimby

This dissertation addresses a conspicuous gap in the fisheries and environmental management literature by presenting a comparative study of the historical, social, cultural, and institutional processes that inform coastal fisheries comanagement in Samoa. In small-scale fisheries across the Pacific, comanagement has emerged as the preferred approach to governance. Comanagement is a collaborative, cross-scale approach that frequently incorporates existing traditional and local institutions and supports shared responsibility and authority between government agencies and local leaders. Comanagement principles also encourage local participation in management and decision-making. While comanagement has produced positive ecological and social results in many settings, there is inconsistency in social outcomes across contexts, with examples of elite capture, the exclusion of marginalized social groups, and the continuation of centralized state control over resources. It is critical to identify and understand the processes and factors that contribute to this inconsistency, in order to create more just and sustainable fisheries management.



This dissertation explores the complexity behind participation and power-sharing as drivers and outcomes of fisheries comanagement with a case study in Samoa, where two approaches to resource governance developed in the late 1990's: the Community-Based Fisheries Management Programme (CBFMP) and the Marine Protected Area (MPA) program. Both employed comanagement principles; however, the CBFMP integrated traditional Samoan institutions and village-scale marine tenure systems to improve fisheries productivity for food security; in contrast, the MPA was designed around larger ecological scales and implemented a new institutional organization that prioritized conservation. Samoa presents a unique opportunity to compare institutional and operational differences between two common forms of coastal marine management in a shared social-ecological context, and to examine the situated factors that contribute to divergent outcomes.

Drawing from mixed-methods fieldwork including household surveys, interviews, and participant observation on the island of Upolu, this study uses qualitative and quantitative analytical methods to compare the institutional histories, political processes, community perceptions, and social outcomes of these programs. Mixed-methods are frequently used in comanagement research in order to provide multiple benefits to an integrated study of the perceptions, processes, and outcomes of comanagement (Cinner et al., 2012; Levine & Richmond, 2014). As complimentary methods, combined qualitative and quantitative approaches make it possible to triangulate data, but also to recontextualize the partial knowledge created by each, and produce findings that elucidate the meaning and interrelationships informing actions and behaviors (Nightingale, 2003; Plano Clark, 2016). This dissertation presents data collected in eleven villages, including six active CBFMP

villages and five in the designated MPAs, and comparatively analyzed with deductive and inductive methodologies.

The dissertation integrates three areas of study: first, it interrogates conceptualizations of participation, power-sharing and equity in natural resource management, especially fisheries comanagement contexts; second, it presents a critical analysis of colonial legacies, traditional institutions, and legal pluralism that inform Samoan coastal comanagement; third, it presents a comparative analysis of local control and participation in current management processes. The integration of traditional Samoan cultural values and institutions and the adaptation of colonial institutions as the foundation of governance significantly determined the adaptive capacity of the programs. Following the 2009 South Pacific Tsunami, the MPA program ceased operations, while the village-centered CBFMP continued to expand. While communities in both programs perceived authority over coastal areas (the *gataifale*) to reside with traditional village leaders, the CBFMP villages expressed greater self-reliance and local control, and had significantly higher rates of participation in management activities and awareness of fishing restrictions than former MPA villages. The integration of traditional institutions in the CBFMP improved adaptive capacity compared to former MPA villages; however, without external support to facilitate management processes, traditional hierarchies and social obligations shaped participation, resulting in the exclusion of women and young men from formal decision-making, and community perceptions of inequality in management outcomes. Still, marginalized groups can also influence their leaders through traditional, informal Samoan processes of deliberation and consensus-building. The findings of this dissertation demonstrate that while the integration of traditional and local institutions into fisheries comanagement can support program resilience, equitable comanagement

requires attention to the internal and cross-scale power hierarchies that inform decision-making processes and the distribution of management benefits and costs.

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## **I. Introduction**

The need for sustainable common-pool resource governance has inspired a variety of institutional arrangements and strategies, including community-based management. Community-based management employs a decentralized and place-specific approach that encourages local involvement in decision-making, monitoring, and enforcement. Local control is expected to provide greater responsiveness to environmental change; however, collaboration between local communities and the state is also essential for addressing multiscale environmental issues, and for furnishing the community with external resources and expertise (Singleton, 1998). Comanagement is a form of community-based management that ideally combines the best of top-down and bottom-up approaches by integrating local institutions, supporting community involvement, and prioritizing cross-scale institutional linkages, in order to facilitate collaborative management (Armitage et al., 2009; Olsson, Folke, & Berkes, 2004). Comanagement arrangements are now found across terrestrial and marine settings, and have proven especially relevant for the fluctuating, multiscale processes of fisheries (Gutierrez, Hilborn, & Defeo, 2011).

Comanagement has been associated with social and ecological benefits in many small-scale fisheries and coastal marine settings, including Marine Protected Areas (MPAs) (Folke, Hahn, Olsson, & Norberg, 2005; Guidetti & Joachim, 2010; Kaplan & McCay, 2004). Yet the flexibility that allows for comanagement's application across diverse settings also allows for uneven results. The literature includes examples of elite capture, shifting power away from the communities to external actors, and other unintended social outcomes (Cinner et al., 2012; Gruby & Basurto, 2013). Inequitable social outcomes can lead to the

uneven distribution of costs and benefits, which reduces local trust and support for governance (Jentoft & Chuenpagdee, 2015). Moreover, social and political barriers that inhibit actors' ability to innovate can reduce the adaptive capacity of comanagement to respond to environmental change, increasing vulnerability (Cohen et al., 2016). Therefore, enabling more just and beneficial social outcomes requires a better understanding of the social, political, and historical context in which comanagement is embedded.

Comanagement prioritizes community participation and power sharing between government agencies, fishers, and other stakeholders, in order to improve equitable outcomes; yet these concepts are vague and there is little guidance to evaluate their implementation. Community participation is a key principle of comanagement, intended to support positive social and ecological outcomes (Pomeroy & Berkes, 1997); however, there is little consensus on what participation means or what forms it should take, from consulting roles to active leadership and decision-making (Cooke & Kothari, 2001). Idealized conceptualizations of communities as bounded and immutable social groups have also obscured their heterogeneity and agency (Agrawal & Gibson, 1999; A. Davis & Ruddle, 2012; Warren & Visser, 2016). Overlooking internal diversity can result in failure to account for differences in access to participate in decision-making processes and divergent participation outcomes across social groups, particularly for women (Agarwal, 2000; Benjamin, 2010; Calhoun, Conway, & Russell, 2016). Shared responsibility between state and local institutions is also fundamental to comanagement; yet comanagement may not actually devolve control over resources away from the state (Béné et al., 2009; A. Davis & Ruddle, 2012; Levine, 2016), and emphasis on large biological scales of governance can shift authority to external actors (Gruby & Basurto, 2013). An inferred benefit of

participation and power sharing is equity, which is considered a key to long-term sustainability (Jentoft, 2013). However, equity is a highly normative concept that can take many forms, presenting challenges for a common definition or framework for analysis (Carothers 2011; McDermott et al 2013). Institutional analysis can help to identify structural weaknesses in comanagement arrangements, however critical institutionalists note the need to additionally account for the larger social-political context and actors' agency as they innovate, improvise, and work through and around institutions in practice (Béné et al., 2009; Cleaver, 2002).

In the Pacific, comanagement's wide acceptance and implementation has been facilitated by its ability to integrate local and traditional institutions and customary tenure into its organization (Cinner & Aswani, 2007; Kittinger, Cinner, Aswani, White, & Pauly, 2015; Levine & Richmond, 2014). Yet traditional institutions are socially driven and may not inherently support ecological sustainability (Foale, Cohen, Januchowski-Hartley, Wenger, & Macintyre, 2011); they may also be weakened by colonial legacies and the centralization of state authority, producing variability even across similar cultural and ecological contexts (Levine & Richmond, 2014). Further, integrating traditional institutions into hybrid forms of comanagement does not ensure that power is shared with the state, or that outcomes are equitable for all community members. In spite of comanagement's proliferation in the Pacific, the lack of diverse case studies leaves uncertainty about the outcomes of comanagement integration with traditional island institutions. In a recent systematic review of fisheries comanagement worldwide, d'Armengol et al (2018) identified 91 case studies in 67 articles, including 16 case studies from the South Pacific. However, three-fourths of these came from just two articles on Fiji and the Solomon Islands, and there

were no examples from one of the most enduring comanagement programs, located in Samoa.

Samoa is a particularly egregious blind spot for studies of comanagement and the integration of traditional institutions. The Community-Based Fisheries Management Programme (CBFMP), formerly the Fisheries Extension Programme, was developed in the late 1990s in response to a crisis of coastal fisheries depletion and environmental degradation (King & Fa’asili, 1999; Zann, 1999). A village-focused comanagement approach funded by the Australian Government (AusAID), the CBFMP integrates traditional Samoan institutions with consultation and support from the Fisheries Division, and is guided by principles of local control and broad participation. At the end of five years, the program was considered successful, with 44 villages approving management plans (King & Fa’asili, 1999). The CBFMP was used to exemplify the integration of traditional Pacific institutions into multiscale resource management operations and a “renaissance” of community-based management (Johannes, 2002). In 2001, Samoa also implemented a Marine Protected Area (MPA) program, with external support from the IUCN, as a key part of its commitment to environmental protection under the Convention on Biological Diversity. This program, implemented in two districts on the island of Upolu, employed larger spatial and institutional scales than the CBFMP, but also included comanagement principles. Yet twenty years later, neither of these programs has received much critical attention; “case studies” in the grey literature describe their plans and idealized implementation (Friedman & Kinch, 2013), but offer no examination of their actual practice.

This dissertation addresses a conspicuous gap in the research on coastal fisheries comanagement by presenting a comparative study of the history, practice, and community

perceptions of Samoan comanagement programs. It explores the complexity behind participation and power-sharing as drivers and outcomes of fisheries comanagement, and contributes to the growing literature on vulnerability and social equity in resource management. Using a conceptual framework that draws on critical geographic theory, political ecology, and new institutionalist approaches, it also interrogates the relationships and scales of power in management practices, offering insights into the challenges of integrating traditional institutions into comanagement in a context with colonial institutional legacies and competing conceptualizations of environmental governance. Considering Samoan comanagement arrangements are used as an example for other small-scale fisheries contexts, it is especially important to evaluate their institutional arrangements and the outcomes of participation and power in practice.

### *A. Methods*

My research methodology drew from critical geographic approaches to fieldwork. I employed a mixed-methods approach, combining qualitative and quantitative data gathered from ethnographic and statistical methods, on the history, practice, and lived experience of Samoan fisheries comanagement. Mixed methods are frequently employed in research of complex social-ecological systems (Axinn & Pearce, 2006; Hoelle, 2015; Levine, Richmond, & Lopez-Carr, 2015). Comanagement is a complex process that can fail for reasons that have nothing to do with the comanagement effort itself (Jentoft, 2000b), which emphasizes the need for a holistic study that can capture the context of institutional relationships to place, space, and culture (Cinner et al., 2012; Fabinyi, Knudsen, & Segi, 2010; West, 2005). I also drew from reflexive approaches developed within feminist geography and critical human geography to acknowledge my privileged position as a foreign

researcher. I took steps to address this power imbalance by following Samoan protocols for seeking permission to conduct my research and providing transparency of the process with both state agencies and villages. This entailed multiple in-person visits and consultations with village mayors and traditional leaders prior to and during data collection. Accompanied by Samoan scholars from the National University of Samoa or Fisheries Division staff, I answered questions about the purpose and methodology of the research, and reported on my activities to village leaders at the conclusion of each field visit. Time in the field was limited by funding constraints, and my limited knowledge of the Samoan language hindered some interviews and discourse analysis. I addressed these limitations by investing in my social network and connections early on. I also involved Samoan faculty and undergraduate students in my data collection and interview transcription to bridge the linguistic and cultural gaps. Building social connections and rapport in this way and following Samoan protocols for requesting permission to conduct research was both culturally appropriate and effective, and I gained cooperation from village leaders, agency officials, and community members to carry out my study.

Preliminary research began with a review of the gray literature and a site visit in 2015, which informed the field study in May to September of 2018. Data collection and observation took place in eleven villages on the southwest coast of the island of Upolu, where the two former MPA areas are located alongside villages participating in the CBFMP. The research included analysis of archival documents, participant observation of meetings and workshops with Fisheries Division, semi-structured interviews with community members and past and current project staff, and over four hundred household surveys. I also took observational fieldnotes during interviews, meetings, and management operations.

Interviews are a useful method for examining ideas, experiences, and meaning that inform actions (Patton, 2002), and provide insights into differences across genders and social groups (Nast, 1994). Semi-structured interviews with participants primarily took place inside a *palagi*-style house (Western style, walled) or an open-air *fale* at their place of residence, and were verbally translated in-situ; a Samoan research assistant later transcribed and translated interview recordings. Formal and informal interviews with project staff mostly took place in English at their offices or in the field.

Data analysis was theoretically informed by critical and feminist geography and political ecology, both of which encourage the use of methodological pluralism to incorporate different ways of knowing and to recontextualize data (Nightingale, 2003; Rocheleau, 1995). Qualitative data was hand-coded and analyzed with NVivo 12 software both deductively, based on categories derived from the research questions, and inductively, as themes emerged from the data. Nominal survey data was compiled, coded, and analyzed in Excel. Together, these mixed methods provided complimentary approaches to analyze both the processes and outcomes of comanagement (Plano Clark, 2016). Chapters include additional details of the research methods.

### ***B. Organization of Chapters***

This dissertation is organized into three articles, each providing an in-depth discussion that connects to issues of power and participation in Samoan fisheries comanagement. The first chapter draws from the conservation, small-scale fisheries, and fisheries management literature to examine three fundamental principles of fisheries comanagement: participation, equity and power. The conceptualization, definitions, and measures of each theme are presented, with discussion of the current gaps in the literature

and the need for greater recognition of their interrelationships. The second chapter presents a comparative analysis of the history and institutional arrangements of the CBFMP and MPA programs in Samoa, and discusses how these disparate roots informed the adaptive capacity of each program following the 2009 South Pacific tsunami event.

The third chapter presents findings from the mixed-methods field study, and compares the practices and perceptions of power and participation in Samoan comanagement. Together, these chapters demonstrate the complex social, cultural, and historical factors that have influenced the development and operation of fisheries management in Samoa over the past twenty years, and which continue to guide comanagement processes and outcomes today. The conclusion chapter discusses some of the limitations of this case study as well as its contributions to fisheries comanagement in Samoa and beyond, and the opportunities for future research into global-local processes of migration and marine place-making.

### *C. Significance of the Study*

This dissertation makes several important theoretical contributions to geographic thought and common-pool resource management with particular applications for small-scale fisheries governance. It provides a necessary critical examination of the literature surrounding concepts of power, participation, and equity in common-pool resource management, and contributes to a greater recognition of their complex interrelationships. Using a relational approach to place and scale derived from critical human geography (Massey, 1991), this dissertation illustrates the co-construction of the local and global, as international processes are interpreted by local actors in relation to their specific political, social, and environmental context. In addition, it draws needed attention to relational views of power across scales; in particular, it highlights the micropolitics of Samoan social



hierarchies, and their relationship to dimensions of equity and justice in fisheries management. Finally, this dissertation presents a unique comparative case study of two separate comanagement arrangements in Samoa, a setting with little existing research in spite of the longevity of the CBFMP. It also addresses a deficit of research on environmental decision-making from a combined institutional and agent-based perspective. Overall, this dissertation seeks to support more just and sustainable outcomes of fisheries comanagement for the people of Samoa and beyond.

## **II. Participation, Power and Equity: Examining Three Key Social Dimensions of Fisheries Comanagement**

### ***A. Introduction***

It is difficult to dispute the staying power of community-based management approaches to natural resources, or comanagement. Comanagement is widely promoted as a preferred approach for managing complex social-ecological systems associated with small-scale fisheries. It is defined as a community-based process for common-pool resource management, which integrates institutions and actors at multiple scales of governance, from the state to the local (Armitage et al., 2009). Ideally, it combines the best of top-down and bottom-up approaches, linking resource users, government agencies, and other stakeholders through vertical and horizontal connections and providing mechanisms for collaboration and adaptive creativity (Pomeroy & Berkes, 1997).

Comanagement arrangements are expected to be flexible and culturally appropriate to their specific context, empowering resource users with decision-making and enforcement authority. In small-scale fishing contexts, this has often meant the inclusion of traditional and customary tenure rights (Cinner & Aswani, 2007; Johannes, 2002; Ruddle, Hviding, & Johannes, 1992), and traditional ecological knowledge (TEK) of fishers to compliment and fill gaps in scientific knowledge of biological phenomena (Aswani & Lauer, 2006; García-Quijano, 2007). With these inclusive principles, comanagement aspires to create a socially responsible and democratic management approach that integrates the needs of communities with sustainable natural resource management (Armitage et al., 2009).

Though not without its flaws, comanagement is considered by some to be the most promising solution to managing small scale fisheries (Gutierrez et al., 2011).

Comanagement programs have been implemented in multiple countries and contexts, for both artisanal and industrial fisheries, with the aim of increasing the participation of fishing communities in management and improving long-term sustainability (Castilla & Fernandez, 1998; Evans, Cherrett, & Pemsil, 2011; Jentoft, 1989; Njifonjou, Satia, & Konan Angaman, 2006; Olsson et al., 2004). Given the diverse contexts for fisheries comanagement, much of the scholarship examining these programs focuses on institutional arrangements (Acheson, 2006; Andersson & Ostrom, 2008; Jentoft, 2004; Ostrom, 2009), including interactive governance (Jentoft & Chuenpagdee, 2015). However, this institutional focus may underplay the importance of place, social context, and the agency of actors within and around those institutions. In particular, notions of participation, power, and equity are inherently complex, but are often poorly defined or measured in comanagement programs' design and outcomes despite their role in the functional dynamics of management institutions. The influence of these factors on comanagement outcomes could potentially be underestimated, leaving some uncertainty as to comanagement's effectiveness on promises of broad social benefits and socioecological sustainability.

Here, we review perspectives from the literature on three of comanagement's core principles: collaborative power-sharing, improved participation, and enhanced equity, particularly in the context of small-scale fisheries comanagement. Our aim is to advance the understanding of social dynamics and outcomes in fisheries comanagement policies and programs by providing a more complete and nuanced understanding of these key concepts. We examine how power, participation, and equity are identified and discussed in the literature, explore the emerging definitions of each concept, and review proposed methods

for evaluating these concepts in comanagement practice. In addition, we discuss the conflicts or consensus surrounding power, participation and equity in comanagement, and the important interconnections between them. We draw from the broad literature on fisheries and marine resource comanagement and conservation, including a mix of case studies, review papers, theoretical works, and critical analysis from the fields of geography and political ecology. Our focus is on works that explicitly address power, participation, and/or equity in coastal marine settings, with the majority describing case studies or multisite comparisons of small-scale fisheries comanagement in developing country contexts. Examples from Asia-Pacific, Africa, and South America dominate the selections, with a few additions from Europe and North America. We have also included some works that discuss transnational fisheries, commercial fisheries, and marine protected areas, if they also addressed any of our themes directly. Finally, we present opportunities for furthering the discussion of these themes and incorporating them more robustly for the benefit of comanagement practice.

### ***B. Power***

Power-sharing is an explicit tenant of comanagement (Berkes, 2009), making the power relationships within a community and between the community and external agencies at different scales a key consideration of programmatic design. However, in practice, comanagement's broad template means there can be significant variation in the ways that power is exercised and shared varies across comanagement contexts. Jentoft (2007) notes the need for more research into how comanagement arrangements organize, reinforce, and negotiate power relationships. Discussions of power in comanagement often center around the formal institutions and overt processes where leadership and authority are negotiated,

especially formal power-sharing arrangements between the state and the community. However, implicit forms of power, and the way that these shape comanagement arrangements and outcomes, remain under-recognized and under-analyzed. In this section, we review the origins of power sharing as a comanagement principle, the different ways that power is conceptualized in the comanagement literature, and highlight areas where greater attention is needed to the exercise of power and its outcomes. We consider both overt and covert forms and processes of power, but emphasize that these are not necessarily dichotomous.

### 1. Why Is Power Sharing an Explicit Goal of Comanagement?

Comanagement is defined as a “power-sharing arrangement” (Berkes, 2009) or a continuous state of power negotiation (Carlsson & Berkes, 2005). It is often described as a shift away from top-down, state-driven management to a participatory, multi-scaled approach that partners government organizations, local communities, resource users, and often regional or international non-governmental organizations (NGOs). These entities are united in a management process that emphasizes learning and knowledge, adaptation, flexibility, and the inter-connectedness of social-ecological systems (Armitage et al., 2009; Jentoft, McCay, & Wilson, 1998; Singleton, 1998). These principles came into prominence in the 1980’s and 90’s, as scholars and practitioners in conservation and natural resource management began to highlight the importance of community involvement (Brosius, Tsing, & Zerner, 2005; M. Wells & Bradon, 1992; Western, Wright, & Strum, 1994). Recognition of the failures of centralized power and “command and control” approaches in environmental management and conservation worldwide provided an opening for alternative strategies that inverted top-down management structures, instead charging local

communities and resource users with responsibility for management and enforcement (N. Brown, Gray, & Stead, 2013). Practitioners who advocated for local control believed it would be more efficient and effective in managing resources than market forces or state regulatory actors (Agrawal, 2003), more adaptable through the inclusion of traditional knowledge (Berkes, Colding, & Folke, 2000), and more socially just for local communities by “making each participant less vulnerable to the power of others” (Jentoft, 2007, p. 429).

In some contexts, where local users’ historical systems of natural resource management had since been displaced by market forces or state control, comanagement was framed as a return to “traditional” practices, a “rediscovery” of management approaches that had worked before capitalism and colonialism shifted power away from local people (Armitage, 2003; Berkes et al., 2000; Johannes, 1978; Ruddle et al., 1992). At the same time, the push for a shift in responsibility away from the state to local resource users reflected change in international development theory, which now emphasized neoliberal individualism and self-reliance through market-based strategies (Rapley, 2007). The confluence of these two philosophies shaped the power-sharing principles of comanagement, together emphasizing decentralization and devolving decision making and enforcement responsibilities to the local level (Mansfield, 2004). However, this also created inherent tensions when traditional values and social norms conflicted with a neoliberal emphasis on market-based mechanisms, privatization or the commodification of nature (Davis & Ruddle, 2012; Mansfield, 2004; Segi, 2014). This tension underlies and complicates the negotiation of both overt and covert forms of power in comanagement.

## 2. Overt Forms and Processes of Power

Comanagement explicitly creates new forms of power, and processes for using and negotiating power between multiple actors and multiple scales, primarily through the development of institutions. Institutions help to structure human interactions and collective actions: Laws, norms, and some “rules-in-use” (North, 1990; Ostrom, 1990). Strong formal and informal institutions can support the implementation of comanagement and increase the likelihood of program endurance in heterogeneous and dynamic communities and groups of actors (Singleton, 1998). However, institution building can take enormous effort and time to take root (Berkes, 2004) and benefits from local self-organization (Ostrom, Burger, Field, Norgaard, & Policansky, 1999). Comanagement institutions can “emerge” as resource users and communities recognize a new need for cooperation and self-organize, often with support from NGOs or the state, due to a growing crisis (Ayers & Kittinger, 2014; McCay, 2002). Yet what emerges is not necessarily entirely new: Comanagement systems often draw upon pre-existing, recognizable and legitimized institutions. Comanagement arrangements may provide these institutions with new forms of authority and responsibilities, integrating them in new ways into state hierarchies. Examples of traditional institutions integrated into state systems for natural resource management include the role played by the village *Fono* in the Samoa islands (King & Fa’asili, 1999; Levine & Richmond, 2014), or the *Panglima Laot* in Aceh, Indonesia (Dixon & McGregor, 2011; Quimby, 2015).

Building on existing institutions can be efficient and more culturally relevant, but strengthening the power of traditional systems can also reinforce power asymmetries and encourage elite capture (Jentoft, 2007; Nunan, Hara, & Onyango, 2015). Strong local leadership has been identified as a vital feature for comanagement success (Gutierrez et al., 2011). Local leaders play a critical role in the development and sustainability of a program,

as they are often the original drivers of comanagement efforts (Ayers & Kittinger, 2014) or emerge to champion and legitimize comanagement arrangements at the grass-roots level. Regardless, the new power arrangements negotiated through comanagement institutions provide an opportunity for local leaders (both old and new) to become indispensable for successful comanagement and solidify their position of power in the management of natural resources (Béné et al., 2009; Bodin & Crona, 2008; Steenbergen, 2016; Warren & Visser, 2016). Scholars have expressed concerns about power asymmetries and economic inequalities that are created or reinforced by comanagement (Cinner et al., 2012). However, the complexity of social structures and social capital within communities involved in comanagement has received only limited attention from institutional analysis approaches. For example, Warren (2016) examines the governance of seaweed harvests in Bali, finding that dense social relationships of a tight-knit community can create problems for natural resource governance, with uneven benefits going to elites compared to other local actors. By emphasizing leadership and institutions in power analyses, the potency of other forms of social capital and cohesion may be overlooked.

Distinctive from the broader development and conservation literature, comanagement emphasizes power-sharing and capacity building more than “empowerment” of the local community, but the concepts share philosophical roots. Jentoft asserts that empowerment is “both a condition and a goal” of small-scale fisheries comanagement (Jentoft, 2005), described as sharing in (and perceiving to have) influence or control over the processes that affect individuals, communities, and organizations. To achieve this level of self-determination, empowerment can sometimes mean institution-building, to develop the legal authority and formal mechanisms for developing and enforcing regulations (Olsson et al., 2004). Davis and Ruddle (2012) argue that institution building often helps to legitimize the



state's power over the local. In practice however, this works both ways, as customary practices, "rules-in-use", and traditional tenure can also be formalized in comanagement institutions, which may limit the state's direct power (Cinner, 2007; Viridin, 2000).

Empowerment can also mean education and training, or "capacity building": Providing local leaders with the required skills to take on new management responsibilities (Berkes, Mahon, McConney, Pollnac, & Pomeroy, 2001). This is the definition most frequently observed in international development programs, with an implication that training be provided by external groups (as opposed to "self-organization" or "self-empowerment"), and these forms of community "empowerment" are ultimately granted (and judged adequate) by the state or other outside groups (Bebbington, Woolcock, & Guggenheim, 2006; K. Brown, 2002).

Cleaver (2001) argues that these processes of empowerment are driven by a neoliberal focus on individuals, and while comanagement approaches purportedly prioritize communities and institutions, they can also fall into this reductionist approach.

While the implementation of comanagement almost always restructures power arrangements, many scholars have illustrated that it does not necessarily distribute power more equitably or reduce state control over resources. Research on fisheries comanagement outcomes in Africa has found that programs may change the distribution of power and responsibilities among community members, but these programs rarely reduce, and often solidify, the power held by the state (Béné et al., 2009). Empowerment is often intended to facilitate participation, through formal or informal approaches, but in many cases the "micro-processes" of human interaction and the opaque nature of bureaucracy can also conspire to make management institutions "inherently exclusive", as the elite retain control while putting forth a seemingly participatory process (2012). Through this illusion of empowerment, formal institutions can obscure covert processes of power.

### 3. Covert Forms and Processes of Power

While identifying formal power vested in institutions and individuals is generally straight-forward, there are many covert forms of power that are more challenging to identify and examine, but which carry equally important implications for comanagement outcomes. Many comanagement theorists note the importance of examining the sociocultural processes that define power relationships within the context of a particular setting in order to develop fair and functional management and avoid elite capture. As Armitage et al. (2009, p. 98) (p. 98) emphasize: “Without an understanding of class, ethnicity, gender, and other structuring dimensions of society, the social, bureaucratic, and scientific segmental tendencies that constrain flexibility and the sharing of governing authority will go unchallenged”. While some societal relationships are formally codified, the ways in which they are practiced, negotiated, and reinforced are largely informal. The multiple subjectivities of an individual, including the social groups and institutions to which they belong, offer different routes for the accumulation and sharing of power. Social network theory, for example, considers the ways that individuals, in both formal and informal positions of authority, can become invested with informal power and social capital within a community (Bodin & Crona, 2008; Mueller, Taylor, Frank, Robertson, & Grinold, 2008), and how this in turn can influence comanagement outcomes outside the role played by formal institutions.

The internal power relationships described above are further complicated by power relationships between local actors and external groups, such as the state and NGOs. These external actors may undercut the power of and influence of local and indigenous worldviews by emphasizing values associated with positivist scientific approaches and market mechanisms, disembedding fisheries management from its local social context. For example, scientific justification for the reclassification and regulation of spaces to improve natural

resource management can shift power away from traditional local systems into the hands of the state (Bennett, Govan, & Satterfield, 2015; Gray, Gruby, & Campbell, 2014). In this way programs can inadvertently benefit the elite more than others (Cinner et al., 2012), or be manipulated to claim collaboration without actually devolving power away from the state (Davis & Ruddle, 2012; Levine, 2016; Li, 2007). In contrast, the constitutionality approach suggests that external agents, such as state actors and NGOs, can, under certain conditions, serve as catalyzing agents and provide a “fair platform” for the development and recognition of new institutions of resource management (Haller, Acciaioli, & Rist, 2016). To avoid undercutting community authority, power relationships should be understood and examined as embedded within a social-ecological system.

#### 4. Power in Fisheries Comanagement

Jentoft (2007) provides an extensive critique of the different expressions of power in fisheries comanagement literature, presenting the varying definitions of power, what drives power, and its purpose and effect. He notes that within fisheries research, power is frequently an implicit factor, rather than the focus of attention. He further emphasizes the need to examine the relational and collective dimensions of power, as power does not only sit within the structures of institutions but also between individual actors. Power can be both constructive and destructive, a force for change or a conservative force reinforcing the status quo. Jentoft also notes the opportunities for social theory to inform fisheries management by examining power in “real-life” contexts that inform actors’ use of, and engagement with, power. In all, fisheries comanagement programs would benefit from an improved understanding of the role of power in comanagement structure, implementation, and outcomes.

### ***C. Participation***

Comanagement programs introduce new forms of power sharing and the devolution of power and authority to local levels, requiring broader participation by individuals and groups in management processes. The absence of community participation and local knowledge in centralized, government-driven resource management has been identified as key contributing factors in their failure; for example, the infamous collapse of cod fisheries in the North Atlantic, (Finlayson & McCay, 1998). As such, participation became another key feature of comanagement, a signifier of power-sharing expected to support positive social and ecological outcomes (Pomeroy & Berkes, 1997), especially in a common pool resource such as fisheries (Ostrom, 1990). In spite of this essential role and common concerns about participation across the development and natural resource management literature (Cooke & Kothari, 2001; Schultz, Duit, & Folke, 2011; Singleton, 2000), there remains little consensus on what participation means, the forms it should take, or how inclusive or diverse participation should be to meet these goals of power-sharing, knowledge-sharing, and social equity. Here we consider the spectrum of conceptualizations, goals, and forms of participation realized in the literature.

#### **1. Conceptualizing Participation**

In contrast to power, participation has been the explicit focus of many studies of small-scale fisheries comanagement around the world (Alam & Begum, 2005; Aldon, Fermin, & Agbayani, 2011; Hanna, 1995; Peters, 2000). Yet the extensive attention given to fostering and measuring participation in fisheries comanagement has eclipsed its complexity, variability, and meaning (Cooke & Kothari, 2001; Cornwall, 2004). Participation can take many forms depending on program goals and power dynamics (Puate-Rodriguez, 2014).

Arnstein (Arnstein, 1969), for example, conceives of participation as a “ladder,” progressing upwards as levels of citizen involvement increase from non-participation to ‘tokenism’ to citizen control. While Arnstein’s ladder is useful as a broad conceptualization, the descriptors provided for different levels of involvement are static and do not adequately reflect the dynamic nature of participation (and negotiations of power), which can evolve and change over time (Wondolleck, Manring, & Crowfoot, 1996). In contrast to Arnstein’s focus on power and control in decision-making, Pretty (Pretty, 1995) offers a typology that considers the motivations of those who use participatory approaches (Cornwall, 2008). Key to both of these typologies is that they are normative measures, meaning that both the context and the power relationships between the actors are important in determining the goals, degree, and effects of participation.

## 2. Goals of Participation in Comanagement

Although participation and community engagement are often identified as critical factors for “success” in managing fisheries and marine protected areas, (Castello, Viana, Watkins, Pinedo-Vasquez, & Luzadis, 2009; Cunningham, 2005; Pollnac, Crawford, & Gorospe, 2001; Rossiter & Levine, 2014), the potential benefits to management and the goals of this participation vary widely in comanagement literature, and are rarely problematized. Why is participation important? Often participation is a strategy for achieving “buy-in” from the community and compliance with management rules (Cooke & Kothari, 2001; Hauck, 2011), or as a means to legitimize the authority of the management program (Pomeroy, Cinner, & Raakjær Nielsen, 2011). Turnhout et al. (2010) take a broader view of participation as the practice of shaping the purpose and expectations of the management process, while simultaneously negotiating identities, needs, and values of different groups and individuals.

Participation is also an essential component of knowledge-sharing, a key principle of comanagement (Berkes, 2009). However, a review of participation in coastal management literature by Puente-Rodriguez (2014) finds that gaining environmental knowledge and sociocultural understandings of nature are rarely made explicit goals of participation.

In addition to enhancing support for natural resource management programs, proponents of comanagement consistently claim that participation can also provide social benefits to communities through more effective incorporation of local needs and priorities. Yet too often comanagement programs fail to account for differences in access, attitudes, and outcomes for community members, women in particular (Agarwal, 2000; Benjamin, 2010; D. L. Davis & Nadel-Klein, 1991), and “community participation” does not always capture fair representation of the heterogeneity of communities (Agrawal & Gibson, 1999). For example, Gelcich et al. (2005) found that groups of Chilean fishers responded very differently to comanagement based on their attitudes towards the environment, traditional access rights, livelihoods and their socioeconomic motivations for participating. Disregarding internal diversity and agency can undermine efforts at democratic and representative participation, and can have the unintended consequence of worsening inequality and the vulnerability of certain groups, and potentially sabotaging the stability of comanagement programs. It should also be said that participation does not imply agreement or consensus, as discussed below.

### 3. Forms of Participation and Institutional Arrangements

Though it varies with context, comanagement design encourages participation through formal institutional arrangements such as legislative frameworks, policy processes, or mechanisms for cooperation and power negotiation (Cunningham, 2005, p. 234).

Democratic principles are often emphasized as a means to encourage participation by diverse members of the community (Pollnac et al., 2001), in order to support inclusive and equitable decision-making beyond a technocratic or advisory role (Kearney, Berkes, Charles, Pinkerton, & Wiber, 2007). However, this process of democratization does not necessarily consider the social relationships and power asymmetries that already exist, nor do they critically analyze who is (and who is not) participating (Béné et al., 2009; May, 2013). Traditional leadership and customary authority can be incorporated into these formal arrangements, which may strongly influence who is included or excluded from participation. For example, Steenbergen's case study of a comanaged marine area in Indonesia (2016) describes the internal community tensions that arise between dominant and peripheral groups when customary leaders are engaged in participatory management efforts.

Self-organization and collective action provides another means for participation in comanagement. This process may begin informally and can allow room for diverse actors to participate, but who participates depends heavily on actors' agency, interest to become and stay engaged, capacity for engagement, as well as higher level recognition and support (Ayers & Kittinger, 2014). Formal, externally-driven forms of collective action, such as participatory action planning, are also believed to bring positive changes including greater cooperation (Sultana & Abeyasekera, 2008). In either case, developing institutions through collective action can be a slow process that demands trust and deliberation developed through repeated interactions (Lebel et al., 2006).

In some cases, the goals and ideal forms of participation differ between resource users and those driving comanagement efforts. Walley (2004) describes how notions of participation in Mafia Marine Park diverged between the international agencies, the government, and local communities. While government representatives viewed participation

to mean local actors would enact decisions made by a centralized power, communities interpreted participation to mean they would have decision-making authority.

Representatives of international organizations had varied reasons for encouraging participation, with some viewing it as a more efficient means to get residents “on board” with conservation agendas, while others saw participation as a means to empower rural residents and encourage greater accountability to their needs and priorities. There was no consensus on what form participation should take, who would participate, and who would benefit, creating tensions between the groups.

#### 4. Who Are the Participants?

Participation is strongly mediated by social relationships and power dynamics: the relationships between and among local as well as non-local actors, including the state, NGOs and transnational corporations (Zimmerer & Bassett, 2003), and the power that organizers may have to establish the rules and goals for participation. In cases where community participation is called for, defining a “community” that will participate in co-management presents challenges given the complex and overlapping ways that people self-identify, which may include geographic, social, or activity-based identifiers as well as interests, actions, and normative characteristics (Levine, Quimby, Chase, & Zanre, *in progress*). Yet those who have the power to define community, who may be internal or external to the co-management system, ultimately determine who is invited and allowed to participate (Affif & Lowe, 2007; St. Martin, 2006; Zerner, 1994). As such, broad community participation does not guarantee bottom-up democratic processes or increased equity (2012).



The methods used to identify and represent groups for participation in planning and decision-making processes also matter, as do the diverse and changing roles that individuals play within a community and as participants. For example, Jacobsen and Ebbin (2012) demonstrate how actors in the Pacific Northwest must negotiate multiple identities as they move between different vertical and horizontal levels within the comanagement organization, while Raakjær (2012) reveals that comanagement actors in Greenland negotiate their positions, as their views, interests, and commitments change over time. Individual agency is also a key factor: if stakeholders feel their voice is not heard equally to others, they may also choose to withdraw from participating (May, 2013; Yang & Pomeroy, 2017).

#### 5. Timing of Participation

The timing of participation, when in the management process it occurs and is encouraged, has consequences for comanagement outcomes (Cornwall, 2008). For example, programs that delayed community involvement until the implementation stage have been found to be less effective at meeting conservation goals (Elliott, Wiltshire, Manan, & Wismer, 2001) and more likely to exacerbate economic inequality (Gustavsson, Lindstrom, Jiddawi, & De La Torre-Castro, 2014). However, programs where the community was engaged during the early planning stages, for example through participatory action plan development (Sultana & Abeyasekera, 2008), were better able to create positive social and ecological outcomes. Kittinger (2013b) offers another example of facilitating participation through participatory research in Hawaii, where a shared understanding of the ecological and social context of the proposed comanagement program was built through early community engagement.

Interestingly, while most emphasize the importance of early participation in comanagement, in some cases participation may be more effectively introduced and easier to achieve during the later stages of a comanagement program. For example, (Ballou, Albritton, & Horowitz, 2016) found that community members were more willing to participate once they saw new enforcement efforts taking place, which strengthened community engagement with government agencies which they had previously viewed to be ineffective and unaccountable. Yang and Pomeroy (2017) also found that longer programs supported greater participation and in turn more equitable outcomes, as trust in the process was established over time. Still, it is important to recognize that participation is not static, and as institutions and politics around fisheries management change, so too can the level and value of participation over time (Levine, 2016).

#### ***D. Equity***

Equity has been an intrinsic goal of community-based management and conservation efforts for decades, and achieving social equity and justice in comanagement settings is increasingly seen as key to long-term sustainability (Berkes et al., 2001; Jentoft, 2013). Perceptions of equitable outcomes has even been suggested as a measure of a program's legitimacy (R. A. Turner et al., 2016). Yet while equity is clearly valued, it is not operationally defined or well incorporated into fisheries management practice. It has sometimes been discussed as a byproduct of comanagement power-sharing and participation (Changchui, 2005; Pomeroy & Rivera-Guieb, 2006), but with little critical discussion (Law et al., 2018). Within the field of conservation, greater attention has been given to defining the dimensions of equity with its inclusion in the Aichi Target 11 of the Convention on Biological Diversity (CBD, 2011). This has buoyed recent calls to do more to advance

definitions and approaches to measuring equity in conservation (Halpern et al., 2013; Hicks et al., 2016; Law et al., 2018), with implications for small-scale fisheries comanagement. This section considers the definitions, goals, and features of equity discussed across the literature.

### 1. Equity in Small-Scale Fisheries and Conservation

In the context of small-scale fisheries, authors have focused on the goals and outcomes of equity: It can improve livelihoods, decrease poverty and reduce vulnerability among fishers (Barnett & Eakin, 2015; Kittinger, 2013a). In their review of inequality in the small-scale fisheries literature, Fabinyi et al. (2015) found that perceptions of inequality were a critical concern for local fishers in Papua New Guinea and the Philippines, impeding management and governance. Not surprisingly, the FAO, in partnership with the Too Big To Ignore (TBTI) working group (FAO, 2015), identify equity and equality as key principles for managing small-scale fisheries.

Equity and perceptions of equity are considered useful in supporting the “governability” of resources such as small scale fisheries, facilitating community buy-in and acceptance of resource governance programs (Jentoft & Chuenpagdee, 2015). Governance that is perceived as just can support greater compliance and therefore improved conservation outcomes (Jentoft, 2013; Martin, Akol, & Gross-Camp, 2015). Singleton (1998) argues that this is because equity makes institutions more efficient by reducing transaction costs. Equity is not just considered important for governance, but also social well-being. For example, Barnett and Eakin (2015) approach equity and vulnerability of a Nova Scotia fishery by examining the interplay of structure and agency, finding that perceptions of a just

institutional design and sense of control over resources influenced fishers' livelihood outcomes.

Yang and Pomeroy (2017) attempt to address the complexity in defining equity, linking it to both participation and power: They measure perceptions of participation as one of five dimensions of equity (along with influence, control, access and income). They find these indicators rise with community-based management fisheries, noting the particular importance of household size on perceptions: larger households presumably have more social capital and larger networks, providing a power advantage in discussions and decision-making. This recent turn toward identifying the elements of equity in fisheries management aligns with discussions in the conservation literature, which focuses on distributive and procedural justice. Distributive justice is the fair distribution of costs and benefits, economic and social, across a population, while procedural justice focuses on the decision-making institutions and power relations within that process (Gustavsson et al., 2014).

In addition to distributive and procedural justice, authors have added a third factor, referred to as either input equity (Klein, McKinnon, Wright, Possingham, & Halpern, 2015) or contextual equity (McDermott et al., 2013). This refers to the pre-existing social, political and economic conditions that shape equitable values and relationships, such as local social hierarchies, gender inequality, or issues of scale (individual, household, community, etc.), that can affect participation and benefits received from management efforts. Zafra-Calvo et al. (Zafra-Calvo et al., 2017) present a similar three-part approach that includes distributional equity, procedural equity, and recognition or respect for local values. However, the goals of equity and conservation may not always overlap; Klein et al. (Klein et al., 2015) found that the best conservation outcomes did not necessarily coincide with the highest levels of social equity. They identify three different ways of defining equity:

Absolute equity, relative equity, and perceived equity, reflecting the different scales and perspectives involved in determining equity, which may differ amongst different community members, or between community members and conservation groups.

The plurality of equity's forms, its embeddedness in local place and social context, and its highly normative nature present challenges to developing a common framework for defining and measuring equity. While authors note the importance of social and environmental context, it can be difficult to incorporate the specific history, values, and perspectives of the community in which a management program is operating. For example, Delaney (2015), finds that ideals of equity in Japan reflect social hierarchies, and fishing access and rights vary with one's level of participation and time as a member of the fishing collective. Carothers (2011) uses a normative approach that draws from political ecology to examine equity in the distribution of access and rights in a commercial Alaskan fishery. More commonly, quantitative measures are used to capture differences in material gain and changes in participation, which are not enough alone to capture the picture of equity. In their analysis of ecosystem services and food security, Golden et al. (2016) find it necessary to use a disaggregated analysis to understand inequality across a community at different scales, and to capture variation in the distribution of ecosystem services benefits between households.

While these examples demonstrate an awareness and interest in equity in the fisheries and conservation literature, considerable gaps remain in understanding and assessing equity in small-scale fisheries comanagement contexts. Some attention has been given to the equitable distribution of social costs and benefits, with evidence of uneven distribution between and within communities in some cases (Agarwal, 1997; Cinner et al., 2012). In Kenyan fisheries, Cinner and McClanahan (2015) examine issues of equity through the lens

of perceived “winners” or “losers” of comanagement, finding that over time most fishers felt they were benefiting from the program, which increased their belief in its equitable outcomes. Pomeroy et al. (Pomeroy et al., 2011) suggest using equity as an indicator in itself of ‘successful’ comanagement in small scale fisheries in the Philippines. Still, examples of research that explicitly examines equity in fisheries comanagement are scarce and lack attention to the plurality of forms of equity discussed in broader conservation literature.

## 2. Social Justice and Equity

Equity is sometimes conflated with social justice in the literature, yet these concepts are not exactly the same: whereas equity can in part be measured materially (who gets what), justice is a normative principle that draws on social mores and values about what is “fair” (who gets what, relative to others based on rules or norms). The two concepts often meet in the conservation and comanagement literature when discussing equitable access to resources for livelihoods (De Santo, 2013; Khan, Alam, & Islam, 2012). Equitable arrangements for resource sharing is sometimes offered as examples of social justice outcomes, though in practice these arrangements may not necessarily deliver on promises of equity. For example, the interests of indigenous groups can be marginalized by centralized management that uses broad approaches to sharing resource access and overlooks the unique needs of indigenous communities (Richmond, 2013). Similarly, new rules to promote equal access among individuals of differing social status may fail in their intentions if elites are better equipped to adapt to new rules (e.g. through greater ability to change gear type or fishing strategies), or if formal rules are selectively enforced with some groups (e.g. non-relative, non-local fishers) and not others (Warren & Visser, 2016).

When measures of equity and social justice focus primarily on access and livelihoods, an understanding of the greater context that informs local perceptions of fairness in comanagement may be a key omission. Hauck (2011) notes that while social justice has gained increasing attention from small-scale fisheries researchers, fishers' perspectives and the history of power behind current laws are underappreciated. She argues that this is because SSF management has focused on (particularly economic) drivers and incentives for rules compliance by individuals, overlooking the more normative concepts of social justice.

The concepts of equity and justice are also understood to be linked in the equitable sharing of power between resource users, government, and other stakeholders (Pomeroy & Rivera-Guieb, 2006). In transboundary commercial fisheries, Campbell and Hanich (2015) have called on the international community to consider the responsibility of governments and NGOs to avoid causing harm and to share opportunities fairly in the name of equity and social justice. So have Bennett et al. (2017), who present a "Hippocratic Oath" for marine conservation and identify distributional equity as an "aspirational goal" (p. 414). As noted, it is already the norm for comanagement to recognize and address issues of inequality and injustice at the community level, but the way these issues are conceptualized and measured differs tremendously. Carothers (2011) points out that these inconsistencies in the way equity is addressed across the social sciences make it more difficult for communities to unite around equity as a political issue: it is easier to recognize inequality than envision its solution, even among similar communities, and perceptions of what is equitable can vary by individual or by social context.

### 3. Gender Equity

One dimension of equity frequently visited in the small-scale fisheries literature is gender equity. As with other marginalized social groups, barriers to equity for women have arisen from both local cultural contexts and from bias in institutional designs. Neglecting gender dimensions and differentiation has been shown to lead to biased and incorrect assessments of management success, and undervalue the often informal role women play in community networking, adaptive management, and resource regulation in social-ecological systems (Agarwal, 2000; Cohen et al., 2016). Research has shown the significant contributions women make to fisheries worldwide, often through informal or unrecognized methods that are overshadowed by assumptions about fishing practices (Harper, Grubb, Stiles, & Sumaila, 2017). Gender equity in fisheries is an acknowledged priority of FAO and is also a guiding principle of the SSF Guidelines; however, more research is needed to understand how gender equity in access, decision-making, and opportunity improves economic outcomes for communities or conservation success (Kleiber et al., 2017).

Gender has sometimes been treated as an oppositional binary between men and women, in which women are treated as passive and homogeneous, rather than diverse individuals with agency and sometimes conflicting interests, in what Davis and Nadel-Klein (1991) described as the “add gender and stir” approach. For example, while some researchers see a spatial division of labor between sea and land inhibiting women’s involvement in fishing, Volkman (1994) offers a more complex perspective of women’s agency in Indonesia, where narratives of modernization provided women space to push gender roles and transition from looming to perform fishing tasks, increasing their freedom of movement and their economic opportunities. Gendered divisions of labor are often the focus of studies that do attend to the role of women in fisheries; yet the importance of gender in household power relationships



and decision-making, resource management activities, and social networks is still greatly undervalued and requires more nuanced attention (Santos, 2015; Weeratunge, Snyder, & Sze, 2010).

However, as with other forms of equity, there is little consensus on how to define or measure gender equity. It is most frequently described in terms of economic opportunity and decision-making power through participation (Agarwal, 2000; Berkes et al., 2001). Complicating the issue is the paucity of gender-specific data on fishing globally, which impedes efforts to quantify the value of women's labor and participation in fishing and incorporate that knowledge into equitable management design (Harper, Zeller, Hauzer, Pauly, & Sumaila, 2013; Kleiber, Harris, & Vincent, 2014). An additional challenge to measuring gender equity is that comanagement programs often emphasize formal institutions, which may exclude women by default if they are not formally organized (Ngwenya, Mosepele, & Magole, 2012).

In sum, while equity is now seen as a priority in the conservation literature, it remains an underdeveloped concept in practice, measures, and goals, particularly in comanagement. Where equity is examined, it is more often in terms of distributive justice, with less attention to its other dimensions. Quantitative indicators of equity, such as wealth and participation rates, receive the greatest attention but there remain gaps in data collected by gender, and growing concern for more normative and contextual dimensions as well. Discussions shy away from the existing causes of inequity and too often overlook the historical socio-cultural context and power dynamics of a place. Evaluations of equity require local context, scale, and understanding that values of equity can change as the process of comanagement evolves.

### *E. How These Themes Intersect*

As noted throughout the chapter, these three themes are tightly interwoven. The drivers of each theme are in part co-produced by the others: for example, participation is often considered both a contributor to, and an outcome of, social equity and power sharing. In turn, equity is a goal described by many as achieved through broad participation in decision-making power. Authors across contexts often use these themes to define, support, or measure one another. In practice, there is empirical evidence that supports their interdependence; for example, poor individuals perceive greater livelihood improvements than their wealthier counterparts when they are involved in decision-making (MacNeil & Cinner, 2013). When management processes were built upon the traditional institutions of a majority group, existing power asymmetries were mitigated through inclusive processes, resulting in more equitable benefit distribution in the community (Steenbergen, 2016). Devolving power over marine resources from the state to the local level through comanagement has also been shown to have the outcome of redistributing benefits to villages (Cinner & McClanahan, 2015). Unfortunately, these implicit interconnections between participation, power, and equity are rarely made explicit, and critical discussion of their relationships are largely absent from the fisheries comanagement literature.

However, there are examples from the broader conservation and sustainability literature that seek to integrate these three themes, such as the constitutionality approach, (Haller, Belsky, & Rist, 2018; Haller & Merten, 2018). The concept of constitutionality arose as a mechanism to better understand successful collective action and institution building for natural resource management under conditions of power asymmetries, emphasizing emic perceptions of the need for new institutions, participatory processes of negotiation that address power asymmetries, pre-existing institutions as a basis for collective action, external

catalysts, recognition of local knowledge, and higher level acknowledgement and support (Haller et al., 2016). Constitutionality processes have shared ideals of comanagement, including local self-organization and inclusive institutional development. While this perspective offers a practical approach to address the blended subjects of equity, participation and power in emerging governance processes such as fisheries comanagement, constitutionality's primarily institutional focus may still under-emphasize covert forms of power and social capital, and case studies from the literature continue to struggle with defining successful local outcomes.

**Table 1:** Theme intersections and implications for key comanagement principles.

<b>Intersections</b>	<b>Key Principle of Comanagement</b>	<b>Desired Outcome</b>	<b>Challenges/ Negative Outcomes</b>	<b>Approaches for Improving Outcomes</b>
<b>Power and participation</b>	Collaborative power-sharing	Sharing decision making across scales and between diverse stakeholders within the community, resulting in more equitable governance arrangements, and greater adherence to rules, knowledge-sharing, and adaptability	Institutions built on existing, hierarchical structures that privilege the existing elite; power does not devolve from the state; nominal or token participation of marginalized groups	Examine how overt and covert power relationships are embedded within the local social-ecological context, and how that informs collaboration dynamics. Regularly evaluate decision-making and participatory processes to check for continued involvement of diverse groups and development of trust over time.
<b>Equity and participation</b>	Improved participation	Ecological knowledge sharing, adaptability, improved social outcomes for diverse social groups, and incorporation of local needs into project goals	Loss of contributions and involvement of minority groups; challenge of accessing minority groups, participation may require extended time and resources	Consider internal community heterogeneity and the need for diverse representation. Identify differences between the program design and community conceptualizations of fair, representative participation. Design opportunities for direct input from underprivileged groups.
<b>Power and equity</b>	Enhanced social equity	Distributive justice for communities and community members, balanced distribution of social and ecological benefits	Poor inclusion of marginalized social groups, desirable outcomes defined by those in power, elite capture, diminished ecological outcomes.	Identify social capital across networks beyond the formal power structure. Involve diverse voices in defining desirable outcomes of comanagement. Regularly evaluate both perceptions and material measures of equity across the community.

Comanagement's key elements of collaborative power-sharing, improved participation, and enhanced social equity are all reliant on the interplay of these themes, with significant implications for comanagement processes and outcomes. The desired outcomes of comanagement principles are sometimes attributed to one social factor, such as participation, yet we find that all three themes inevitably influence comanagement processes, with the intersections of power, participation, and equity driving the challenges and opportunities for achieving these outcomes, as presented in Table 1. When the interplay of these themes is overlooked, there is evidence that it weakens the effectiveness of comanagement by enabling elite capture, exclusionary decision-making, and reinforced power asymmetries. It is also important to recognize how these concepts are informed by conservation, development, and neo-liberal perspectives, and the potential biases and conflicts those origins can impart.

#### ***F. Conclusions***

This review demonstrates the need for more attention to the concepts of participation, power, and equity in fisheries comanagement, not simply as individual factors but as co-creative, context-driven, and interconnected elements. Examinations of participation and power in the comanagement literature have helped to illuminate their complexity and depth, and equity now requires the same critical reflection. Measures or goals that focus on just one of these factors are also incomplete without acknowledgment of how power, participation,

and equity shape each other. Bringing these three concepts together makes their interrelationships and importance for enabling key principles of comanagement more visible, but also shows the work still required to define them and put them into practice.

There are significant implications for fisheries comanagement design and practice. This review suggests the vulnerabilities of comanagement design to underestimating the combined dynamics of social factors in influencing processes for decision-making and the outcomes for resource users. It should not be taken for granted that new institutions for comanagement will alleviate or circumvent existing power asymmetries and social inequities to allow for broad participation and justly distributed outcomes. To meet the key principle of power-sharing, comanagement programs should be encouraged to consider both covert and overt forms of power, including relationships at different scales of governance, and strive for participation that pushes past an advisory role towards inclusivity in decision-making. Institutional processes require grounding in normative, context-driven conceptualizations of equity and participation that are relevant to the actors involved, as exemplified by some of the recent studies included here. Measures and goals must also be explicit in how they address these factors, both as individual themes and as interconnected processes.

Our findings also offer valuable lessons for informing approaches to power, emancipation and justice as key facets of critical and transformative sustainability sciences.

The literature presented offers examples of how the process and institutions of resource management have often been built in favor of existing power asymmetries; however, they can simultaneously be the tools for widening access and participation when critically examined with the perspective of the heterogeneous community. Recognizing both formal and informal power relationships, across scales and distances, can also help sustainability sciences to improve the outcomes of governance for local resource users. As demonstrated here, the concepts of emancipation and justice also require a normative approach that recognizes their many attributes in order to be realized in sustainable practices. Efforts to address distributive and procedural justice, and the diverse forms of equity they help shape in natural resource governance, are emerging but still require greater depth in theory and practice. Conceptualizations of all three facets require acknowledgment of their situated and complex natures, and their interconnections, for the benefit of sustainable and just resource governance.

Looking forward, new research is needed to test the definitions and measures proposed in the literature, and to develop fisheries comanagement approaches that explicitly address and assess equity, participation, and power in their institutional design. The foundational ideas presented in this review of the broader fisheries and conservation literature provide a strong starting point, but these ideas require more explicit definitions and greater attention to how they are linked within comanagement processes for decision-making, resource access,

and social outcomes. This review focused on three critical themes, however there are other important social factors described in the literature to consider as well: Agency, culture and values, and human well-being can also intersect with the themes discussed here, and present important areas for development in both research and practice (Hicks et al., 2016).

Comanagement continues to be a robust approach to small-scale fisheries management, which will only improve with more explicit attention and development of these themes.

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### III. Resilience and Divergence: A Comparative History of Hybrid Governance Institutions and Comanagement Practices for Marine Resource Management in Samoa



**Figure 1: Photos of Samoan Comanagement Sites.**

Left: Vaovai village no-take reserve (CBFMP) demarcated by the white poles in the lagoon (view from shore). Nu'usafee Island in background. Right: inside the Sa'anapu-Sataoa Mangrove Reserve within the Safata MPA. Photos: B. Quimby 2018.

#### *A. Introduction*

The rich biodiversity of Samoa's lagoons, mangroves, and reefs has long been the focus of national and international partnerships in support of coastal and marine resource management. As in other developing tropical island nations, Samoans depend on coastal resources for food security, tourism, and cultural continuity, and these partnerships have promoted both marine conservation and economic development. Two such programs, the Community-Based Fisheries Management Programme (CBFMP) operated by the Ministry of Agriculture and Fisheries, and the Marine Protected Area (MPA) network, operated by the Ministry of Natural Resources and the Environment, were developed in the 1990s to

protect marine habitats and species and promote the sustainability of small-scale fisheries. Both programs included comanagement principles in their design, a community-based approach proven to be beneficial in many fisheries management contexts (Cinner et al., 2012; Kaplan & McCay, 2004). As such, Samoa has been cited as an example of the traditional fisheries management “renaissance” (Johannes 2002) in the Pacific.

Over the past few decades, similar community-based management programs that rely on traditional governance systems have been developed throughout the Pacific (Alcala & Russ, 2006; Ayers & Kittinger, 2014; Cohen & Steenbergen, 2015; Gruby & Basurto, 2013; Hunter, Lauer, Levine, Holbrook, & Rassweiler, 2018; Viridin, 2000). Integrating traditional systems can be an opportunity to bring locally relevant and socially embedded practices into contemporary comanagement (Berkes & Colding, 2000; Folke et al., 2005). Yet, in many settings traditional village marine tenure and authority has been historically undermined or replaced by centralized (colonial) government bureaucracies that weaken and contradict their legal standing and political power (Johannes, 1978). The goals and spatial scales of traditional systems also may differ from those of new governance programs (Foale et al., 2011; Kittinger et al., 2015). These conflicts can create legal pluralism that reduces the responsiveness and adaptability of management (Rohe, Govan, Schlüter, & Ferse, 2018). To address potential friction, post-colonial governance structures are sometimes hybridized forms of Western and indigenous political processes, the shape of which is influenced by the confluence of institutional history and colonial legacies, international development agendas, ecological sciences and traditional culture (Aswani & Ruddle, 2013).

Comanagement provides a process for reconciling legal pluralism in places where both traditional authority and a national legislative government operate, which has proven particularly relevant in the Pacific (Cohen, Evans, & Govan, 2015; Levine & Richmond,

2014; Viridin, 2000). Comanagement seeks to build trust and communication through collaborative institutions, cross-scale institutional linkages and local involvement, improving the resilience of natural resource management programs by providing high adaptive capacity (Adger, 2003; Armitage, 2005; Olsson et al., 2004). Yet comanagement implementation is context-driven and varies widely in different settings, leading to diverse institutional arrangements and outcomes (Cinner et al., 2012; Quimby & Levine, 2018). There are also numerous social and ecological factors that can influence comanagement design and success, even across islands with similar traditional Polynesian systems of natural resource governance (Levine & Richmond, 2014). With such potential for flexibility and responsiveness to different agendas, how does the unique institutional and political history of a comanagement program shape governance processes and adaptive capacity?

Samoa provides an exceptional opportunity to explore the development of different comanagement arrangements in a common social, historical, legal, and ecological context, and to examine program outcomes and resilience two decades after their inception. Samoa has been an independent state for nearly sixty years, but the government follows a Western parliamentary structure, and many of the current agencies emerged from historical colonial institutions of governance. At the same time, the strength of traditional Samoan institutions has led to legal pluralism, and as traditional Samoan processes of governance and decision-making are incorporated into hybridized comanagement programs, unique forms of management are created. Each ministry and its program negotiate that pluralism differently, and their separate institutional histories and sociopolitical influences have produced contrasting organizational structures, goals, and international partnerships for comanagement. These structural and procedural differences have also shaped the resilience of each program after a severe environmental disturbance: the 2009 South Pacific tsunami.

This chapter presents a critical geographic history and institutional analysis of Samoan coastal comanagement programs and their adaptive capacity. First, we present an overview of pre-colonial Samoan forms of environmental governance, colonial policies under German and New Zealand administration, and their hybridization with the formation of departments for environmental management upon Samoa's independence. Using a political ecology lens, this section highlights historical tensions over marine governance authority and property rights. In this context, we present the histories of the two comanagement programs, their different influences and institutional arrangements, and the operational outcomes of each program. We then discuss factors that influenced each program's adaptive capacity and explore how and to what degree Samoan institutions were integrated or supported in each program. Our analysis provides an example of the ways that historic processes of hybridization and political adaptation shape natural resource governance institutions for comanagement, and ultimately influence their endurance and capacity to respond to environmental change.

### ***B. Methods***

This analysis draws from a variety of sources and analytical methods to present a history of traditional, colonial, and post-colonial resource governance in Samoa (section III). Data sources include historical scholarship about Samoan society prior to colonialism, which is primarily comprised of written accounts by nineteenth century European missionaries and amateur ethnographers, as well as more recent scholarship by Samoan historians and other scholars who have produced Samoan perspectives drawn from living oral history (Huffer & So'o, 2005; M. Meleisea, 1987; Tuimaleali'ifano, 2006). The histories, institutions, and outcomes of the CBFMP and MPA programs (sections IV and V) was constructed from government and non-governmental agency archival documents, such as the online repository

of the Secretariat of the Pacific Regional Environment Programme (SPREP), from which project descriptions, consultation reports, and strategic plans were collected and reviewed. This information was considered in relation to direct observations of CBFMP and MPA project sites and interviews (in English and Samoan) with eight past and present project staff and twenty-five community members in villages associated with the programs, conducted over a five-month field study in 2018 (see chapter 3 for further discussion of methodology). Data analysis drew from political ecology and new and critical institutional approaches that specifically interrogate the processual and historical relationships of power in which natural resource management is embedded (Andersson & Ostrom, 2008; Cleaver, 2002; Nunan et al., 2015). This methodology is informed by critical geographic theory perspectives that underscore the non-binary nature of local and global processes, and the constellation of relations that interact and emerge to create a particular place (Chen & Lopéz-Carr, 2015; Massey, 1991).

### ***C. Historical marine resource governance in Samoa***

#### **1. Precolonial Samoan resource governance**

Traditional Samoan resource governance is structured by the principles of *Fa'a Samoa*, the Samoan Way. When Europeans encountered Samoans in the 19<sup>th</sup> century, social connections across the Samoan islands flourished through a shared language, family relationships, and ritual practices that affirmed the status and relationships of villages, including their territories and political alliances (M. Meleisea, 1987; G. Turner, 1884). At the center of Samoan society is the *aiga*, or extended family. The *aiga* is headed by a *matai*, a member who is conferred a family title and who represents the family in the village council, or *fono*, and makes decisions for the family's property and labor. Depending on

their specific tradition and history, villages would also have one or more High Chiefs (*ali'i*) and Orators (*tulafale*). (Holmes & Holmes, 1992; M. Meleisea, 1987; M. Meleisea & Schoeffel, 2015; L. F. Va'a, 2001). *Fa'a Matai*, or the matai system of titles and authority, is guided by principles of service and reciprocity (*pule o tautua*) within the *aiga* (Sauni 2011, Huffer & So'o 2005). Untitled men and women have an obligation to perform service for their matai including preparation of meals and maintaining the village territorial spaces. Today, Samoan culture and social institutions are thriving, particularly in comparison with other Pacific Island societies (Franco, 1997; Macpherson & Macpherson, 2009).

Extended families living together in a *nu'u*, translated into English as “village,” though it might be thought of more precisely as a formal community, or as Olson describes it, a “corporation” (Olson, 1995, p. 18). Traditionally villages were bound by social ties, blood and shared history, embodied in paramount titles for the highest regional chiefs. There are complex hierarchies and interrelationships between titles that are consequential for relationships between villages: some titles carry greater prestige and can indicate status as a paramount chief with power connected to several allied villages or an *itumalo* (traditional district). Village sovereignty was interminable and could not be displaced even by the unification of the Samoan islands west of Manu'a under Salamasina, the first *Tafa'ifa* or person presented with all four paramount titles (Mageo, 2002; M. Meleisea, 1987).

Villages designated three categories for land use: settlement land for family housing; plantation lands for cultivation; and the undeveloped commons used for hunting and fishing. Samoan property rights were communal, with ownership of land residing with the *matai* within a specific family or the *fono* of the village community; there was no individual ownership. Village boundaries were flexible and could shift or be negotiated. Critically, tidal and inshore areas were viewed as part of a continuous landscape and part of village spaces

that extended radially, “from the ridgetops of the mountains to the reef fringing the coast” (M. Meleisea, 1987, p. 27); therefore, traditional tenure applied the same to mangroves, beaches, and lagoons, as part of the village’s communal holdings (Bell, 1985; Olson, 2001). The recognition of inshore areas as integrated parts of the village space is common across the Pacific (Johannes 1978).

Traditional Samoan environmental governance was polycentric and gave villages and some families authority and exclusivity over common-pool resources like fisheries, as was common in the Pacific (Bell 1985; Johannes 1978). Each village developed its own specific rules for fishing, and most fishing activity took place within the regulated spaces of reefs and lagoon, areas mostly visible from shore. The High Chief or *fono* had the power to declare a *sā*, or prohibition on fishing a particular species or area (*faasao*) for a given time, for instance after the death of a chief, or to require that large species (such as turtles) be shared with the village council. Chiefs could also compel younger villagers and untitled men (*aumaga* or *tauleale’a*) to do work that benefited the community, for example, constructing fish traps or cleaning debris off a reef area after a cyclone (Kramer, 1995).

## 2. Colonial Era (1900-1962)

The Samoan islands became a space for European and American economic and political competition in the mid-nineteenth century, as these powers sent naval vessels to dominate resources and trade routes across the Pacific. Settlers with visions for plantations and commerce created new governance challenges, especially around property rights. As Samoan factions clashed in ongoing internal wars, a new frenetic market for land developed: parcels were sold to (multiple) foreign buyers for weapons; conquering groups sold the lands of the vanquished; and settlers laid claim to “uninhabited” village hunting grounds and open spaces, particularly in the interior of Upolu (Droessler, 2018; M. Meleisea & Schoeffel,

2015; Olson, 1995). While foreign settlers believed they had purchased title to the land, it is evident that Samoans understood the “sale” of lands to be a temporary transfer of use rights over which they would maintain authority and ownership (Olson, 1995), leading to conflicts.

Foreigners had difficulty finding accommodation for their disputes in the complex, polycentric Samoan culture. Samoan leadership, in consultation from an American naval officer, devised a centralized government under a *Tafa'ifa* in 1873, to facilitate interactions with international actors and handle conflicts and enforce law and order within the burgeoning European settlements in Apia (Government of Western Samoa, 1951). However, European and American governments soon exercised their military and political power to install colonial regimes in the Samoan islands. After a brief Tripartite treaty that split control of the Samoan islands between Germany, Great Britain, and the United States, the western powers agreed in 1900 to divide the islands into two colonial territories: the eastern islands became the American Samoa territory, while the western islands were claimed by Germany.

For the new Governor of German Samoa, Wilhelm Solf, property rights and a centralized bureaucratic authority were the highest priorities. Initially the German administration upheld traditional communal ownership of land, but as in many colonial contexts, these systems were illegible (Scott, 1998) to German institutions and a threat to the systems of taxation and capital accumulation that supported colonial power. Traditional tenure also conflicted with European understanding of property rights and impeded German businesses from amassing large holdings for their plantations. In 1911, the German Administration confirmed private property rights and established the Land and Titles Commission to arbitrate land disputes. The new government also clipped village tenure over lagoons and reefs by declaring everything below the low-water mark to be government property.



Shifting property rights from communal to individual ownership supported German business interests while also undermining *matai* control that presented a direct challenge to colonial governance. Governor Solf is often credited with a respect for Samoan tradition and culture (Firth, 1977); however, his task was to subsume that tradition and incorporate existing indigenous power structures under the Kaiser's authority to serve the German state. (Davidson, 1967; U. L. F. Va'a, 2000). To accomplish this, Solf declared the German Kaiser the *Tupu Sili*, or king of Samoa, hybridizing colonial and traditional institutions and placing the German government at the top of Samoan social-political hierarchy. Solf also created a new post within the villages, the *pulenu'u*, or "village authority", sometimes translated as "mayor" in English. The *pulenu'u* served as the point of contact between village leaders and the German colonial governor and represented the government's interests and laws in the village, such as collecting taxes and enforcing economic development measures (Droessler, 2018; Riddle, 2006). These new institutional arrangements were intended to restrict *matai* authority over village decision-making and labor, as well as land; however, in practice it appears the *matai* retained their power (Tuimaleali'ifano, 2006).

With the start of World War I in 1914, New Zealand gained control of German Samoa; New Zealand continued to administer the western Samoan islands as a Trusteeship for the League of Nations and later the United Nations. New Zealand authorities extended German policies, increasing pressure to develop and cultivate village holdings for export crops, elevating the *pulenu'u* above the chiefs as the highest village authority, and moving the coastal boundary of village property inland from the low to the high water mark. However, Samoans pushed back against this expansion of bureaucratic authority, creating a new institution called *pulemau*, village councils to oversee the *pulenu'u* in a way that better reflected the Samoan value of decision-making through consensus (Riddle, 2006). Still,

these colonial institutions and values became embedded into Samoan politics and strengthened over generations.

The effects of colonial policies were multifold: *matai* power over property and decision-making was diminished (though not abolished), and actors found space to negotiate the new system of authority. The creation of the village office of *pulenu'u* built a link between the colonial and traditional, a first step in hybridization, and one that would be manipulated and changed over time to suit village chiefs as much as the centralized government. Critically, colonial influence shifted the relationship Samoans had with their natural resources by simultaneously separating villages from legal, if not de facto, control of reefs and lagoons, while pushing for new agricultural development. In a sense, the most significant legacy of colonial powers was turning the Samoan economy and labor towards land and pulling them away from the sea.

### 3. Independent (Western) Samoa

After decades as a UN trust territory, the western Samoan islands became the first Pacific island country to regain independence in 1962. Over the next few decades, legislators in the newly independent nation of Western Samoa (renamed the Independent State of Samoa in 1997) attempted to reconcile the legal pluralism and conflicts of power between village councils and the European-style parliamentary government that arose from the foundation of colonial bureaucracies. The *pulenu'u* remained the liaison between village and government, while national leaders attempted to merge customary institutions into centralized bureaucratic organizations. The resulting hybridization helped to codify some traditional rules and forms of authority into law, but also left gaps and ambiguity about property rights, authority, and resource governance.

The nascent government did its best to address the contention and confusion that had resulted from clashing philosophies of land and ownership during colonial periods. The Department of Lands, Surveys, and Environment for Western Samoa was born out of the department established under German rule. Both colonial administrations had charged the department's Registrar with surveying land to establish individual property rights and boundaries as part of efforts to undermine communal tenure. After independence, the 1981 Land and Titles Act barred the sale of customary lands and reaffirmed their direct and perpetual communal ownership by villages, but also maintained the Registrar's authority to establish property boundaries and settle disputes over customary lands. The government also maintained control over areas below the high-water mark, continuing the division of land and sea initiated under colonialism. Support for traditional land tenure came with the 1990 Village Fono Act, which reinstated the role of the village *fono* in decision-making, and granted "the power to make rules governing the development and use of village land for the economic betterment of the village" (*Village Fono Act 1990*). While these laws provided villages with some autonomy and hybridized property institutions, they also confirmed the central government as the ultimate authority over land ownership.

As the language of the Fono Act indicates, colonial and postcolonial discourse about economic development continued to influence Samoan governance institutions, and international agencies had substantial influence over the priorities and organization of the new government. Under colonial regimes guided by an interest in connecting Samoan resources and labor to global markets, natural resource extraction was officially regulated by the village *pulenu'u*, or managed by foreign plantation developers (Droessler, 2018; Riddle, 2006). After independence, the Department of Agriculture, Forests and Fisheries, later called the Ministry of Agriculture and Fisheries (MAF), was established to manage and develop

Samoa's agricultural industry and food security (Davidson, 1967; DAFF, 1962). The Department of Lands, Surveys, and Environment was charged with similar goals for developing and protecting public lands. This focus addressed the concerns of intergovernmental agencies like the United Nations Development Programme, who advocated a coordinated effort for economic development during the transition to independence (Davidson, 1967), as well as groups like the IUCN who later promoted environmental conservation. However, as connected as these ministries were to external institutions and global discourse, they failed to reconcile their objectives and organizational structures with customary tenure or village authority.

#### ***D. Samoan Marine Comanagement***

Rapidly increasing environmental degradation presented a challenge to Western Samoa's new government. Within two decades of independence, local Samoan fishers, activists and biologists expressed concern that natural resources, particularly in coastal areas, were being rapidly depleted and diminished by pollution, erosion, and overuse (Bell, 1985). Population growth, coastal development, and the increasing integration of villages into market economies brought new pressures to coastal resources. Mangroves were threatened by clearing for firewood and settlements (Boon, 2001). Just beyond the reefs, commercial fishing catamarans sponsored by the FAO since the 1970's dominated the harvest of bottomfish, leading to overfishing and depletion of several species (FAO 2002). Small-scale subsistence fishers were driven closer to shore to target more diverse species using unsustainable and destructive practices (Bell, 1985; Olson, 2001; Zann, 1999), including "*ava niukini*" (*Derris elliptica*), a poison used throughout the Pacific to stun coral fish (Johannes, 1982; Skelton, Bell, Mulipola, & Trevor, 2002). Most critically, the persistent and increasingly prevalent use of dynamite over the past hundred years was inflicting lasting

damage to reef habitats (Bell, 1985; Johannes, 1982). A significant decrease in the abundance of many species, including the *faisua*, giant clam (*Tridacna gigas*), caused particular alarm.

The government responded to this evidence of an environmental crisis, and the growing international support for environmental protection, by establishing new regulations in what had become an under-regulated ocean environment. Legislation in 1989 redefined the mission of the Lands, Surveys and Environment department, later be renamed the Ministry for Natural Resources and the Environment (MNRE), to include environmental protection and created a Division of Environment and Conservation. This new division was authorized to manage Samoan parks and reserves, and tasked with controlling coastal pollution and monitoring the effects of climate change on coastal ecosystems (Skelton et al., 2002). The Fisheries Act of 1988 also expanded the mandate of MAF to include marine conservation and scientific monitoring, and to regulate and manage both commercial and small-scale subsistence fisheries. MAF and MNRE's new priorities helped them to align with international discourse and external funding opportunities for environmental conservation. In the 1970's, IUCN recommended protections for several identified Samoan biodiversity hotspots and endemic species. This led to the establishment of Palolo Deep Marine Reserve in 1974, the first formal MPA in the South Pacific. However, there was little enforcement of regulations and legal protection for the reserve or other conservation priorities until the 1990s, when Samoa signed the Convention on Biological Diversity (CBD) and began receiving conservation funding from bilateral and international donors, including the Global Environmental Facility (GEF) of the UN, and the recently established South Pacific Biodiversity Conservation Programme (SPBCP).

Independently, village communities also took action to stem the depletion of their inshore fisheries: village *fono* reportedly used local radio to advertise *sā*, or rules and penalties for fishers, including those caught using explosive and other methods prohibited under the Fisheries Act (Fa'asili & Kelekolo, 1999). However, a *fono*'s authority over violators from other villages was unclear: while the Fono Act gave villages authority to enforce rules with village members, outsiders were technically exempt. Some villages had also created rules that were contradictory to national law, which prevented some cases from being adjudicated in court (Fa'asili & Kelekolo, 1999), and there was little clarity regarding who had authority to enforce rules at the village level. The ambiguity of management authority and responsibilities hindered action to protect Samoan marine resources and highlighted the need for clarity and coordination between villages, government, and international agencies.

#### 1. The Community-Based Fisheries Management Programme (CBFMP)

In 1991, the Western Samoan Government requested assistance from the Australian Government to support a fisheries extension and training project that could address national and village concerns over deteriorating coastal resources. A private Australian firm was engaged to help develop a culturally and environmentally appropriate program to improve the food security and standard of living for Samoan communities by reversing degradation of inshore resources and creating alternative livelihood opportunities and food sources (IDSS, 1997). The Fisheries Division initiated the Advisory Extension Programme, later dubbed the Community-Based Fisheries Management Programme (CBFMP), in 1995 as “one of the first coordinated, nation-wide attempts in the South Pacific to manage subsistence fisheries” (Zann, 1999). Based on comanagement principles (Armitage et al.,

2009), the CBFMP focused management efforts at the scale of village tenure, creating institutional linkages between village-based and centralized governance structures, and legally reinstating village tenure over coastal resources. AusAID funded the project for five years, after which the program was incorporated into the Fisheries Division budget.

The CBFMP used an inclusive planning process where Fisheries Division staff served as technical and legal advisors to guide the creation of a village management plan (King & Fa'asili, 1998). The three primary social groups within each village (*matai*, women, and young men) each had opportunities to contribute to the plan, although final decisions were made by the *fono* and high chief. Once the village approved the plan, they formed a fisheries management committee, consisting of representatives from each social group, to continue the process. Village management plans could be ratified as by-laws by the national legislature, so while the government retained legal authority over everything below the high water mark, village rules for customary tenure areas in lagoons, mangroves, and reefs would become formalized by the state.

The CBFMP focused on food security and productivity: in addition to establishing no-take fish reserves, the Fisheries Division assisted in restocking fish species and giant clams and developing aquaculture projects, such as tilapia farms, that incentivized participation. Fisheries staff would visit every six months to monitor the fish reserves and meet with the committee to discuss village needs and progress (IDSS, 1997; King & Fa'asili, 1999; Mollica, 1999). The program was quickly implemented across the islands of Upolu and Savaii, with 30 villages participating by the time AusAID funding expired in 2000. By 2009 there were over 40 active villages, three-fourths of which were on Upolu (Sinclair-Esau, 2018).

## 2. The Marine Protected Areas Program

Soon after the CBFMP began, the Conservation and Environment Division of MNRE coordinated a visit by representatives of the IUCN to explore options for an MPA. Although Palolo Deep Marine Reserve had been established in 1979, there was little management planning or action in this reserve, or in other biodiversity hotspots identified by the IUCN (Johannes, 1982). In the 1990s, MNRE began new conservation initiatives, proposing the establishment of several MPAs on Upolu and Savaii that would embrace comanagement principles for local involvement. Planning for the first two MPAs began in 1999 with an initial five-year grant from IUCN through the GEF South Pacific Biodiversity Conservation Programme, and with additional financial and technical support from the Coral Reefs Initiatives in the South Pacific (CRISP) and Conservation International. The MPAs included small village no-take reserves that followed the CBFMP design, and these were surrounded by limited use management areas that extended to the reef slopes. The extension of MPAs to the reef slopes was considered more ecologically beneficial than protecting only village lagoon areas (*Former MPA Officer, interview*) and reflected science-based recommendations to incorporate larger eco-regions of critical habitat (S. Wells et al., 2016). MPA planning also identified and addressed the environmental priorities of local villages, including unsustainable fishing and the impacts of tourism development (Power & Miller, 2004). A trust fund was established with grant funding from IUCN and other sources, with the intention that the MPA eventually be financially self-supporting through fees collected by ecotourism vendors.

Two rural southeast electoral districts (*faipule*) of Upolu, Safata and Aliapata, were chosen for the MPA program (Sesega, 2014). Both sites had high biodiversity value and histories of conservation intervention. The seascape around Aleipata district on the eastern



coast of Upolu was recognized as a potential site of a Marine Park in the 1980's (Chew, 1986), and the district's two uninhabited islands were identified as important habitat for sea birds, endemic species, and turtle rookeries (Butler, 2005). In Safata, the remaining stands of mangroves around the villages of Sa'anapu and Sataoa had been declared an ecotourism reserve in 1994 by the Division of Environment and Conservation, with funding from GEF-SPBCP (Huber & McGregor, 2002). These conservation zones became the cornerstone of the Safata MPA; however, the Sa'anapu-Sataoa Reserve had suffered from a lack of early community involvement and ownership, presenting challenges for establishing trust and rapport with local leaders.

The choice of the *faipule* as the spatial scale for MPA establishment made ecological sense, connecting biodiversity hotspots that overlapped multiple village tenure areas within ecoregional zones. The *faipule*'s scale also helped fulfill Samoa's commitment to the CBD's 10% targets for MPA coverage and the UN Sustainable Development Goal 14, and mitigating mangrove destruction in other regions (Boon 2001). Furthermore, the electoral district was a legible space from the perspective of the central government. However, the *faipule* does not correspond with any modern bureaucratic or traditional Samoan governance systems: it has no institutional infrastructure and is smaller than the *itumalo* districts of traditional Samoan polity that encompass multiple habitat types. Villages within *faipule* do often have traditional alliances and relationships (though not always friendly), and some have organized district committees to collaborate on large-scale projects, such as the building of a secondary school (Huber & McGregor, 2002), but these are usually temporary institutions. The MPA therefore required establishing new institutional arrangements at the *faipule* district level, requiring heavy investments of staff time to build capacity and commitment in each district (Power & Miller, 2004). Each MPA established a District

Committee to serve as the executive decision making body for the program, comprised of a *matai* representative from each of the nine villages in Safata and eleven villages of Aleipata. The MPAs were not officially implemented until 2004, with management plans for both finally approved by district committees in 2008.

### 3. Early Comanagement Outcomes

Both the MPA and CBFMP reported positive outcomes during the initial phases of operations: ministry reports and interviews with past project staff indicate that the MPA areas as well as the CBFMP village programs experienced strong community support and buy-in, high compliance with local regulations, and anecdotal reports of increased catches and lower fishing effort. The CBFMP reported high engagement, with 80% of participating villages receiving a score of acceptable or higher during the Fisheries Division's six month reviews, which evaluated villages for enforcement, monitoring, and village fisheries committee meeting frequency (King & Fa'asili, 1999). Participation in the MPA program was incentivized with direct payments to the committee members, who also benefited from penalty fees imposed on violators (*MNRE staff interview, 2018*). The ministry also trained community members to help with coral monitoring, primarily as a tool for engaging and educating diverse community members, especially women. Ecotourism development within the MPAs brought additional revenue and community benefits; Safata in particular received annual fees for foreign student mangroves tours. Research on the biological health of the areas suggested rapid recovery of corals and fish biomass between 2004 and 2008, in spite of major cyclone events (MNRE, 2009). MPA communities initially expressed concerns about limits on fishing, but soon fishers reported larger and more plentiful fish in the MPA fishing areas, and MNRE surveys reported more juveniles, and larger groupers and other

fish, within village no-take reserves (*MNRE staff interview, 2018*). Fisheries division likewise reported improved catches in CBFMP villages.

However there were also early signs of conflict and lack of cooperation between the MPA and CBFMP agencies. A few villages that had established fish reserves and active management plans with CBFMP were later incorporated into the MPA. While inter-agency collaboration was part of the MPA design plans, conflicts over jurisdiction led Fisheries to end monitoring and support activities for no-take reserves in MPA villages. Responsibility passed to MNRE, who lacked capacity and staff to continue the same engagement. The agencies also used different methods for assessing the health of coral reefs and marine biodiversity, further limiting their ability to collaborate or share information. In late 2009, the government funded construction of a dock and marine slipway for ship repairs inside the Aleipata MPA, in spite of concerns from MNRE that increased shipping traffic and waste discharge would put pressure on the ecosystem (MNRE, 2009). With government ministries at odds, the programs and their institutions received mixed messages and inconsistent support.

#### 4. Impacts of the 2009 South Pacific Tsunami and Current Status of Management Programs

On September 29, 2009, a major earthquake and tsunami hit the Samoan islands. This had tragic consequences for southeastern coastal communities on Upolu, who suffered significant infrastructure damage and loss of life (Fritz et al., 2011; Irish, Ewing, & Jones, 2012). Immediately, attention focused on emergency operations, with international and government funding directed to health, safety, and rebuilding efforts, including coastal roads and sea walls (World Bank, 2016). Conservation efforts were suspended; much of the MPA

infrastructure, such as buoy markers and signs, were lost, and the tsunami had dramatically reshaped some coastal habitats, with high losses of coral in Aleipata (McAdoo et al., 2011).

By 2011, agencies began to focus on conservation activities again. The CBFMP prioritized restoring infrastructure and mariculture efforts, such as distributing juvenile giant clams to seed fish reserves that had been depleted by the tsunami and the after-effects of heavy subsistence fishing by hard hit communities. With German aid, villages on the southern coast of Upolu were targeted for management planning, aquaculture development, and installation of Fish Aggregation Devices (FADs). Between 2009 and 2012, seven new villages on Upolu created management plans with the CBFMP, four in Falealili district alone (Sinclair-Esau, 2018). An updated Fisheries Division management plan for 2013-2016, created in consultation with village representatives, emphasized strengthening participation of communities in management and responding to climate change impacts. To date there are 89 villages with active management plans out of 116 who have participated since 1995, a retention rate of 77%. Of those villages, 67 have created and ratified village by-laws and 73 have active fish or giant clam reserves. The Fisheries Division has also produced programs for coral replanting (2010-2013) and restocking trochus. The island of Upolu alone currently has 53 participating villages and 43 no-take reserves.

Yet as the CBFMP thrived, the MPA program broke down. A year after the tsunami event, MNRE and Conservation International worked to secure new funding for the MPA program operations, with plans to restore essential infrastructure. However, it was discovered that both MPA financial trusts had been breached and funds used by a few actors, committee members and agents in the ministry, without consulting the district committees. The loss of funds and violation of the trusts caused backers to redirect their support to other projects, leaving the MPA unfunded and inoperative up to the present. The

district committees have not met for over ten years. MPA ecoregions have been included in nationwide MNRE projects, primarily small-scale restoration and management efforts through limited grants, such as Crown of Thorns removal, coral assessments, GEF-funded climate change adaptation projects, and educational outreach partnerships with Conservation International (Kwan, Ward, Satoa, Faitua, & Male, 2016; Ward, Kwan, Satoa, & Faitua, 2016). Yet there have been no assessments, meetings, or other actions specific to the Aleipata and Safata MPAs since 2009. When asked directly if the MPAs were operating, ministry staff indicated they consider the program active, but villages were no longer enforcing the rules (*interview MNRE staff, 2018*).

***E. Discussion: Institutional factors contributing to resilience and adaptive capacity***

Resilience is a social-ecological system's ability to absorb disturbance and respond to change while retaining essential organization and functions (Adger, 2003; Folke et al., 2005; Olsson et al., 2004). Resilience is significantly determined by the flexibility and adaptability of governance processes and institutions (Berkes, Colding, & Folke, 2003). Traditional resource governance systems in the Pacific developed resilience to social and ecological changes over time; yet today, that resilience is challenged by migration, economic changes, and globalization (Gaillard, 2007; Lauer et al., 2013; Lazrus, 2012). Governance conflicts created by the overlaying of bureaucratic institutions has also destabilized some traditional systems and reduced resilience by weakening local autonomy and flexibility. Hybridization of traditional and government institutions can alleviate this conflict and improve resilience, when treated as a dynamic process of ongoing collaboration (Aswani & Ruddle, 2013).

Governance processes that feature high flexibility, memory, and social capital have better adaptive capacity, and in turn can respond to change quickly, maintaining system resilience (Armitage, 2005; Engle & Lemos, 2010). Adaptive capacity, or the ability to

learn, reorganize, innovate, and respond to both social and environmental shocks across scales (Armitage, Marschke, & Plummer, 2008; Berkes et al., 2003), is a key goal of some comanagement arrangements (Armitage et al., 2009; N. Brown et al., 2013). Comanagement institutions that include collaborative power sharing, learning, and cross-scale linkages between communities and government agencies can support adaptive capacity. If traditional institutions are robust, the existing mechanisms for mediating conflict and forming consensus can be integrated into comanagement to improve adaptive capacity (Armitage, 2005). However, comanagement design is variable, and programs that introduce policies and values inconsistent with traditional systems can create governance conflicts and potentially reduce resiliency (Gelcich, Edwards-Jones, Kaiser, & Castilla, 2006).

As described above, the two Samoan marine management programs experienced very different outcomes following the 2009 South Pacific tsunami: while the MPA program ceased formal operations, the CBFMP expanded in areas impacted by the tsunami. This difference in program resilience suggests that their contrasting histories, institutional arrangements, and objectives resulted in different levels of adaptive capacity. The MPA and CBFMP programs differed in their organizational scale and structure, the integration of traditional institutions and authority, their approaches to community involvement, and their external support from government and international agencies (Table 2), all of which influenced each program's ability to respond to an extreme environmental shock. The relationship between program history, organization, and adaptive capacity are discussed here.

**Table 2:** Comanagement Principles in CBFMP and MPA Institutional Design

<b>Comanagement Principles</b>	<b>CBFMP</b>	<b>MPA</b>
<b>Organizational Structure</b>		
- Decentralized management	<p>Polycentric</p> <p>Village-based, aligned with the scale of traditional institutional authority and tenure areas</p>	<p>Nested Hierarchy</p> <p>District-based, subsumes traditional authority under new representative institutions at larger scale than traditional institutional authority and tenure areas</p>
- Vertical and horizontal cross-scale institutional linkages	<p>Bylaws create vertical linkages between government and village institutions;</p> <p>horizontal linkages between villages through Fisheries' workshops</p>	<p>District committee comprised of village representatives, providing horizontal linkages between villages and vertical linkage between committee and ministry through District Officer</p>
<b>Integrating traditional and local institutions</b>		
- Customary Tenure (property rights)	<p>By-laws to affirm village ownership and excludability</p>	<p>By-laws recommended in plan, not enacted</p>
- Traditional Authority	<p>Village <i>fono</i> and chiefs make and enforce rules, can</p>	<p><i>Matai</i> chosen as village representative; new district</p>

	restrict access; also supported by by-laws	committee supplants traditional village governance systems, no excludability
<b>Community Involvement</b>		
- Self-organization	Villages initiate program, some seek funding and support from outside CBFMP (e.g. GEF climate change grants)	Government-initiated and sponsored organization
- Decision-making	Traditional village leaders make decisions about rules, in consultation with village fishing committees and MAF	District committee serves as the executive decision-making body; unresolved jurisdiction conflicts with traditional village leadership and government agencies
- Participation	Broad community participation in initial consensus building exercises led by fisheries involves traditional village social groups (women, young men, and <i>matai</i> )	Representative participation of a single individual (of <i>matai</i> status) in district committee
<b>Shared Responsibility</b>		
- External and government support	MAF Fisheries Division budget supports staff to provide	MNRE Conservation and Environment Division to



	technical/scientific support, broadstock for clams and other species, and are responsible for regular monitoring and meetings with the village every 6 months.	support program but responsibilities unclear, no clear processes for regular communication and accountability; currently no budget for staff (funded through now defunct trust funds)
- Village responsibilities	Requesting planning consultations by Fisheries Division to initiate the program. Monitoring the no-take zone and coastal resource areas; imposing sanctions on violators (fines), communicating issues to MAF Fisheries Division.	Monitoring the no-take zone and coastal resource areas; communicating issues to the District Committee to impose sanctions on violators, as well as to the MPA District Officer.

### 1. Organizational Structure and Scale

Comanagement principles of decentralized management and cross-scale institutional linkages are intended to support multiscale governance across multiple agencies and actors (Berkes, 2002; Jentoft, McCay, & Wilson, 2010). However, these ideals are broadly defined, and were interpreted differently by each agency. The CBFMP is polycentric, an organizational structure theorized to facilitate experimental learning, provide flexibility for multiscale governance, and provide robustness to external stresses and shocks (Ostrom, 2005a, 2010). The village-level scale of the CBFMP is congruent with traditionally

decentralized Samoan political organization, in which decision-making about natural resources, as well as customary mechanisms for conflict resolution, rule enforcement, and communication, all occur through the village *fono*. The village scale also reflects traditional relationships to marine spaces and methods for sharing experiential knowledge of fishing, environmental change, and past coping strategies within the community. The CBFMP's cross-scale institutional linkages created lines of communication and accountability between bureaucratic agencies and village leadership. While it experienced high variability in commitment and results, with about 23% of villages opting out of the program and others lagging in engagement (Sinclair-Esau, 2018), this networked but decentralized structure supported adaptive capacity by using traditional Samoan institutions for building consensus. It also allowed villages some autonomy to experiment, learn, and respond quickly to local issues.

On the other hand, the new institutions created by the MPA formed a nested hierarchy that had no direct ties to traditional Samoan societal structures: the district scale had no historic or cultural precedent and there were no existing administrative structures or traditional institutions to build on. This nested approach exposes the traces of colonial organization inherited by MNRE from its pre-independence predecessors. The authority of the district committee and the introduction of representative district governance was not reconciled with the village *fono* authority; further, customary mechanisms for knowledge sharing about resources were also absent at the district scale. While plans acknowledged Samoan cultural values, they did not formalize cross-scale linkages between villages, the district committee, and the government. This institutional arrangement produced ambiguity and gaps in communication and responsibility, with no clear process for accountability or

contact between the district committee and government ministries, weakening adaptive capacity.

## 2. Integrating Traditional and Local Institutions into Governance

Traditional Samoan institutions were an important piece for both the CBFMP and MPA programs: in accordance with comanagement principles for incorporating local and traditional institutions, each worked with traditional Samoan leaders, and recognized and explicitly incorporated the values of *fa'a Samoa* into their management plans. However, the programs differed greatly in their recognition and incorporation of traditional village-based systems of tenure and authority, as influenced by each sponsoring agency's historical roots in colonial and international development. The CBFMP by-laws process created hybridized legal institutions through which the state recognized village rules and reinstated village property rights and exclusive use of coastal resources. This affirmed the legal authority of traditional institutions and allowed for *fono* rules to apply to non-residents and to be enforced through the justice system, reconciling *de jure* (national) and *de facto* (village-based) legal frameworks.

In contrast, the MPA program provided no legal recognition of village ownership or even exclusivity for participating villages; the creation of district by-laws for Aleipata and Safata was recorded, but this left local jurisdiction ambiguous and failed to hybridize village and government institutions. As one documented conflict from Aleipata reveals, MPA institutions were tested when an individual violated MPA rules against fish traps; the individual claimed that his nationally granted rights to marine resource access trumped the authority of the district or village to create or enforce limits on fishing. In this case, local actors turned to traditional institutions to creatively negotiate the violator's compliance when they could not do so via formal processes of the MPA (Afioga, 2002). Further,

government-led conservation efforts starting with the Sa'anapu-Sataoa Mangrove Reserve reinforced government ownership of marine spaces: the MPA management plans state that MNRE is responsible for marine resources below the high-water mark (Aleipata MPA District Committee, MNRE, 2008), contradicting the spirit of local control in the rest of the document.

### 3. Community Involvement: Self-organization, Decision-making, and Participation

Comanagement design principles emphasize the need for community self-organization, participation in management actions, and decision-making (Singleton, 1998), although there is lack of specificity about the forms and processes for achieving these. Self-organization is considered important for community buy-in and ownership of management regulations, and for program stability and resilience (Lebel et al., 2006; Ostrom et al., 1999). Both the CBFMP and MPA programs originated in government agencies supported by international funding, but with the goal of engaging community members and “empowering” them to take responsibility for local resources. Their approaches to local involvement demonstrate different philosophies about the role and responsibilities of villages and the government, as drawn from the different histories of their respective agencies. The CBFMP is a bottom-up structured program: the village council must submit a formal request to initiate management planning, requiring a degree of self-organization and allowing villages to choose to participate. Conversely, the top-down structure of the MPA required the government to initiate action. As noted, local involvement and buy-in were recognized priorities for creating a robust MPA program, and in the beginning, there was a long consultation process with villages to develop a consensus about program goals across the districts. Still, these consultations were agency initiated, the program structure did not allow villages to opt-out, and there are scant signs of community self-organization or district-led initiatives.

Decision-making processes also differed greatly between the two programs. In addition to encouraging local ownership, the CBFMP's requirement that villages request a consultation indirectly supports village decision-making power from the start. Village meetings with Fisheries staff include ceremonial functions such as the *'ava* (kava) ceremony, which implicitly recognizes traditional systems of discourse. The by-laws process also promotes local authority; the Fisheries Division takes an advisory role in consultation with the village fisheries management committee, with formal decisions made through the village *fono*. The MPA program, in contrast, created a new decision-making body, the District Committee, and focused on building consensus among village representatives. However, villages were responsible for monitoring and enforcement, with guidelines to report violations to the committee, who would inform the District Officer (presumably to communicate with the government). This structure suggests a nested hierarchy of authority that had no previous social or institutional context, whereas the CBFMP's reliance on traditional village institutions creates a "socially embedded" system that allows for broad participation in slow consensus building (Clever, 2002). Building ecological knowledge and social memory are key to adaptive comanagement, and "actualized through community debate and decision-making processes" (Olsson et al 2004). These processes have a long history at the village level, but are absent and hard to reconstruct at the district level.

Participation and deliberation are key components in building trust and shared understanding, critical pieces of adaptive capacity in social-ecological systems (Lebel et al., 2006). However, participation is also vaguely defined as a feature of comanagement, leading to a variety of experiences and outcomes across programs (Quimby & Levine, 2018). In Samoa, the programs exhibited contrasting interpretations of 'participation', using different institutional arrangements to include communities in planning and operations. Participation

in the CBFMP process was organized around building consensus across social groups: *matai*, women, and young men are guided through a workshop to identify problems and solutions, after which a representative committee is created at the village level. Similarly the MPA program established village committees of five members that included women, young men, and *matai* to advise the district representative, but there was no encouragement for, or investment in, broad participation at the village level.

#### 4. External Program Support and Shared Responsibility

In addition to community ownership and engagement, marine comanagement arrangements require the reliable and consistent support of government agencies and other partners engaged in the comanagement process (Levine & Richmond, 2014; Pinkerton et al., 2014; Pomeroy & Berkes, 1997). The MPA and CBFMP were both initiated with international funding and technical support, but each gained different levels and forms of commitment, investment, and cross-scale partnerships over time. After grants from AUSAID for the initial planning phase and the five-year implementation phase ended, operational costs for the CBFMP were folded into the Fishery Division's annual budget. This provided financial predictability and made the Fisheries Division accountable for continued engagement in program support and shared responsibility and power. The CBFMP guidelines state that the program will follow-up with communities every six months, although over time the size of the program and reduced staff size have caused reviews to be less frequent in recent years.

The initial planning phase of the MPA program was also well funded and supported by international agencies. In its first report to the CBD, MNRE acknowledged the outsized role of external support: "most of the activities currently undertaken in-country are the direct result of outside technical and financial assistance" (Schuster, 2001). However, the

expectation that the program would eventually be financially self-sufficient through the collection of ecotourism fees meant the program was never fully incorporated into MNRE's budget, leaving it a low priority for the agency's small staff. There were no procedures for regular monitoring or information sharing by the agency. In spite of lessons drawn from Sa'anapu-Sataoa Mangrove Reserve, where infrequent engagement and reliance on external organizations contributed to management challenges, the lack of agency support for the MPA program left gaps in program oversight, as well as little coordination with the district committee to advise on the program or link the program to national conservation goals. The lack of reliable government investment in and oversight of the MPA program left it vulnerable, as evidenced by the pilfering of both district trust funds after the tsunami.

#### ***F. Conclusions***

The two programs in Samoa clearly illustrate how historic social and political processes, legal pluralism, and hybridized governance are influential in shaping comanagement forms and processes, and their responsiveness and resilience to environmental change. In Samoa, different government ministries and international funders sponsored the CBFMP and MPA programs; while they shared a larger social, political, and environmental context, the plasticity of comanagement design allowed for divergent approaches to integrating traditional systems of authority, property rights, and community involvement. Ultimately, each program developed its own interpretation of what marine resource comanagement should look like. The village-scale decentralized network of the CBFMP provided legal recognition and government support for traditional tenure and decision-making. The MPA program, on the other hand, formed a nested hierarchy with new district level institutions that left roles for traditional village leadership and tenure uncertain. Ultimately these institutional differences shaped each programs' adaptive capacity following the 2009 South

Pacific tsunami. The Fisheries Division was able to shift priorities and direct attention to hard hit communities to bolster the CBFMP, while retaining the same function, structure, and goals that were in place before the event. The MPA program, on the other hand, which showed signs of weak institutions, low government investment, and poor integration into traditional social structures before the tsunami, has not been able to recover from significant external shocks and loss of external funding support.

The different forms of Samoan comanagement also demonstrate the opportunities and challenges of integrating traditional institutions for marine resource governance, challenges which are common across the Pacific and in other postcolonial contexts. Parsons et al. (2018) found that social connectivity through traditional Samoan institutions supports high adaptive capacity in response to climate change, and while traditional institutions have also supported the CBFMP's adaptive capacity, increasing individualism and the growing cash economy could weaken systems of service and reciprocity that are vital to *fa'a Samoa* (Thornton, Kerslake, & Binns, 2010). This may reduce resilience through the loss of economic buffers such as remittances, loss of labor (human capital) from younger generations, and lower participation in traditional ecological knowledge-sharing practices, especially fishing. Strong traditional institutions also present challenges for inclusive and equitable comanagement, by limiting participation in decision-making based on gender and social status. Recognizing the social and political functions of customary tenure and the historical and cross-cultural influences on institutional design can help agencies build more supportive and inclusive community-centered comanagement processes and improve their resilience and longevity.



## **IV. Local control and participation, a comparative analysis of Samoan Marine Comanagement**

### ***A. Introduction***

Across a wide variety of ecological contexts and indigenous cultural settings, small-scale fisheries management practitioners have increasingly turned towards community-based approaches, including comanagement, to address the complexity and specificity of dynamic coastal marine environments. Comanagement is a process for resource users, government agencies, and other stakeholders to share responsibility for actively managing natural resources (Armitage et al., 2009). Community involvement in management through the integration of local and traditional institutions is intended to support legitimacy and adaptability of comanagement across spatial scales, from large marine protected areas to smaller inshore zones (Carlsson & Berkes, 2005; Olsson et al., 2004). In practice, linking institutional arrangements that may spring from incompatible cultural values and political systems complicates processes for power sharing and participation, with potentially negative effects on social and ecological outcomes (Rohe et al., 2018).

The comanagement of small-scale fisheries (SSF) and coastal resources is now common practice in the Pacific, preferred for its integration of traditional institutions and investment in culturally relevant management approaches (Cohen et al., 2015; Levine & Richmond, 2014; Viridin, 2000). Traditional institutions can offer trusted processes of deliberation, problem solving, and enforcement that are responsive to environmental change and can be adapted for comanagement. (Aswani, 2005; Berkes et al., 2000). In addition, customary tenure systems can provide the basis for local exclusivity and authority necessary for common-pool resource governance (Ostrom et al., 1999). Traditional Pacific resource

governance developed resilience to social and environmental changes (Gaillard, 2007; Lauer et al., 2013); however these systems have been historically undermined or replaced by centralized government bureaucracies that weaken and contradict their legal standing and political power (Johannes, 1978). The recognition of customary tenure and local authority by the government can reinforce traditional institutions, producing hybrid management that many suggest offers the best of both local and large scale management (Aswani & Ruddle, 2013; Jentoft, 2000a; Kittinger et al., 2015).

Yet integrating traditional institutions and customary tenure arrangements does not ensure that comanagement principles of cross-scale power sharing are fully realized in practice, and programs must account for existing or developing power asymmetries between the state and local authorities (Agrawal, 2003; Quimby & Levine, 2018). Comanagement can strengthen government control over resources when community involvement is limited to consultation and collaboration rather than decision-making authority (Béné et al., 2009; A. Davis & Ruddle, 2012). Poor institutional design and program execution can also erode the authority of traditional institutions, reducing adaptive capacity (Cinner & Aswani, 2007; Gelcich et al., 2006). While involvement of the state and other external actors is critical to providing the financial support, scientific expertise, and cross-scale capacity necessary for managing dynamic, multiscale ecological systems (Cudney-Bueno & Basurto, 2009; Ostrom, 2005b), power relationships between the state, external actors, and local authorities must be continuously assessed and negotiated to facilitate adaptable governance (Jentoft, 2007).

Within the local community, participation in inclusive and transparent processes is expected to raise awareness, build consensus, and increase accountability, supporting long-term sustainability and equitable resource access (Carlsson & Berkes, 2005; Pomeroy &

Rivera-Guieb, 2006). Resource users involved in the decision-making process also perceive greater benefits from comanagement (MacNeil & Cinner, 2013). To achieve goals of broad community participation, comanagement is sometimes presented as a democratic process (Jentoft, 2005); yet ideals of transparency and equitable involvement in management processes may not find purchase in hierarchical traditional societies with their own strategies for developing consensus and collective action (Maclean, Robinson, & Natcher, 2015). In the Pacific, many cultures use informal private discussions to raise and work through issues, and defer to a chief or elder to represent their interest in public decision-making processes (M. Meleisea, 2000; White & Lindstrom, 1997). Therefore, while the community may participate collectively, the needs and opinions of a heterogeneous group may not become part of formal comanagement discussions and decision-making without external involvement (Cohen et al., 2016).

This chapter presents a case study of power and participation in hybrid coastal fisheries comanagement. The Community-Based Fisheries Management Programme (CBFMP) has operated in Samoa for over two decades, and has been used to exemplify the integration of traditional institutions into multiscale resource management operations (Johannes, 2002; King & Fa’asili, 1998). Formerly called the Fisheries Extension Programme, the CBFMP is a village-focused approach that was organized with assistance from the Australian Government and has been operated by the Samoan government’s Fisheries Division, guided by principles of “maximum community participation” and local ownership (King & Fa’asili, 1999). Around the same time, Samoa also developed a Marine Protected Area (MPA) program in two districts on the island of Upolu. Both programs experienced initial success, but following the 2009 South Pacific Tsunami the MPA program became inactive, while the CBFMP has continued to operate and expand. Yet the capacity of the Fisheries

Division has not grown with the program's expansion, and there has been little attention to the outcomes of participation and local authority as external support has ceded to traditional village governance.

Presented here is a comparison the perceptions and practices of comanagement in Samoan villages active in the CBFMP and in the former MPA. In particular, it focuses on both overt and covert forms of power and authority in decision-making processes, the practices of participation in management activities and deliberation, and the role of traditional Samoan institutions and social norms in shaping the processes and outcomes of marine resource management across social groups. Two key questions are addressed: 1) has the CBFMP achieved goals of local control and broad participation; and 2) how does integration of traditional institutions inform these outcomes? The findings offer insights into the paradoxes of comanagement integrated with traditional systems that can enlighten efforts to improve locally relevant marine resource management in other contexts.

## ***B. Background***

### 1. Conceptual Framework

This chapter responds to calls for greater attention to power in fisheries governance (Jentoft, 2007). I draw from political ecology to interrogate the multiple scales of power relations that shape and are shaped by natural resource management (Robbins, 2005; Watts, 2000; Zimmerer & Bassett, 2003). A dynamic social-ecological system involves multiple processes and actors that shape power relations and social motivations (Fabinyi, Evans, & Foale, 2014), and the embeddedness of management institutions and customary tenure in that system means that they are not shaped by resource use alone. Particularly in post-colonial contexts where legal pluralism can create friction or uncertainty (Jentoft & Bavinck,

2014; Rohe et al., 2018), there is a need to examine perceptions of government and traditional institutions from an emic perspective to understand how community members identify the centers of overt and covert forms of power.

Critical geographic and anthropological approaches draw attention to the importance of the scales and spaces of environmental management. The heterogeneity of communities is sometimes overlooked in examinations of natural resource management (Agrawal & Gibson, 1999). Yet the micropolitics of gender and social status in both formal and informal processes of deliberation, decision-making, and participation within the village play an important role in shaping inequitable social and material outcomes and informing ecological knowledge and concerns (de La Torre-Castro, Fröcklin, Börjesson, Okupnik, & Jiddawi, 2017; Fabinyi et al., 2015). This research draws attention to intra-village scales of power and the dimensions of equity and justice in processes of decision-making, including distributive and procedural justice (Ayers, Kittinger, & Vaughan, 2018; Yang & Pomeroy, 2017).

## 2. Study Site

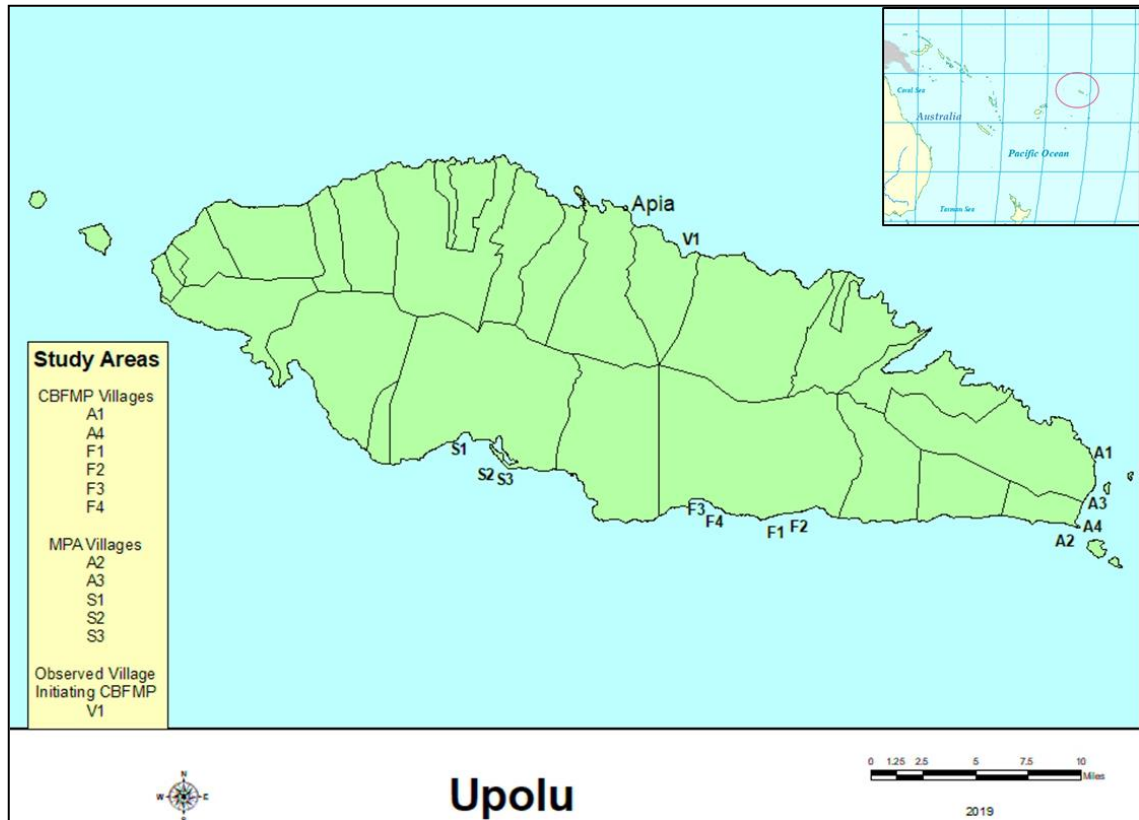
Samoa is an independent nation in the South Pacific comprised of nine islands, four of which are inhabited by a population of 188,000 living in 330 villages (Samoa Bureau of Statistics, 2016), although many more Samoans live and work abroad (L. F. Va'a, 2001). Samoa is generally ethnically and linguistically homogenous, but two centuries of migration and colonialism have meant the inclusion of Chinese, European, and mixed ethnic identities. A quarter of Samoans live in and around the capital city of Apia on the island of Upolu; another quarter occupies the suburbs in the island's northeast and another quarter occupies the rural villages of the island's south and east, with the remaining population mostly on the island of Savaii. Most villages are located in coastal areas, where the islands' mangroves,

shallow lagoons and fringing coral reefs provide diverse habitat for finfish, crustaceans, and invertebrates in the inshore coastal waters. Small-scale fishing is both culturally and economically significant to contemporary Samoan society, and represents a critical source of nutrition for over 41% of households (Tiitii, Sharp, & Ah-Leong, 2014).

This study focused on communities in the south and east of the island of Upolu (see Figure 2). Both of Samoa's former MPAs are located in this area, as well as some of the oldest and newest CBFMP village programs. This region is rural and agricultural, and reports a high dependence on fishing for subsistence (Tiitii et al., 2014). Following the global economic downturn of 2008, Southeast Upolu experienced high rates of poverty and the highest rates of inequality in the country, but by 2016 the region had returned to average and below-average levels; government authorities suggests the strength of the region's traditional Samoan systems of reciprocity and subsistence economy enabled the quick recovery (Reupena, 2010).

**Figure 2:** Map of Study Area

This map indicates the sites of villages on the island of Upolu that were included in the study. The first letter of the code indicates the village's district.



### 3. Power and Participation in Samoan Village Life

Colonial efforts to centralize power in Samoa were never entirely successful and always tempered by the strength and adaptability of traditional village authority (Olson, 2002). Today, Samoa is considered to have one of the strongest traditional societies in the South Pacific region (Macpherson, 1997). Fa'a Samoa, or the "Samoan way" influences all aspects of contemporary Samoan social and political life. It is described as a covenant of respect and reciprocity, balancing *pule* (authority, power) and *tautua* (service), and requiring leaders to work towards *soālaupule* (joint decision-making), and *'autasi* (consensus) (Huffer & So'o,

2005). Traditional Samoan society is hierarchical; families choose a member on whom they confer a title (*matai*) to manage family affairs and represent them in the monthly *fono* (village council). The village *pulenuu*, or “mayor” is an office constructed from colonial legacies. The mayor is a *matai* chosen by the village council to serve as a liaison with the Ministry of Women, Children, and Social Development (MWCSD). The mayor has no official authority over local governance beyond that afforded by his *matai* title, but does have symbolic and unofficial influence in local politics (Riddle, 2006; U. L. F. Va’a, 2000).

Most *matai* and therefore most village leaders and decision-makers are men. A few chief titles are exclusively held by women, and in recent years more women have been conferred *matai* status; still, today just 7% of *matai* in Samoa and about 10% of *matai* from Upolu villages are women, nearly half of whom live outside the village and are not active in the *fono* (MWCSD 2015; Meleisea et al. 2015). The *fono* deliberates to reach consensus, but executive power rests with the *ali’i sili* (High Chief). Untitled men and women cannot directly participate in the *fono* (and in some villages, even women *matai* are excluded); instead, they have advisory sub-committees in which members deliberate and share their collective perspective with the *matai*. Village women’s committees have a President, or in cases where committees are split across religious denominations, a “Women’s Mayor”; these positions have no formal power; however, they are often organizers and spokeswomen for women’s concerns (Figure 3).

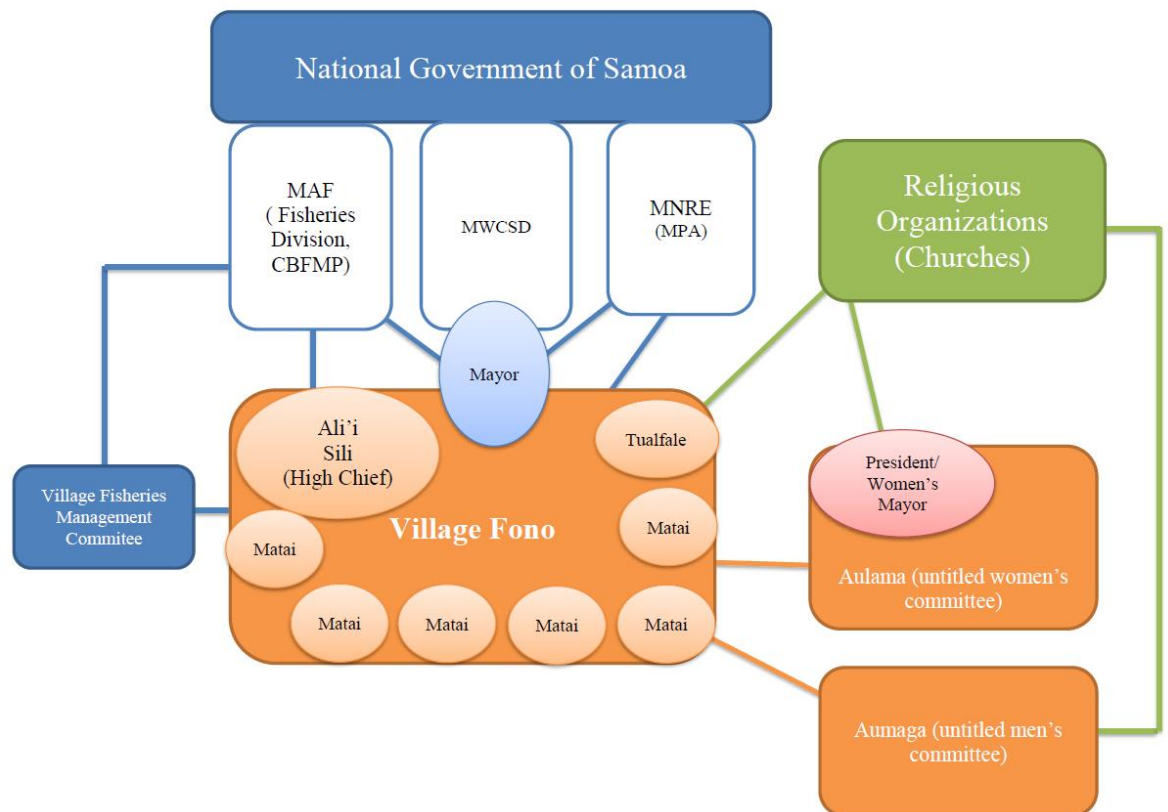
Under traditional Samoan institutions, participation in decision-making processes and management activities is determined by one’s status within the hierarchy. Villages generally reach a consensus through discussion among peer groups and within families, but ultimately lower status individuals show their respect by conforming to the opinions of elders and superiors (Duranti, 1990; Holmes & Holmes, 1992). While the *matai* serve through



leadership, women and young and untitled men (*aumaga/talele'a*) contribute their labor in service at the direction of their *matai* (U. L. F. Va'a, 2000). *Fa'afafine* (third gender) traditionally contribute feminine labor and would have a role similar to women, although roles are changing as labor has become a less important indicator of gender and social status (Schmidt, 2010).

**Figure 3:** Power relationships in Samoan village resource governance.

This figure illustrates the network of communication and obligation between Samoan state (blue), religious (green), and traditional village (orange) institutions related to marine resource management; in particular, the bridging role of the mayor as both a government official and village *matai*, and the women's committee president, which can be both a traditional and church-related post. Individual office holders are indicated with ovals, while agencies and institutions are rectangular. *Arrangements and number of matai vary between villages.*



#### 4. Samoan Coastal Management

In the 1980's, declining fisheries prompted the Samoan government to develop a national approach to coastal resource governance, which led to the development of two forms of marine resource comanagement: the CBFMP and the MPA (Chapter 2). The CBFMP's mission is to improve food security for Samoan communities and address the causes of declining coastal resources (Sinclair-Esau, 2018).

The CBFMP was organized as a culturally-relevant, village-focused approach; its strategy focused on “direct contact with key village groups” including women & untitled men's groups “...to ensure the widest community participation and eventual ownership of the village fisheries management plan” (King & Fa'asili, 1999, p. 6). Fisheries Division provides scientific and legal expertise, facilitates the development of the Village Fisheries Management Plan, and supports new infrastructure for marking village no-take reserve areas. Before joining the program, village leadership are invited to collaborative workshops hosted by Fisheries Division in nearby villages to observe and discuss the function and outcomes of management plans and reserve areas with their neighbors. Village leaders must then request a visit by Fisheries Division to initiate the planning process. After completing a planning workshop, the village creates their management plan with assistance; the plan must then receive approval of the *ali'i sili*, who has customary power to restrict fishing by declaring an area of coastal waters *faasao* (forbidden). Today over one-third of all Samoan villages have ratified management plans through the CBFMP, and a quarter have protected no-take fish reserve areas (Chapter 2).

This process and the workshops are structured to reflect Samoan hierarchies and social norms while seeking “maximum participation” and local ownership. Traditionally coastal

waters, or the *gataifale*, were part of the village territory and much *de facto* control remained with villages in the absence of state enforcement (Davidson, 1967). Requiring villages to initiate management planning implicitly supports traditional Samoan institutions of village authority over resources and local ownership of the management process. Once invited, Fisheries Division facilitates a workshop that divides women, untitled men, and *matai* into discussion groups, where participants identify critical issues, their causes, and potential solutions. Separating the social groups reflects the organization of village politics, and provides an acceptable space for women and young men to participate. The results are collectively received and shared in a public discussion; later, Fisheries Division offers recommendations based on the workshop results, and the *fono* are left to deliberate the creation of a management plan. In all, the process is reflective of traditional Samoan village political organization: women's and untitled men's groups discuss and advise, the *fono* deliberate and craft a plan, and the *ali'i sili* makes the ultimate decision.

Once a plan is formed and approved, a new institution is created to monitor and support its implementation: the Village Fisheries Management Committee (VFMC). The VFMC, comprised of representative women, untitled men and *matai*, should meet regularly to discuss issues and advise the village *fono* on management actions. The inclusive organization of the VFMC reflects the program's goal of management participation that is inclusive of active resource users, particularly women and untitled men. Gendered divisions of labor and space in coastal areas means that they will experience changes in the environment and the costs of restrictions and regulations differently; therefore, including their perspectives supports both equitable outcomes and adaptive capacity.

The MPA program was also designed with comanagement principles, but operated at a multi-village scale. This required creation of a representative district committee, which

produced less direct participation by community members in decision-making. While the MPA program established village no-take reserves and fishing management committees similar to the CBFMP, it lacked facilitation and support at the village level. Since the cessation of the MPA, a few MPA villages have reached out to Fisheries Division to request new support; two former MPA villages joined the CBFMP program in 2017-2018, with more waiting for Fisheries Division to start the process.

### ***C. Methods***

This research used a convergent mixed-methodology (Creswell, 2009) combining qualitative and quantitative data collected from a household survey, interviews, and participant observation from six villages active in the CBFMP and five villages within the inactive MPAs in the southeast of Upolu, as well as one village in the northeast of Upolu that was in the first stage of the CBFMP process. The southeast of Upolu was chosen for focus based on the presence of the two MPAs, and the high reliance on subsistence fishing in the region. In Samoa, each village has a unique history and sociopolitical context, therefore gathering data from multiple villages allowed to distinguish between *aganu'u* (customs and practices common to all villages) and *aga'ifanua* (customs and practices distinctive to particular villages).

Mixed methods provide multiple benefits to an integrated study of the perceptions, processes, and outcomes of comanagement. First, using ethnographically grounded quantitative data can offset the weaknesses of each data type, reduce non-sampling error and bias, and support triangulation (Axinn & Pearce, 2006; Elwood, 2010). Qualitative and quantitative data can also provide complementary perspectives of comanagement, as qualitative data is more suitable for understanding processes, while quantitative data reveals outcomes (Plano Clark, 2016). In alignment with the goals of political ecology and feminist

and critical geography, mixed methods can also be an inclusive approach for different types of knowledge, and expose naturalized power relations and inequality across social groups (England, 2015; Plano Clark, 2016; Rocheleau, 1995; Zimmerer, 2006). These theoretical perspectives also encouraged reflexivity about my positionality in data collection and analysis.

### 1. Data Collection

I collected survey and interview data in eleven villages in three districts in the southeast of the island of Upolu (Figure 2): five were members of the former MPA program with no CBFMP sponsored plans; six had active CBFMP fishing management plans and reserves according to the Fisheries Division, including two former MPA villages that had joined the CBFMP process. Reported fishing activity (over 50% of households engaged in subsistence or small-scale fishing) was a key criterion for village selection. Villages were also selected based on networking and invitations from program staff to attend meetings and village visits. the two MPA districts, and third district in the region with full participation in the CBFMP. The survey questionnaire built on prior household surveys in marine fishery mixed-methods research (Cinner et al., 2013; Quimby, 2015) and included three sections: household fishing practices, involvement and perceptions of environmental management activities and decision-making, and demographic information of household members. The survey instrument used a variety of structured and open-ended questions about participation and authority, and collected standard socioeconomic and demographic information about households to serve as control variables and to allow for comparison across social groups and scales (Table 3). Surveys were written in English and translated into Samoan, and administered in Samoan with assistance from NUS faculty members and Samoan undergraduate research assistants.

In-person household surveys were the preferred method of data collection, but presented several methodological challenges. A sampling frame could not be established in advance, since Samoa has no postal delivery service or other standardized system for identifying and locating households. Since the villages surveyed had an average of just fifty households, I set minimum thresholds for sampling in each village and achieved an inclusion rate of 60% of households. Individual households can be difficult to distinguish, since Samoan extended families often live in multi-structure compounds on communally owned land. I followed the Samoan Bureau of Statistics' definition of a household as a family unit residing on a communal property that have a common cooking *fale* (covered space or room) and regularly share meals (Samoa Bureau of Statistics, 2016) and enumerators consulted with interviewees to determine separate households. Modern Samoan villages are organized around the main paved roads, with many households clustered near the village center, however there can be many outliers. At the start of canvassing, three or four survey teams were distributed at different points in the village, typically starting on the main paved road and following dirt roads to recessed and secluded homes. Our sampling was therefore biased towards households that were visible and accessible from the main road, or indicated by a clear path. Generally, teams attempted to visit every household they could find, with exceptions for health and safety (e.g., homes with guard dogs). I also consulted with village mayors and used satellite maps (Google Maps) to identify village roads and boundaries, and we asked interviewees to indicate the direction to their nearest neighbors. Surveys were conducted on weekdays and during daylight hours for safety and in compliance with protocols proscribed by the National University of Samoa for undergraduate field research. This timing also contributed to the limitations of the study, with the likely exclusion of some households, particularly those who stay in Apia during the week to work. Over a four-month

field study, villages were visited 3-4 times each to complete the surveys and subsequent interviews, with a total of 444 household surveys completed.

In addition, I completed semi-structured interviews with community members (12 from MPA villages and 13 from CBFMP villages), and 10 interviews with past and present project staff. Formal and informal interviews were conducted with past and current staff from Fisheries Division and MNRE, and semi-structured interviews with village members including the mayor, matai, women's committee leaders, and men and women who fish (see Table 3). Purposeful selecting was used to ensure inclusive data collection from representatives of different social groups, positions of authority, and active fishers. Village interviewees were selected from survey respondents who indicated fishing or management participation and volunteered for follow-up interviews, or based their position of authority in the community (mayor, women's committee leader, etc.). Some were also chosen based on suggestions by community members and other interviewees when asked who was knowledgeable about resource management (snowball method). Formal interviews were recorded and transcribed in the language they occurred (English or Samoan) and translated into English for analysis; for informal interviews, such as discussions with program staff as we traveled to village meetings, I took detailed fieldnotes. For a holistic view of these issues and to witness participation and authority in practice, I also employed participant observation in village activities sponsored by the Fisheries Division and with staff from MNRE, including a planning meeting for a new project and two monitoring visits in villages with active CBFMP programs. Throughout the study, I took observational fieldnotes as a means of reflexivity and for another point of comparison in data analysis.

This project was reviewed and approved by the San Diego State University Institutional Review Board (Protocol Number HS-2017-0308) and by the University Research and Ethics

Committee of the National University of Samoa (NUS) in March 2018, and I was subsequently granted a research visa from the Samoan immigration office. In compliance with Samoan protocols, I requested and received assistance from the Centre for Samoan Studies and Faculty of Science at NUS, the Ministry of Natural Resources and the Environment (MNRE) and the Ministry of Agriculture and Fisheries (MAF), and the Ministry of Women, Children, and Social Development (MWCSO). Letters of support from MWCSO were delivered to the *pulenu'u* of each village prior to data collection, and we communicated with village leaders during each visit.

**Table 3:** Convergent Mixed-Methods: Select Survey and Interview Questions and Participant Observation

	<b>Participation: management activities</b>	<b>Participation: decision-making institutions</b>	<b>Power and Authority: overt and covert</b>
<b>Select Survey Questions</b>	2.1 Do you work or volunteer with any programs that manage, clean, or monitor coastal areas, including the reefs, beach, or mangroves? (Y/N)  If so, Which? (open response)	2.5 Have you ever attended a planning meeting or public discussion about managing the village's coast and fishing resources? (Y/N)  If yes, how often (check all that apply)	2.3 How do you learn about rules or problems with the coastal environment and fishing? (Choose from: mayor, fono/chief, posted signs, friends/neighbors, attending meetings, other fishers, other )  2.4 If you had a question or concern about fishing and the coast, who would you talk to? (for example, illegal activity, pollution, or poor fishing) (open response)  2.6 Who makes decisions about fishing and coastal management near the village? (check all that apply)
<b>Interview Questions (community members)</b>	What kinds of activities are there to maintain the coastal areas and fishing grounds? Do you participate?	Do you attend meetings about the fish reserve/fishing? How do you contribute to the meetings?	Who organizes activities (to maintain coastal areas/fishing grounds)?



	<p>Does everyone participate in maintaining the coastal areas/fishing grounds, or just some village members? Who?</p> <p>Who is responsible for cleaning the reserve or monitoring it?</p>	<p>How often does the village discuss issues related to fishing and managing the coastal areas? Where do the discussions usually take place?</p>	<p>Who should play a role in improving things? (government, mayor, chiefs, etc.)?</p> <p>Were you here when the fish reserve/MPA was created? Do you remember how it was established? Could you describe the process for establishment?</p>
<b>Participant Observation</b>	Village visits/observation; CBFMP transect evaluation of village reserve area	CBFMP new village management planning workshop and 6-month review meeting with village fishing management committee	CBFMP new village management planning workshop and 6-month review meeting with village fishing management committee

## 2. Data Analysis

My data analysis was embedded in critical and feminist ontologies that recognize knowledge as situated and inherently partial, rather than as discrete and discoverable data (St. Pierre & Jackson, 2014). Informed by political ecologist and feminist perspectives, I also considered how my data reflected the relationships of gender, social class, and power, and how inclusive my analysis was of different kinds of knowledge (Rocheleau, 1995). Mixed methods provided complimentary approaches to analyze both the processes and outcomes of comanagement (Plano Clark, 2016). Through the use of mixed-methods, I sought to not just validate my findings, but recontextualize data as an assemblage of situated experiences and observations (Nightingale, 2003; Plano Clark, 2016). For example, I considered not only what answers were given directly, but how interviewees avoided questions, and who they suggested I speak to as a source of authority.

Qualitative data coding began with pre-determined categories related to power, participation, and equity based on the research questions, and expanded to included inductively identified themes. Data from interviews and open-ended survey questions was

hand-coded in Excel, and NVivo 12 was used to create nested themes and sub-themes related to participation, decision-making, governance and other issues (Table 4). (Bernard, 2006; Creswell, 2009; Patton, 2002). The data was then analyzed to identify discrepancies and contradictions in the responses to further refine the coding themes, and understand the relationships and patterns in data across social groups and between villages.

**Table 4** Coding Matrix for Qualitative Data

<b>Themes</b>	<b>Sub-Themes</b>
ECONOMIC FACTORS	Fishing Income Migration Work overseas (seasonal/temporary)
ENVIRONMENTAL CHANGE AND HAZARDS	Climate change Fish: perceived changes in abundance, size, health Reefs: health Tsunami
EXTERNAL SUPPORT	GEF Climate Change Grant International Funding Need for funding State Support
FISHING PRACTICES, ENVIRONMENTAL ENGAGEMENT AND KNOWLEDGE	Gear <ul style="list-style-type: none"> <li>• Spear fishing</li> <li>• Boat (<i>va'a</i>)</li> <li>• Gleaning</li> </ul> Illegal Fishing Increase/Decrease in fishing Target Species Women's fishing knowledge Teaching children to fish/next generation
MAINTAINING THE FAASAO (PROTECTED AREA)	Boundaries History & past management Mangrove replanting Invasives removal ( <i>alamea</i> ) Enforcement and Monitoring Responsibilities <ul style="list-style-type: none"> <li>• Warning- Village horn (conch shell)</li> </ul> Aquaculture <ul style="list-style-type: none"> <li>• Giant Clams</li> <li>• Tilapia</li> </ul> Fish No-Take Reserve <ul style="list-style-type: none"> <li>• Outsiders fishing in village reserve</li> <li>• Stealing from no-take area</li> </ul> Conservation
PARTICIPATION	Description of participation <ul style="list-style-type: none"> <li>• Frequency</li> <li>• Setting/context</li> </ul>

	<ul style="list-style-type: none"> <li>• Process</li> </ul> Interest/Motivation (Agency) Management Participation <ul style="list-style-type: none"> <li>• Activity/task</li> <li>• Decision-making</li> </ul> Village Fisheries Management Committee (VFMC) Workshops Meetings and Deliberation
BENEFITS, COSTS AND EQUITY	Elite Capture Who benefits from management Benefits/value of community involvement Costs of community involvement
POWER & AUTHORITY	Who makes the Rules Who to go to with Question/Concern How they learn about the rules Deflects question to authority Village/Traditional Authority Government Ministries and Agencies <ul style="list-style-type: none"> <li>• Engagement with government</li> <li>• Government responsibilities</li> </ul> Sources of authority and power <ul style="list-style-type: none"> <li>• High Chief (<i>Ali'i Sili</i>)</li> <li>• Council (<i>Fono</i>)</li> <li>• Family Elders</li> <li>• Mayor (<i>Pulenu'u</i>)</li> <li>• Women's mayor/committee president</li> <li>• MNRE</li> <li>• MAF</li> <li>• MWCCD</li> <li>• Police</li> </ul>
SOCIAL HIERARCHY AND IDENTITY	Church District Identity Fa'a Samoa <ul style="list-style-type: none"> <li>• Obligations (<i>Matai directing Aumaga</i>)</li> <li>• In daily life</li> <li>• Values</li> </ul> Social Hierarchy <ul style="list-style-type: none"> <li>• Young/Untitled Men (<i>Aumaga/Taulelea</i>)</li> <li>• Titled Individuals (<i>Matai</i>)</li> <li>• Women</li> </ul> Mythology

Quantitative survey data was managed in Excel for descriptive and comparative analysis. For this chapter, CBFMP and MPA households were compared using t-tests and chi-squared tests in Excel to determine significance in differences or similarities for each variable of interest. Data was also considered at the intra-village level and compared across social groups. These findings were then considered in relation to the qualitative data to identify divergence and agreement, and interpreted in a united context.

#### ***D. Results and Discussion***

This section presents three key findings that demonstrate Samoan local and traditional institutions are strong and guiding current marine resource management. First, power over coastal management resides with local leadership rather than the government, regardless of program affiliation, though traditional institutions were more supported in the CBFMP. Second, participation was higher in CBFMP villages, which correlated with a greater sense of benefits and increased awareness compared to former MPA villages. Third, individuals' motivation and ability to participate are closely associated with the duties and obligations of traditional Samoan institutions, both encouraging men's involvement and limiting active participation by women. The CBFMP process facilitates greater participation in some steps, but also reinforces social hierarchies around decision-making.

The MPA and CBFMP villages were demographically similar: the average household size was eight people, and most households were headed by a *matai*. They also shared similar rates of fishing as a source of household income, although more CBFMP households fished overall, indicating greater reliance on subsistence fishing. The primary differences between the programs were the ways in which social groups participated in management activities, and how they were represented in decision-making processes.

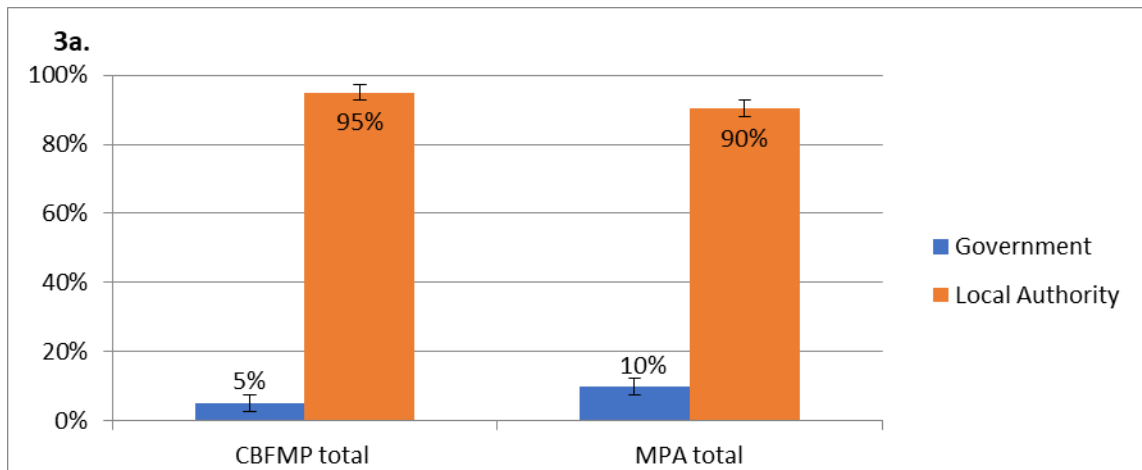
##### 1. Who is responsible for managing coastal areas and no-take reserves?

The CBFMP explicitly sought to encourage local control of resource management through traditional Samoan institutions. In Samoa, the village *fono* and high chief traditionally have the power to make decisions and enforce rules for inshore marine environments. Colonial policies historically undercut this power, and today legal pluralism can create uncertainty about jurisdiction, with potential for national laws and police to

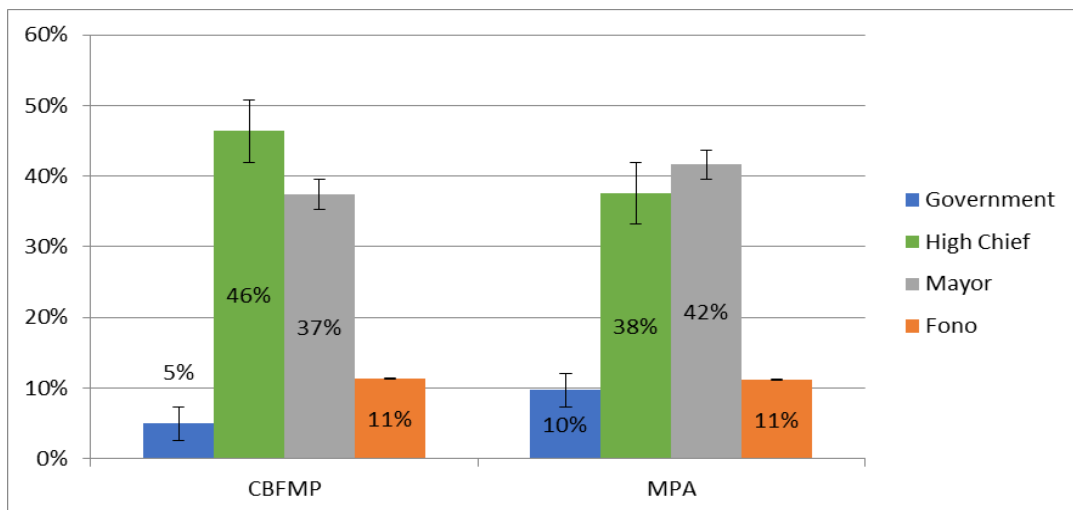
conflict with or supersede that authority (Chapter 2). However, when asked in surveys and interviews, participants from both the CBFMP and former MPA villages overwhelmingly chose local leaders over the national government as the source of official authority and decision-making (Figure 4a); in particular, the high chief and mayor were mentioned the most (Figure 4b). Monitoring of the reserve and enforcement were also expressly described as the purview of the village, specifically the *matai* and *aumaga*.

**Figure 4:** Survey question 2.6 “Who makes decisions about coastal resources?”

a) grouped by government vs. local; b) responses given by category (with multiple responses possible). *Mean value for responses. “I don’t know” and “other” were <1% of responses.*

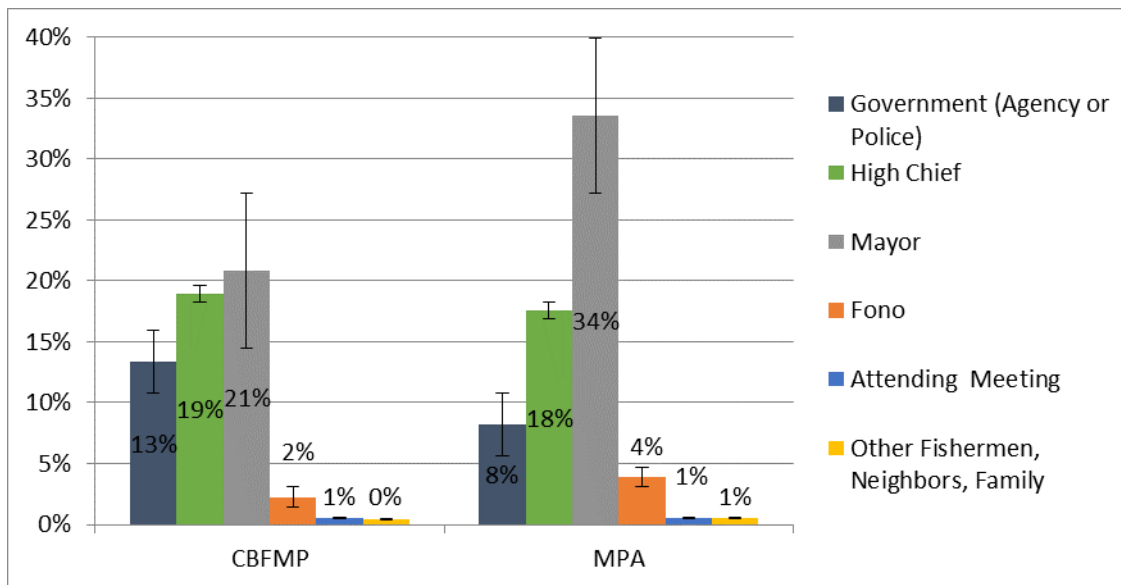


**3b.**

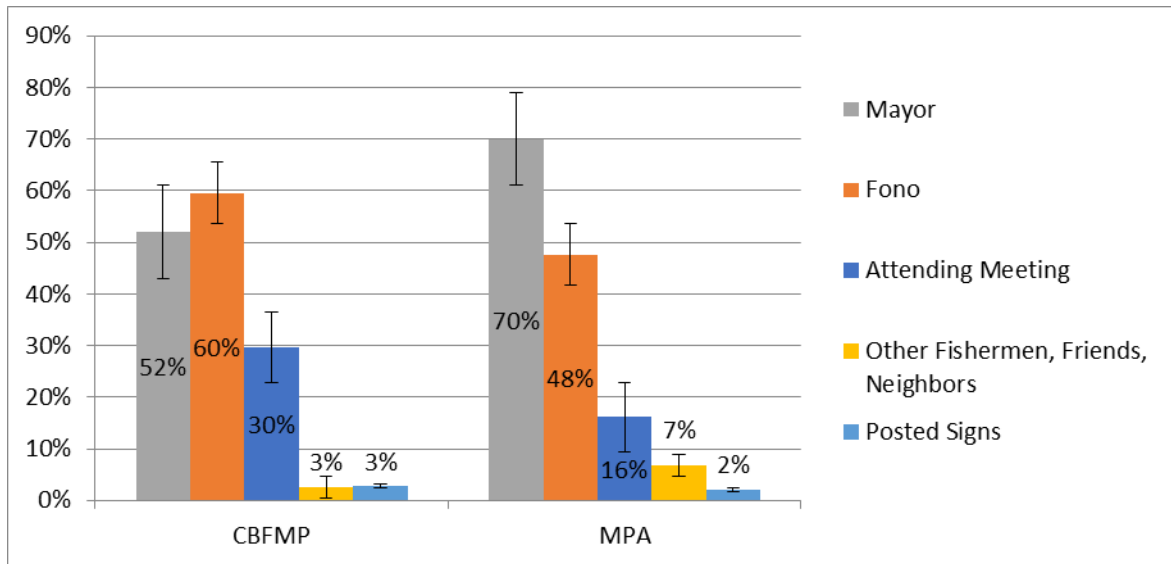


While official responsibility lay predominantly with village leaders, in practice community members may turn to others to deal with issues of illegal fishing, pollution, or bad fishing outcomes and quality. To identify unofficial and covert sources of power in management processes, survey respondents were asked whom they would approach with a question or concern. Again, respondents indicated local authority figures rather than government officials, mentioning the mayor and traditional leaders (*matai* and the *fono*) most frequently (Figure 5). CBFMP villages identified government ministries more than MPA villages, possibly a sign of the more direct involvement of Fisheries Division in communities, and organizing workshops and meetings. CBFMP villages were also more likely to report learning about rules and problems from attending meetings (Figure 6), though again, the mayor and traditional leadership had the most responses. Few if any suggested turning to the police, friends, or other fishermen for help.

**Figure 5:** Open-ended responses grouped by iteratively identified themes for survey question 2.4 "Who do you go to with a question or concern?"



**Figure 6:** Responses to survey question 2.3 “How do you learn about rules or problems with the coastal environment and fishing?” (multiple responses possible).



Interview responses about the responsibilities of the national government also reinforced findings of strong local authority over coastal resources. Interviewees from both groups, especially CBFMP villages, viewed the national government and its agencies as playing a supportive role in maintaining reserve areas.

“People just look after it [the coastal areas] and report any problems to the mayor and *matai*” (Woman, MPA village S1, August 2018)

The reserve “is the mayor’s responsibility, with some help from the government” (Woman, CBFMP village A4, July 2018)

“The government can help with the resources but I think taking care and preserving the marine reserve areas falls on the village people” (Fishermen and VFMC member, CBFMP village A1, August 2018).

“I know the village can rebuild the reserve on its own, but if the government is willing to help then that would be great as well” (Woman, MPA village A2, July 2018)

Although national law prohibits the use of dynamite, bleach, and the poison *ava niukini* (Derris root), these were identified as village rules. This may be considered a positive sign of mutual support between traditional and government comanagement partners (Rohe et al., 2018), but given that it occurs in both groups, it is more likely a demonstration the primacy of local authority in Samoan governance. A few interviewees mentioned turning offenders over to the police or informing government ministries, but only in the case of extreme or repeated violations. In one village, when a *matai* ordered his family to cut down mangroves in an MPA zone some years ago, the village *fono* levied penalties against the family, but also reported them to MNRE, resulting in government fines. Two separate interviewees presented this as a rare and extreme example of enforcement.

There were greater divisions in expressions of intra-village power over resource management between the CBFMP and MPA villages, particularly the informal power of the mayor. The mayor does not have official power regarding coastal resources beyond his *matai* status, but as a liaison with state agencies, he is expected to be knowledgeable about regulations. Seventy percent of respondents from MPAs indicated he was a key source of information about rules and issues, a much larger percentage than CBFMP villages (Figure 6). Although traditional leaders were identified more frequently by CBFMP respondents, interviewees in both groups also indicated the mayor's leadership in organizing public discussions and choosing participants for the village committees charged with overseeing the no-take reserves referring to it as the "mayor's committee".

"... just the mayor and the village make decisions about safeguarding the reserve... the mayor usually explains to us during *fono*. and then let the *aumaga* come in to hear the mayor's lectures about fishing and explain to us about certain rules that must be taken into consideration when going fishing." (Man, CBFMP village F4, July 2018)



“There are men chosen by the mayor on this committee... taking care of the reserve. The mayor chose them to look after the reserve and the coastal areas... Things like that we leave it to the mayor because he is the one who makes the decisions for this village and there is no voice above him. So he decides what’s best for the village... (*Woman, MPA village S2, August 2018*)

The intention was to focus on power within the village, but some interpreted this question to mean cases where they saw a problem in another village’s area, in which case, several people said they would talk to that community’s village leaders. This further reinforces the conclusion that village members perceive power and responsibility to reside primarily with local community leadership rather than the national government.

## 2. How do community members participate in coastal management?

Broad participation was a key principle of the CBFMP design, and it does appear to bring most households, especially those that fish, into management processes. Overall, a majority (57%) of all respondents to the survey indicated they participate in management activities, such as coastal clean-ups, monitoring, and cleaning invasive species from the reefs, but CBFMP villages reported a significantly higher rate of participation compared to MPA areas (Table 5). Participation in management activities and meetings was somewhat higher among fishing households than the average for each program, and significantly higher ( $>.01$ ) among CBFMP communities (Table 6). Nearly half of all MPA households (48%) and a majority of CBFMP households (61%) participate in small-scale fishing, primarily spear fishing by young men and gleaning in the reefs and lagoons by women.

**Table 5:** Participation in coastal marine management activities higher in CBFMP villages than MPA villages.

*Response to survey question “Do you work or volunteer with any programs that manage, clean, or monitor coastal areas, including the reefs, beach, or mangroves?” 2-tailed t-test assuming unequal variances.*

<b>Program</b>	<b>Village</b>	<b>Total Village Households surveyed</b>	<b>Total responses “yes” for management participation</b>	<b>Percent of surveyed households indicating management participation</b>
<b>Active CBFMP villages</b>	F2	35	28	80%
	A4	26	20	77%
	F4	45	32	71%
	A1	20	12	60%
	F3	40	22	55%
	F1	24	13	54%
<b>CBFMP total</b>		<b>190</b>	<b>127</b>	<b>67%*</b>
<b>Former MPA villages</b>	S2	40	26	65%
	A2	61	31	51%
	S3	32	16	50%
	S1	57	26	46%
	A3	64	25	39%
<b>MPA total</b>		<b>252</b>	<b>124</b>	<b>49%</b>
<b>Grand Total</b>		<b>444</b>	<b>251</b>	<b>57%</b>

\*comparison of CBFMP and MPA totals:  $p$  value = .03; standard deviation for CBFMP villages: .11; st. dev. For MPA villages: .9

**Table 6:** Responses of participation in management actions and meetings by Matai and Fishing Households

program	% all households active in management	% all households that attend meetings	% all households with matai	% matai households active in management	% matai households that attend meetings	% all households who report fishing	% fishing households active in management	% fishing households that attend meetings
<b>CBFMP</b>	67%	63%	74%	72%	69%	61%	72%	54%
<b>MPA</b>	49%	50%	69%	55%	51%	48%	54%	54%

While engagement in management activities is one indicator of participation, attending meetings is more often tied to the goal of transparency in decision-making processes. Contrasting the two programs, the CBFMP villages reported a slightly significant ( $p=.05$ ) higher level of meeting participation, 63% to 50% (Table 7). This might indicate greater involvement in management; however, when asked to name any committees or civil society groups in which they participated, less than 1% indicated membership on the village fisheries management committee. The CBFMP villages also had lower frequency of meeting attendance, whereas MPA villages overwhelmingly indicated monthly attendance (Figure 7). This suggests that MPA villages are using the monthly *fono* meetings to address issues, while CBFMP villages rely on less frequent gatherings organized outside the traditional village meeting.

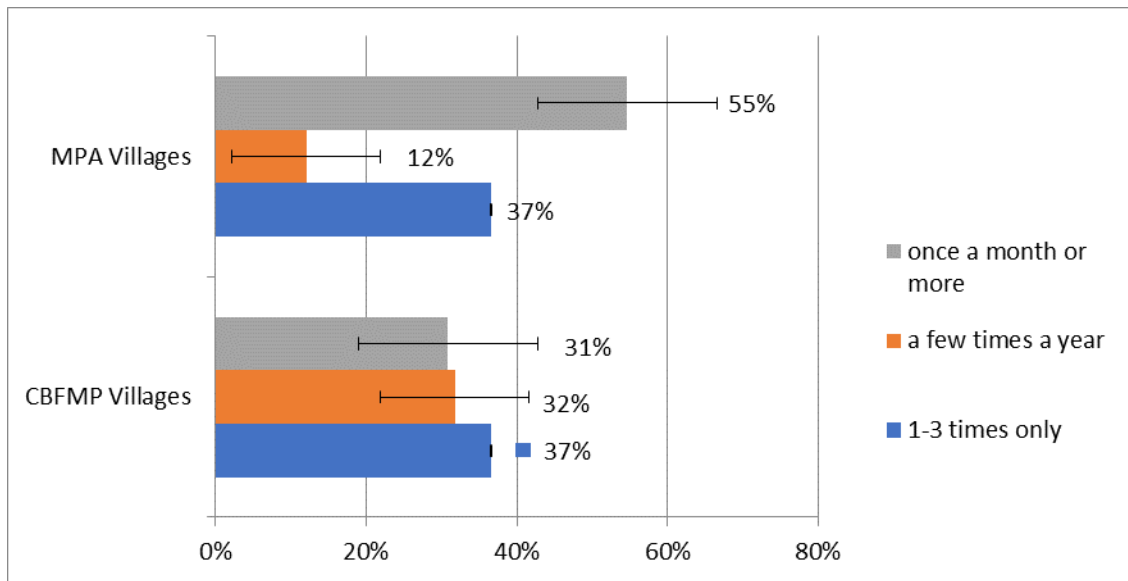
**Table 7:** Higher meeting attendance in CBFMP than MPA villages.

*Responses to the survey question “Have you ever attended a planning meeting or public discussion about managing the village’s coast and fishing resources? (Y/N)”*

<b>Program</b>	<b>Village</b>	<b>Total Village Households surveyed</b>	<b>Total responses “yes” for has attended meetings</b>	<b>Percent of surveyed households indicating attended meetings</b>
<b>Active</b>	F2	35	21	60%
<b>CBFMP</b>	A4	26	21	81%
<b>villages</b>	F4	45	22	49%
	A1	20	16	80%
	F3	40	23	58%
	F1	24	13	54%
<b>CBFMP total</b>		<b>190</b>	<b>116</b>	<b>63%*</b>
<b>Former</b>	S2	40	19	48%
<b>MPA villages</b>	A2	61	31	51%
	S3	32	15	47%
	S1	57	23	40%
	A3	64	37	58%
<b>MPA total</b>		<b>252</b>	<b>125</b>	<b>50%</b>
<b>Grand Total</b>		<b>444</b>	<b>241</b>	<b>54%</b>

*\*p value .05*

**Figure 7:** Frequency of meeting attendance by program affiliation



Transparency about program goals and decision-making, achieved through meeting attendance, is also considered critical for increasing perceptions of management benefits and creating more equitable outcomes (MacNeil & Cinner, 2013; Zafra-Calvo et al., 2017). Both groups expressed a belief that the no-take fishing reserves were beneficial for the village community, and a strong majority felt their household benefits from coastal management, at slightly higher rates in CBFMP communities (Table 8). In MPA villages, interviewees raised the hope of restoring village no-take protected areas to reclaim these perceived benefits. Still, a strong majority from both groups concluded that the benefits were not equally distributed, with no significance in the difference between the groups ( $p=.15$ ). Respondents shared multiple reasons that others benefited more, primarily indicating advantages for families with more fishing skill and equipment.

**Table 8:** Perceptions of benefits from coastal management- survey responses


	a. Do you think you benefit from the way village resources are managed today?		b. Do some people in your village benefit more than others from the way resources are managed?	
	Yes	No, I Don't Know	Yes	No, I Don't Know
<b>CBFMP</b>	76%	24%	72%	28%
<b>MPA</b>	70%	30%	78%	22%

*Chi square: a) .19; b) .15, no significance*


Increased awareness of environmental challenges and rules are also expected outcomes of community participation and there was evidence of this from CBFMP villages. The specific issues mentioned in responses by the CBFMP villages, such as rubbish and invasive *alamea* (Crown of Thorns starfish, *Acanthaster planci*), demonstrates greater awareness of environmental management issues (Table 9).

**Table 9:** Survey responses to open-ended question 2.1 “which” programs do you participate in, grouped by themes.

**a. Participation in Management Activities**

<p>More frequent</p>  <p>Less frequent</p>	Active CBFMP	Former MPA	
		Clean/protect/manage coast	Clean/protect/manage coast
		Clean/protect/conservate coral reefs, collect alamea	Replant/protect/conservate mangroves
		Clean beach/rubbish	Conservate/protect MPA or reserve
		Conservate fish/clams	Clean/protect/conservate coral reefs, collect alamea
		Conservate/protect reserve	Conservate fish/clams Clean beach/rubbish
		Monitor/protect from outsiders	

**b. Participation in a Group or Organization**

<p><b>More frequent</b></p>  <p><b>Less frequent</b></p>	<b>Active CBFMP</b>	<b>Former MPA</b>
	<i>Aumaga</i>	<i>Aumaga</i>
	Village council, chief	Government/MAF
	Village committee for protection of coast/marine; Government/MAF	Village council, chief
	Women's committee	Village committee for protection of coast/marine; women's committee
	Church group, youth society	Church group, youth society
	Mayor's committee	Mayor's committee

**c. Comparison of theme appearance by program**

<b>program</b>	<b>responses indicating a specific management activity</b>	<b>responses indicating an organization</b>
<i>CBFMP</i>	90 59%*	62 41%
<i>MPA</i>	59 42%	82 58%

\*Chi-square significance <.01

**3. Integrated Traditional Institutions: effects on local participation and decision-making**

The CBFMP was designed with specific attention to creating culturally appropriate methods for including women and young men in the management process. Yet there are different types of participation (Quimby & Levine, 2018), and in the context of traditional institutions, it is valuable to see how Samoan social groups are engaged in practice, and how much of their participation is driven by comanagement programs or cultural norms and social roles. Results show that traditional Samoan institutions guide power relations around resource management in all villages, though the influence is more prevalent in CBFMP

communities. Deliberative processes for management decisions and participation in management actions are largely governed by the traditional Samoan social hierarchies and principles of power (*pule*) and service (*tautua*). While the design of the CBFMP workshops, dividing social groups and creating different spaces for discussion, encourages “maximum participation”, young men and women provide advisory contributions that mirror traditional hierarchies and reinforce existing power asymmetries, and they are less likely to remain active in decision-making.

At the same time, Samoan *aumaga* (young untitled men’s group) have traditional obligations to perform tasks and provide fish for their *matai*, leading to high participation in management activities and monitoring. The continued importance of this role was apparent from answers to an open-ended survey question, in which two themes about participation activities emerged: descriptions of specific activities, and identification of organizations that carried out activities (Table 9). Both communities identified the *aumaga* as an institution that was highly involved in coastal management activities. Interviewees in CBFMP villages reconfirmed the continuing responsibility of the *aumaga* to manage the reserve and village coastal areas:

“The *aumaga*, they mainly look after the reserve... the *aumaga* all go take good care of it because that’s their duty.” (*Mayor, CBFMP village A4, July 2018*)

Village *matai* are also guided by traditional responsibilities to participate in community decision-making; therefore, it is not surprising that social status had a positive relationship with participation. Households that identified as headed by a *matai* in both programs, a majority of all survey responses, reported significantly higher participation ( $>.01$ ) in management activities and meetings than the program average (Table 6).

Contrasting with these traditional motivations of participation, CBFMP communities appear to think somewhat differently than MPA communities about their service. The MPA



villages were more likely to name an organization or group responsible for the management (58%), while CBFMP village respondents were more likely to suggest specific management activities (59%), and were the only ones to mention monitoring or protecting fishing areas from outsiders. This suggests that CBFMP institutions are encouraging a perception of management as separate from traditional obligations aligned more with concern for conservation and protection.

While traditional institutions and social norms place obligations on titled and untitled men to engage in management activities or decision-making, it simultaneously creates restrictions on the spaces and roles for women. Exclusion from direct decision making can have a negative effect on planning outcomes for women in particular, as realized in the early stages of the CBFMP when staff had to push back against village leaders' proposals for large spatial restrictions in areas used predominately by women (IDSS, 1997). Outside the inclusive planning workshops facilitated by Fisheries Division, women are largely absent from involvement in formal decision-making or management tasks.

A planning workshop conducted by the Fisheries Division at the first stage of developing a village management plan in village V1 (*July 2018, Figure 2*) demonstrated how actors negotiate efforts at inclusion and the limitations of Samoan social norms. Community members gathered in the village *fale tele* (meeting hall): Fisheries Division staff and the village chiefs sat at tables while women and young men sat on the ground or stood in an adjoining space. Following an abbreviated 'ava ceremony and traditional welcome by the village leadership, the head of the Inshore Fisheries Department gave an explanatory slideshow presentation on the purpose and process of the workshop. The attendees were then divided into groups of *matai*, women, and young men in separate spaces for discussions led by Fisheries Division staff to identify problems, their causes, and potential solutions. These

discussions lasted over an hour, filling up white boards. The Fisheries Division staff then presented summaries to the high chief and *fono* before the meeting closed with a promise that the village leadership would use the recommendations to develop a village management plan.

Women were active speakers in their workshop group, but only one spoke during the full meeting to ask a question; the *tulafale* (orator chief), mayor, and head of the Inshore Fisheries Department were the main speakers and she was the only non-*matai* to speak. Afterwards, the Fisheries Division staff commented on her bravery at speaking in that moment; they considered it to be unusual, even though questions had been invited (*informal interview, July 2018*). MNRE staff also identified the village high chiefs as the primary attendees at government-sponsored workshops about marine resources; even though women and young men were also invited, they rarely attended. However, women who did attend meetings “in town” (Apia) would tend to speak more freely (*Informal interview, former Marine Conservation Officer, MNRE*). This shows that gendered divisions of space and dialog can facilitate culturally-appropriate participation that would not occur otherwise due to social norms. Still, this participation remains advisory, and does not provide women or young men with direct decision-making power.

The Village Fishing Management Committee (VFMC) is intended to continue the involvement and influence of women and young men in decision-making about coastal resources once a village program is established. Village leaders organize the VFMC, which is responsible for monitoring the village reserve area and reporting issues or concerns to the village *fono* and the Fisheries Division. The VFMC should be comprised of representative women, *aumaga*, and *matai*; inclusivity is expected to support more just procedural and distributive outcomes for community members, especially resource users. However, in many

communities the VFMC was described by interviewees as comprised of a handful of *matai*, or inactive. Discussions and responsibility for managing the reserve were therefore taken up in the monthly *fono*, as was the common practice among MPA villages.

“... there’s five people [on the VFMC]. The mayor and four *matai*” (*Fisherman and VFMC member, CBFMP village A1, August 2018*)

“At the moment? There is no committee for that, everyone in the village is responsible for looking after the reserve.” (*Woman, MPA village S1, August 2018*)

“Every beginning of the month we have our usual village meetings and do talk a lot about protecting our village shores (*Woman, CBFMP village F1, August 2018*)

During an observed “6-month review” conducted by the Fisheries Division in one long-standing CBFMP village (*F1*), all meeting attendees were *matai*, and included the high chief. A group of men (presumably *aumaga*) sat on the outer steps of the *fale tele* to listen but did not participate in discussions. No women attended; the Fisheries Division staff confirmed there were women on the VFMC committee, but explained that none were able to attend the meeting.

While women are expressly targeted for participation in meetings by the CBFMP, there is no mandate for their inclusion in management activities, and it is clear from women who used coastal spaces to glean and fish that they were not active, nor were they asked to participate, in management exercises. Further, they did not feel they had a responsibility or role in management actions such as monitoring, removing invasive Crown of Thorns, and other practices, which expressly fell to the men (*matai* and *aumaga*), apart from occasional village-wide events.

[Do you participate in the women’s committee program in keeping your village reserve clean?] “The men (*taulelea ma aumaga*) are responsible for that particular job” (*Woman, CBFMP village F1, August 2018*)

“I hardly go and don’t go to village activities but it is important to me to keep the reserve clean and maintain its goodness for the benefit of all.” (*Woman, Village A4, July 2018*)

In interviews, women shared ambivalence about their participation in formal meetings.

A woman who was identified as a VFMC member but was not present at an observed meeting said the following about her participation since she joined the committee two years ago:

“For now I have no contribution in the committee. All I do is go out fishing every day... we seldom have any meetings nowadays... it has been a long time now since we had our last committee... We seldom have meetings regarding the marine reserve area but just the usual village meetings, but I am not quite sure in case the men have talked about it in the meetings but we (women) are not aware.” (*Woman, CBFMP village F1, August 2018*)

The lack of active participation by *aumaga* in decision-making and women in all management activities suggests that there are both structural barriers and reduced incentives for their ongoing engagement. Depending on the community, women’s participation in public meetings may be prohibited by traditional mores; more generally, Samoan women have a traditional role as private and informal advisors which often discourages their choice to join public political debate or leadership roles (M. Meleisea & Schoeffel, 2015). Also, public meetings and decision making are culturally the obligations of *matai*; even where women and young men may be allowed or encouraged to participate, they do not receive the same social support or benefits, and must at times compromise other social obligations or income-generating activities in order to do so.

“There were programs and seminars like that held every month in the *pulenuu*’s house. These seminars are about managing and maintaining the Reserve. I think there are more programs but I can’t remember because I don’t participate in any because I have a lot of work to do.” (*Aumaga fishermen, MPA village A3, August 2018*)

## ***E. Conclusions***

Overall, the Samoan CBFMP has achieved its goals of local control and broad participation. The high recognition of protected areas and rates of overall participation suggest that the program has achieved legitimacy and broadened community access to, and awareness of, coastal resource management. While communities in both programs expressed strong belief in local responsibility and authority over managing their coastal resources, villages in the CBFMP had greater awareness of restrictions and viewed program activities as somewhat external of traditional obligations. CBFMP communities also learn about rules from meetings more than MPA residents do, and members of all social classes actively contribute to the planning workshops facilitated by the Fisheries Division that form the village management plan. Over time, however, that formal participation is largely lost, with public deliberation and decision-making falling almost exclusively to *matai*.

The potential discord between comanagement and traditional institutions is mediated in practice by privileging traditional *fa'a Samoa* systems over government-led institutions. Government laws and comanagement approaches are reinterpreted into local and culturally-acceptable forms, reproducing rather than challenging social hierarchies and gender roles. There was little concern expressed for exclusion from decision-making, suggesting that traditional institutions are both strong and possibly providing informal processes for deliberation and participation in consensus-building that create the requisite buy-in for natural resource governance. While communities expressed perceptions of distributive injustice, few pointed to social hierarchies for disparities in benefits; at the same time, most households believed the community at large is benefiting from current management, with little difference between the CBFMP and MPA groups. It might be argued that the program

is less hybrid comanagement than self-management, with the high influence of local institutions, but interest in joining the program remains high with villages continuing to request the involvement of Fisheries Division, signaling that communities perceive value in creating comanagement partnerships.

This case study demonstrates how traditional institutions for marine management can be supported through comanagement to support local involvement and control, yet also how the social embeddedness of processes for decision-making and consensus building present challenges for active and persistent participation of community members. This finding suggests that while hybrid comanagement is achievable in the Pacific, creating inclusive and transparent decision-making processes that endure requires long-term external support and ongoing negotiation of cross-scale and intravillage power relationships.

## **V. Conclusion**

This dissertation research contributes a unique case study to the literature that highlights the importance of understanding relationships and practices of power and participation in fisheries comanagement. The first chapter presents a critical examination of participation, power and equity, and considers their interrelatedness in supporting just and sustainable natural resource management outcomes. The second chapter illustrates the influence of historic colonial processes, and post-colonial hybridization of institutions, on comanagement forms and outcomes. It contributes to theories of common-pool resource governance by elucidating the importance of social-historical context and political scale in comanagement institutional arrangements, and in turn, adaptive capacity. The final chapter offers a comparative study of the processes and outcomes of participation and power in Samoan comanagement, and community perceptions of its practice. Together, these chapters present a unique case study of coastal fisheries comanagement that can support better natural resource governance in Samoa while also demonstrating strategies for the critical consideration of power, participation, and equity in other comanagement context.

At the time of this research, there was limited data on the environmental status of either the CBFMP or MPA programs, which would have allowed for an examination of the relationship between social and environmental outcomes of comanagement. I also did not directly participate in resource use activities, such as fishing and gleaning, which would have provided useful insights into the social meaning and relationships formed in practice. Conducting a comparative study meant that I did not spend extended time in one village, which reduced opportunities for ethnographic observations of village life or participation in daily activities. Future research would benefit from a longer-term study at the village level

for greater insights into local-scale power relationships and the negotiation of traditional and comanagement institutions by different social groups. Material measures of household equity would also enable a comparison of wealth with respondents' perceptions, in order to triangulate equitable social outcomes.

This study contributes to theoretically-grounded approaches to understanding power in natural resource management contexts. This research expands the traditional focus of political ecology on power relationships between the state and community by integrating critical institutionalist concerns about intra-village dynamics (Béné et al., 2009; Cleaver, 2002), and demonstrates that a multi-scale and historically embedded approach to power relations can be used to interrogate and explain differences in environmental governance forms and outcomes. Building on discourse in feminist and critical geographies that call for the integration of quantitative data into qualitative studies (Cretney, 2014; England, 2015; Rocheleau, 1995), this research also demonstrates the applicability and strengths of mixed-methods research in addressing power relations in both the processes and outcomes of environmental management. It also advances critical conceptualizations of data as situated and interconnected by recontextualizing coded data in social and historical meaning.

The findings of this dissertation suggest many areas for future research. Several interviewees discussed the relationships between fishing practices and economic changes that were leading to shifts in migration, economic inequality, and knowledge-sharing. For example, some community members suggested that fishing pressure was decreasing as young men find seasonal employment in Australia. Others felt the growing need for cash income for goods and school fees was increasing fishing pressure. Tourism is also increasing the commodification of coastal resources, shifting relationships with the marine environment and particular species. Interviewees noted the importance of healthy coral reefs



and giant clams for attracting visitors; at the same time, some women are targeting lobsters and other species preferred by tourists. These economic pressures and changes to Samoans' relationships with the environment may be creating vulnerabilities in the traditional institutions that are so critical to fisheries governance. Women in particular noted that it was becoming less common for girls to participate in fishing, suggesting that the situated practice and social meaning traditionally created in Samoan lagoons is decreasing. More research into the constellation of relations that are creating and changing coastal Samoan spaces/places could help to identify emerging threats to sustainable resource governance. New "wet ontologies" of marine spaces (Steinberg & Peters, 2015) would also benefit greatly from Samoan and Pacific Islander conceptualizations of aquatic places, and inform better spatial management of marine resources.

After twenty years, coastal resource and fisheries comanagement programs in Samoa offer a valuable perspective on efforts to create more just and sustainable marine management in the Pacific. This research reveals the links between comanagement scales and processes with desired outcomes of broad participation, local control, and social equity. Understanding these links and their origins in colonial histories and political and cultural practices elucidates the roots of inequitable social outcomes and weakened adaptive capacity. The disparate outcomes of the MPA and CBFMP programs demonstrates that comanagement is not a panacea, and programs are highly dependent on the institutional arrangements, histories, and social context in which they are embedded. While there is no single solution to the challenges of marine governance, the adaptability of comanagement institutions and actors also suggests that there are opportunities for creating place-specific, locally-relevant solutions for sustainable marine places.

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