



*Synthesis*, part of a Special Feature on [Collaborative Management, Environmental Caretaking, and Sustainable Livelihoods](#)

## Indigenous stewardship through novel approaches to collaborative management in Hawai'i

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**ABSTRACT.** Indigenous stewardship of lands and waters has been suppressed around the world for centuries by colonization, but it has nonetheless persisted. Specific places that are cared for through such stewardship are known as Indigenous and community conserved areas (ICCAs). Some ICCAs are formally recognized in bureaucratic government systems, whereas others are not. In Hawai'i, communities have been reviving various aspects of Indigenous stewardship, which is Place-based and holistic in nature, extending from the mountains to the sea. However, these attempts to engage in Indigenous stewardship have confronted countless obstacles and hurdles within the American form of centralized governance in the process. Some communities have found novel ways to engage in Indigenous stewardship via formal recognition of ICCAs through collaborative management agreements with various governmental authorities, both state and federal, as well as with large landowners. As scholars and knowledge keepers of Place, we have synthesized our intergenerational knowledge of the communities we have lived and/or worked in within the context of other studies that we have led or otherwise collaborated on spanning the past 30+ years. We focus on exploring how three Hawai'i communities (Hā'ena, Kaua'i; He'eia, O'ahu; and Ka'ūpūlehu, Hawai'i Island) have navigated bureaucracy to get formal recognition of their ICCAs in ways that have garnered governmental support for community-based revival of Indigenous stewardship practices. These three communities have all achieved biocultural resource management successes using a compartmented approach to stitch together various ICCAs as a means to holistically work across contemporary land-ownership boundaries, with one of these communities forming a "collaboratively managed meta-ICCA" to increase synergistic effects. These communities are the first in Hawai'i in the modern era to be engaging in Indigenous stewardship via a patchwork of ICCAs from the mountains to the sea, and, therefore, demonstrate that this is a viable, albeit arduous, avenue for communities to holistically engage in Indigenous stewardship within an American system of governance.

**Key Words:** *co-management; Hawaiian Renaissance; ICCA; Indigenous resource management; meta-ICCA*

### INTRODUCTION

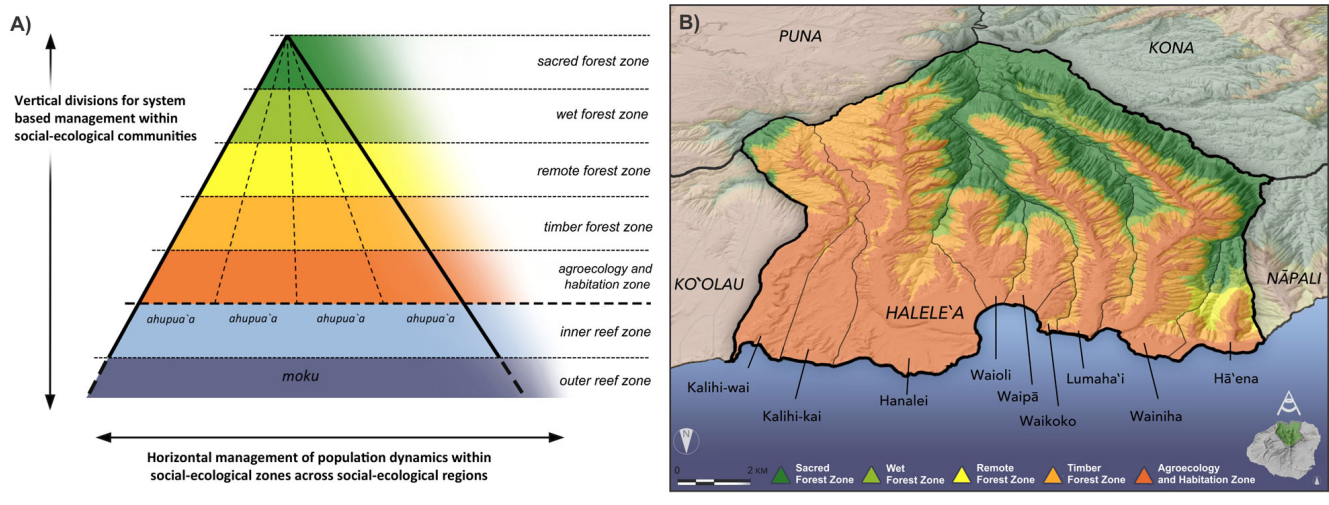
Under Indigenous stewardship and governance, Hawai'i was one of only nine civilizations on Earth that independently developed into a nation state prior to the industrial era (Hommon 2013). This was facilitated, in part, by a form of Indigenous resource management (IRM) that employed highly advanced agroecology and aquaculture systems to support a population of more than one million people (Winter et al. 2018, Kurashima et al. 2019, Winter et al. 2020a). 'Ōiwi (Indigenous Hawaiian) systems of IRM were developed to optimize a broad suite of reciprocal ecosystem services including food production and biodiversity conservation. The mechanisms for governing human behaviors and actions were nested within a belief system, which included a system of *kapu* (sacredness) and *kānāwai* (regulations to access sacredness; Kurashima et al. 2018). These IRM systems followed a decentralized approach where islands were divided into social-ecological regions that extended from the mountains to the nearshore waters (*moku*), each of which contained several bounded communities (*ahupua'a*) for Place-based governance and resource management (Gonschor and Beamer 2014, Winter et al. 2018). Population dynamics and connectivity of resource species (e.g., fishes, birds, and plants) were collaboratively managed at the *moku* scale. Habitat (forests, streams, and reefs) protection and management, as well as resource extraction were governed at the *ahupua'a* scale to achieve and maintain a state of sustainable resource abundance known as *'āina momona* (Fig. 1; Winter et al.

2020a). Examples of this include the designation of *wao akua* (sacred forest) and temporary area closures regulated by *kapu* (Winter et al. 2018). This IRM approach maintained high levels of biodiversity and resource abundance throughout the Hawaiian civilization, even in the midst of a large human population.

Within decades of European contact in the late 18th century, colonization of Hawai'i by Amer-Europeans began with religious, economic, and political tools to garner influence, including systematic dismantling of the belief system that regulated resource extraction, delegitimization of Indigenous knowledge systems, dispossession of Indigenous lands, transformation of the landscape and waterways, shifts from agroecology to monotypic agriculture, as well as regime shifts in governance and resource management from a decentralized to a centralized approach (Kame'eleihiwa 1992, Winter et al. 2018). The result of this was massive habitat losses and spikes in extinctions (Winter et al. 2018). Indigenous-led governance of Hawai'i's independent nation state, the Kingdom of Hawai'i, continued to adapt and evolve in the presence of these colonizing influences (Beamer 2014), but the Kingdom was illegally overthrown by force with the help and support of the United States military in 1893. Though it is recognized that the Hawaiian Kingdom and its citizens never officially relinquished their sovereignty to the United States (Silva 2004), the United States annexed Hawai'i as a territory in 1898, and in 1959 Hawai'i was admitted to the union as its 50th State.

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**Fig. 1.** (a) A schematic diagram of *moku* (region) and *ahupua'a* (communities) documented from the island of Kaua'i with (b) modeling used to depict how this looked on the ground using the *moku* of Halele'a as an example (from Winter et al. 2020a).



The changes in governance over the last two centuries in Hawai'i had impacts on approaches to resource management, which shifted from a decentralized community-based approach to the current state of a centralized bureaucratic approach (Winter et al. 2018). This shift in resource management approaches is correlated with dramatic negative impacts on biodiversity and resource abundance that Hawai'i is known for. Being the most remote archipelago in the world, Hawai'i is a biodiversity hotspot with more than 90% endemism in terrestrial plants and reef fish (Wagner et al. 2020, Kane et al. 2014). Habitat loss, invasive species, and over-extraction has resulted in Hawai'i having one of the highest percentages of endangered species and extinction rates in the world (Sakai et al. 2002, Department of Interior 2016); however, the vast majority of these calamities has been since the colonial period and are not, therefore, a result of failures of the IRM system.

In recent decades, some community-based efforts have endeavored to engage in conservation through the revival of Indigenous stewardship, which has been described as "biocultural restoration" (Chang et al. 2019). The example that Hawai'i sets, which aims to protect habitats and biodiversity in the midst of large human populations by turning to Indigenous wisdom and practice, has been celebrated as a viable path into the future (IUCN 2016, Gon and Winter 2019). This has been done in Hawai'i via community-based management, collaborative management, and the development of what can be classified as "Indigenous and community-conserved areas." However, there have been challenges in aligning decentralized community-based efforts, with centralized bureaucratic governance. Successful attempts to do this are the focus of this study.

### Community-based management, collaborative management, and Indigenous and community conserved areas

"Community-based management" is a situation where common resources used by a community are managed by that community, and it is an approach that has been shown to be effective all over the world (Berkes 2021). Community-based management that is

formally supported by government and/or private entities, in the lands and/or waters under their jurisdiction and/or ownership, is known as "collaborative management." When done right, it empowers People of Place (Tupa and Welch 2006). Places where Indigenous and local communities, specifically, initiate conservation efforts are known as Indigenous and community conserved areas (ICCAs; Berkes 2009). More recently, the term "ICCA" has been used as an abbreviation for "territories and areas conserved by Indigenous peoples and local communities" or "territories of life" (ICCAs 2022). ICCAs can be, and quite often are, a form of Indigenous self-governance that happens independently from the dominant government system (Berkes 2009). However, the issue of land ownership can, whether it be government lands or lands owned by another entity, be an obstacle for Indigenous people and local communities (IPLCs) to actively engage in stewardship of these lands and associated waters. In these cases, ICCAs can also be created by or otherwise formalized through collaborative agreements, which are supported by dominant government systems. Because scholarship in this area is limited, this article is intended to highlight communities that have successfully achieved a revival of Indigenous stewardship practices through formal collaborative management agreements with government and private landowners in Hawai'i.

In Hawai'i, biocultural restoration tends to happen at the community level, via community-based management. However, because of Hawai'i's unique land tenure history (Andrade 2008, Beamer 2014), the majority of the archipelago's land is considered state (38%) and federal (13%), while large tracts of land are managed by large private landowners including generations-old ranches as well as former sugar and pineapple plantation companies (DBEDT 2021). Uniquely, some of Hawai'i's lands are owned by Ali'i Trust entities, which include lands from 'o'iwi royalty that were established in the Kingdom era. The largest Ali'i Trust is Kamehameha Schools, which owns and manages about 9% of Hawai'i's land (Kurashima et al. 2018). Hawai'i has seen the development of several collaborative management agreements that represent formal agreements between

community-based organizations and landowners, whether it be government or private entities, through formal collaborative-management agreements (Winter et al. 2021). Efforts led by Hawai'i's IPLCs to establish formally recognized collaborative management agreements are tantamount to ICCAs. These formally recognized ICCAs have happened in the absence of a clear pathway for designation in a bureaucratic governance system. As such, each community has navigated their own path through the state's bureaucratic system to achieve novel approaches to the creation and stewardship of ICCAs. The aim of this article is to synthesize existing knowledge of how this was done, such that this information can be used by other communities in the future. In doing so, we will highlight this 'Ōiwi values-based approach using case studies from multiple novel approaches to ICCAs, within these communities, that have been formally recognized through co-management agreements led by the IPLC. These *ahupua'a* are on three different islands in the Hawaiian archipelago.

## METHODS

One of the effects of colonization has been that the vast majority of research in Hawai'i, as well as scholarship about its Places and its Peoples, has been conducted by people who are not originally from Hawai'i, and therefore have limited-to-no relationships to People and Place. That is not the case with this synthesis study. All of the authors of this article are of Hawai'i's IPLC community, and therefore are connected to the study sites through genealogy and/or lifeways and livelihoods. In this article, we are communicating, through scholarship, our intergenerational knowledge and experiences as community leaders who have been involved in these efforts for decades, if not generations. This approach reflects a growing trend to include the lived experiences of Indigenous and local community leaders in academic knowledge production. This shift in expertise and social position can offer deeper understanding of community-driven responses to interconnected social-environmental problems that are embedded in particular Places and cultural contexts (e.g., Baker-Médard et al. 2023). Our backgrounds include training in both 'Ōiwi and conventional knowledge systems, and in this article we communicate not only the information that we have gathered through our direct experiences, but also through the oral histories of our elders, and in speaking with others in our communities, as well as through grey literature (i.e., archival resources, organization planning documents, and administrative records), and peer-reviewed research that have been centered in our Places. As scholars and knowledge keepers who are of Place, we have led or otherwise collaborated on previous studies of our Places, and this article is a result of our collective personal, familial, and professional experiences in these communities. All of us have relationships to the communities highlighted in this synthesis article, but the type of relationship each of us has is different, ranging from experiential to ancestral. It is through the depth and longevity of relationship to Place and with each other that we have synergistically synthesized the knowledge conveyed in this article.

## STUDY SITES

Three *ahupua'a* on three different islands in Hawai'i were used as study sites in this synthesis article. They are: the *ahupua'a* of Hā'ena in the *moku* of Halele'a on the island of Kaua'i, the

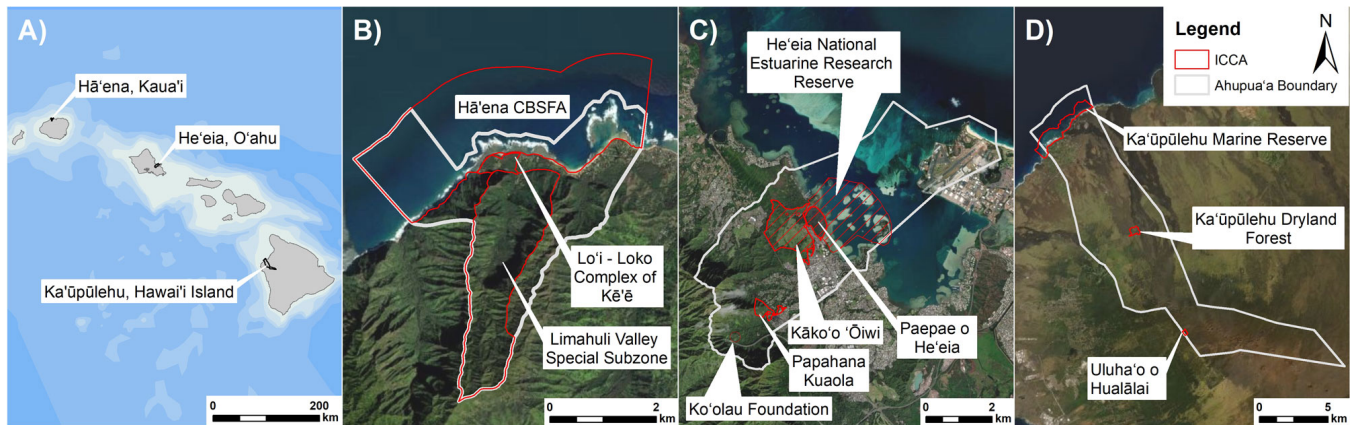
*ahupua'a* of He'eia in the *moku* of Ko'olaupoko on the island of O'ahu, and the *ahupua'a* of Ka'ūpūlehu in the *moku* of Kona 'Akau on the island of Hawai'i (Fig. 2). Multiple ICCAs exist within each of these study sites, which we detail below.

### Hā'ena (Kaua'i Island)

Hā'ena is an *ahupua'a* in the *moku* of Halele'a, which occupies the northwestern portion of the island of Kaua'i, the oldest of the main islands in the Hawaiian archipelago. The area is known for its significance in *mo'olelo* (oral histories), which speak to its prominence as a center of learning, its abundant land and ocean, and the generosity of its people in feeding visitors (Andrade 2008). Hā'ena is formed of two small valleys, Limahuli and Mānoa, cut by perennial streams flowing that, with the help of notable springs, supported wetland agroecology systems for the cultivation of taro (*Colocasia esculenta*) and other crops, as well as interrelated aquaculture systems (Handy et al. 1972). The coast is fringed by one of Hawai'i's larger barrier reefs, broken by four small bays, which provide spawning grounds for schooling fish in the summer months (Rodgers et al. 2021). In the winter, Hā'ena's coast is pounded by large north swells, which fling sea spray along the pinnacles of cliff above the beaches and provide a natural resting period for area fisheries. Traditionally in Hā'ena, 'ohana (families) fished small areas of the coast, concentrating on particular reefs near their homes, and leaving other stretches of reef for other families (Vaughan et al. 2017). They were the caretakers of these areas, who often described the ocean as their "ice box," where they would go to catch daily meals (Vaughan 2018).

The land tenure history of Hā'ena is a testament to the dynamic and adaptive nature of some 'Ōiwi communities. After the concept of land ownership was codified into Hawaiian Kingdom law in the mid-19th century, the entire *ahupua'a*, minus 14 nested lots issued as "Land Claim Awards" to ancestral residents, was sold to a foreigner living and working in Hawai'i at the time. In a desire to maintain their traditional lifeways, the people of Hā'ena formed a cooperative, called the Hui Kū'ai 'Āina o Hā'ena, to buy back and collectively manage the land and its associated waters. This approach worked so well that this cooperative lasted past the overthrow of the Hawaiian Kingdom, through the annexation period, and into statehood, after which Hawai'i's new constitution facilitated the cooperative's dissolution in 1967 (Andrade 2008). Then, in the 1970s a steady stream of American hippies, surfers, and tourists began to make their way to the area, which scenically exists at the end of the highway, with over a million visitors accessing Hā'ena annually in recent years. The highway is easily cut off by disturbances, such as hurricanes and tsunamis, and landslides, which emphasizes the importance of the community's farming and fishing practices for the sustenance of its local population of approximately 600 residents. Hui Maka'āinana o Makana is a contemporary community-based organization in Hā'ena formed of families who had residence in Hā'ena prior to 1955. Though many of their families can no longer live in the area because of speculative development that has facilitated an influx of wealthy Americans buying beach-front estates there, Hui members gather regularly to care for wetland agroecosystems, run cultural education programs, patrol coastal fisheries, and collectively make decisions regarding area resources (Vaughan 2018). Three collaboratively managed ICCAs of Hā'ena, Halele'a, Kaua'i (Fig. 2) are included in this synthesis.

**Fig. 2.** The study sites as depicted by (A) locations; and the *ahupua'a* boundaries and associated Indigenous and community conserved areas (ICCAs) of (B) Hā'ena, Kaua'i, (C) He'eia, O'ahu, and (D) Ka'ūpūlehu, Hawai'i [Island].



### He'eia (O'ahu Island)

He'eia is an *ahupua'a* on the northeast side of O'ahu in the *moku* of Ko'olaupoko, a region that contains some of the shortest watersheds in the archipelago. This region is also home to the largest lagoon in the archipelago, Kawahaokamanō, now commonly referred to as Kāne'ohē Bay, the abundant resources of which also historically fed the people of this region. He'eia is an unusual *ahupua'a* in that its boundaries cut across water to include a habitable offshore islet (Moku o Lo'e), and the tip of a peninsula (Mōkapu) at the southern edge of the bay. Situated on the island's windward side, abundant rainfall results in springs and perennial streams, supporting Indigenous agroecology and aquaculture systems that once collectively sustained tens of thousands of 'Ōiwi in the *moku* under Indigenous stewardship (Handy et al. 1972).

Urbanization and development in the 20th century destroyed Indigenous infrastructure and had disastrous ecological effects in the Bay. For example, large portions of the bay were dredged beginning in the 1930s to facilitate the existence of a military base at Mōkapu. The dredge material was eventually used to fill in the majority of the coastal aquaculture ponds (*loko kuapā*) in the bay to facilitate housing development. Concurrently, a municipal wastewater plant was constructed and its outfall dumped raw sewage into the southern corner of the bay for three decades until it stopped in 1976. This pollution caused massive algal blooms that smothered coral reefs and, in concert with siltation from suburban development and commercial fishing pressures, contributed to the ecological collapse of the bay. Starting in the late 1960s, a grassroots community effort, known as Kūpa'a He'eia, began fighting existing and planned development that threatened the health of the ecosystem and the wellness of their people. This led to a decade-long legal fight, which started in the 1970s, to stop the construction of a nuclear power plant in He'eia. The Kūpa'a He'eia movement went on to stop other dredging and development projects planned for He'eia in the 1980s. This prevented suburban development of a 120-hectare wetland and the remains of an ancient, 36-hectare aquaculture pond. After the turn of the century, a new generation of 'Ōiwi leaders coalesced into a movement they call Hanohano He'eia. This collective effort

engages in biocultural restoration, in many of the areas that were protected by the Kūpa'a He'eia movement, with the aim of restoring the ancestral state of abundance termed 'āina momona.

Collaboration is valued within this community, which is reflected in the way IPLC organizations work with each other and with government agencies (e.g., Winter et al. 2020b). IPLC leaders led efforts to engage government agencies and a large private landowner in various co-management efforts to restore the ecological and cultural integrity of the bay after decades of social-ecological destruction. Four collaboratively managed ICCAs in He'eia, Ko'olaupoko, O'ahu were included in this synthesis study, as well as what we are referring to as a "collaborative-managed meta-ICCA" that was formed by multiple entities (Fig. 2).

### Ka'ūpūlehu (Hawai'i Island)

Ka'ūpūlehu is an *ahupua'a* in the *moku* of Kona 'Akau on the leeward side of Hawai'i [Island], the youngest island in the archipelago. The social-ecological communities there are shaped by the area's distinct uneroded volcanic substrate and the sparse rainfall. Kona is sheltered from the prevailing northeasterly trade winds that drive the rest of the archipelago's weather patterns, and the region is uniquely characterized by a convective weather system where rainfall is concentrated in a specific elevational belt of the uplands. Ka'ūpūlehu is situated in the *kalana* (region smaller than a *moku*) of "Kekahawai'ole o nā Kona," an endearing poetic name that speaks to the scarcity of surface water resources in that area. The lack of surface water coupled with the convective weather pattern limited land-based food potential to specific seasons, however, because the region has extremely rich ocean resources and calm waters outside of winter swells, the communities of this Place were known to seasonally migrate between the cultivated uplands and villages at the shoreline. Their adaptation to the cycles of their Place supported Ka'ūpūlehu's 'Ōiwi community in this rugged and arid district for generations (Maly 1998).

The majority of Ka'ūpūlehu *ahupua'a* is owned by a large private landowner, Kamehameha Schools. In 1975, highway construction opened the region, turning a rarely traveled plain into easily accessed coastal lands, leading to an influx of people to their

shorelines. Since then, the 'Ōiwi community has observed severe declines of coastal and marine resources in their region. The contemporary regime of biocultural resource management in Ka'ūpūlehu was catalyzed by a legal settlement over marine and coastal resources impacted by a luxury development in the area. In the 1990s, two IPLC organizations, the Kona Hawaiian Civic Club and the Office of Hawaiian Affairs in one, and Ka Pa'akai o Ka 'Āina, an alliance of local community and lineal descendants of Ka'ūpūlehu, in another, intervened on two permits put forth for developments in the *ahupua'a*. The interventions were pivotal for raising the standards for the treatment of biocultural resources at the federal, state, and county levels.

One of the outcomes of the federal intervention was a Memorandum of Agreement settlement that the developer is required to care for the anchialine pools throughout the *ahupua'a*. This led to the creation of natural resources programs that are model stewards of the endangered anchialine pool systems across four resort properties. This is a unique demonstration of the ways in which the IPLC of Place have influenced stewardship done by developers. Though the landscape has changed drastically, the IPLC have retained relevancy on the land into the future. The community has become an advisor to anything going on in the *ahupua'a* (e.g., how development is done, any plans or projects in the area, etc.). Another outcome of the federal intervention was a settlement that mandated the creation of the Ka'ūpūlehu Marine Life Advisory Committee (KMLAC), which has been a critical entity in the stewardship of the coastal and marine resources of Ka'ūpūlehu. The KMLAC is officially made up of representatives of the parties to the case, IPLC organizations, the developers, and *kūpuna* (elders) of Ka'ūpūlehu who provide guidance and NGOs who provide technical support and facilitate planning (Ka'ūpūlehu Marine Life Advisory Committee 2016). The *ahupua'a*, which runs to the summit of Hualālai (2521 m), also has rare dryforest and intact mesic and subalpine forest systems stewarded in part by community-based movements initiated by 'ohana of the area. Three collaboratively-managed ICCAs in Ka'ūpūlehu, Kona 'Akau, Hawai'i are included in this synthesis study (Fig. 2).

## RESULTS

Each of the study sites has multiple ICCAs that exist independently through collaborative management agreements with state government and/or a large private landowner. Although established as stand-alone ICCAs, they collectively function, within the respective social-ecological communities in this study, to revive the holistic mountains-to-sea aspect of Indigenous stewardship.

### Collaboratively managed ICCAs in Hā'ena (Island of Kaua'i)

There are three ICCAs within the *ahupua'a* of Hā'ena that are formally recognized by the State government through collaborative management agreements. These ICCAs connect contiguously and span the length of the *ahupua'a* from the mountains to the sea (Fig. 2). These are (in elevational order from high to low): Limahuli Garden and Preserve, the *lo'i-loko* (wetland agroecology and aquaculture) complex of Kē'ē, and the Hā'ena community-based subsistence fishing area (CBSFA). Although these are all independent ICCAs, each being under the jurisdiction of a different division of the State's Department of Land and Natural Resources (DLNR), there is a significant amount of leadership overlap between these ICCAs at the community level.

### Limahuli Garden and Preserve

After the dissolution of the Hui Kū'ai 'Āina in 1967, a land swap put the ownership of the majority of the 400 hectare Limahuli Valley into hands of Juliet Rice Wichman, previously a shareholder in the recently dissolved land cooperative, who had an intention to protect the valley and its cultural heritage from speculative development (Andrade 2008). The Wichman family eventually established a botanic garden, Limahuli Garden and Preserve, as an economic engine to support conservation efforts in the valley. After a major hurricane hit Kaua'i in 1992 and blew down most of the island's forest, the Wichman family initiated forest restoration efforts by removing invasive trees and replanting native trees. These actions, being violations of the State's administrative rules at the time under DLNR's Office of Conservation and Coastal Lands, resulted in heavy fines levied against the botanic garden. The family negotiated a collaborative management agreement with the State through the creation of the Limahuli Valley Special Subzone, contingent on a management plan that articulated how the biocultural resources of the valley would be protected and how restoration would be approached (NTBG 2007). This collaborative management agreement facilitated the further development of a botanic garden and nature preserve, and laid the foundation for biocultural restoration efforts there. The land has since been donated to a larger non-profit organization, but leadership of the botanic garden and nature preserve, as well as the biocultural restoration therein (e.g., Burnett et al. 2019, Winter et al. 2020c), has been and remains within the IPLC community. A culturally based education program that focuses on Indigenous stewardship is run through the Garden.

### Lo'i-loko complex of Kē'ē

In 1968, 93 hectares of land that contained integrated wetland agroecology (*lo'i kalo*) and aquaculture (*loko i'a*) systems in the area of Kē'ē was condemned by the State and made into a state park. The remaining Hawaiian families were evicted from the land, and the irrigation ditch (*auwai*) that fed this food-production complex was bulldozed in the process of clearing the land for a parking lot. At this point all food cultivation in the area stopped, and the land was soon consumed by invasive trees. In the mid-1990s, after community elders saw that it was getting more and more challenging to perpetuate the Indigenous food system that they grew up with, community leaders, many of whom were descendant of members of the Hui Kū'ai 'Āina, formed and eventually incorporated a new non-profit organization, the Hui Maka'āinana o Makana. Rather than focusing on land ownership, this group coalesced around a notion of continued access to and stewardship of the Places that had fed their families for generations. Efforts soon centered around the Places that provided resources at the foundation of the traditional "fish and poi diet," particularly the *lo'i-loko* complex and the nearshore fishery. This meant engaging two different divisions of the DLNR, the Division of State Parks (DSP), which had jurisdiction over the *lo'i-loko* complex, and the Division of Aquatic Resources (DAR), which had jurisdiction of the biological resources in the ocean. DSP and DAR are governed by different and unrelated sets of administrative rules. Of the two DLNR divisions, only DSP had existing administrative rules that could facilitate collaborative management agreements, so the Hui's efforts focused on the *lo'i-loko* complex. In 2002, the Hui successfully negotiated a "curatorship agreement," which allowed them to

bring flowing water back into the area for the purposes of biocultural restoration of the *lo'i-loko* complex. They also run an associated culturally based education program there that focuses on Indigenous stewardship.

#### *Hā'ena CBSFA*

Without a clear pathway to engage in collaborative management with DAR, efforts to revive Indigenous stewardship of nearshore waters did not progress at the same rate as efforts to restore the *lo'i-loko* complex. This changed in 2006, after community members successfully lobbied for a law that created the Hā'ena community-based subsistence fishing area (CBSFA), making Hā'ena the third community to receive this designation. CBSFA is a State-recognized marine protected area designation that prioritizes subsistence fishing traditions over tourism and commercial harvest, and allows the community to make a management plan and fishing regulations based on Indigenous knowledge and practices. Within three years, the community organized itself, and submitted a draft management plan and rules package to DAR, but bureaucratic delays, which were heavily influenced by the commercial fishing lobby, slowed the approval process. It was not until 2015, when pressure from the conservation community and Indigenous rights advocates finally overcame the political influence of the commercial fishing lobby, that the Hā'ena CBSFA's rules package was formalized with the signature of the State's governor. With that, and because the other two communities with the CBSFA designation were held up by similar delays, Hā'ena became the location of the first fully functioning CBSFA in the world (Vaughan et al. 2017). The Hā'ena CBSFA rules regulate only the nearshore fishery, but the associated management plan acknowledges the community efforts to care for Hā'ena at the *ahupua'a* scale (Delevaux et al. 2018).

#### **The collaboratively managed ICCAs in He'eia (Island of O'ahu)**

There are four ICCAs within the *ahupua'a* of He'eia. The entities managing these ICCAs are Paepae o He'eia, Kāko'o 'Ōiwi, Papahana Kuaola, and Ko'olau Foundation, each of which is described below. Two of these ICCAs joined with other entities to formalize a "collaboratively managed meta-ICCA," a novel term used here to describe a formalized collaborative stewardship agreement between multiple ICCAs and government agencies. This meta-ICCA is known as the He'eia National Estuarine Research Reserve.

#### *Paepae o He'eia*

Paepae o He'eia is a non-profit organization that started in 2001 and was formally incorporated in 2005, which allowed them to enter into a collaborative management agreement with a large private landowner, Kamehameha Schools. This organization stewards and engages in restoration efforts of the 800-year-old, 36-hectare *loko kuapā* (walled aquaculture pond) known anciently as Pihī. This organization also runs an associated culturally based education program that focuses on Indigenous stewardship.

#### *Kāko'o 'Ōiwi*

Kāko'o 'Ōiwi is a non-profit organization started in 2006, and in 2010 negotiated a lease agreement with the Hawai'i Community Development Association, a State entity, to manage 162 hectares of wetlands and coastal forest in the area of Hoi. This organization stewards and engages in the restoration of Indigenous wetland agro-ecology (*lo'i*) and aquaculture (*loko*)

systems, as well as agroforestry and forest conservation. This organization also runs an associated culturally based education program there that focuses on Indigenous stewardship.

#### *Papahana Kuaola*

Papahana Kuaola is a non-profit organization started in 2006 to manage the land and associated waters in the area known as Waipao, which is also owned by Kamehameha Schools. This organization stewards and engages in the restoration of springs (*pūnāwai*), Indigenous wetland agro-ecology (*lo'i*), and native forest. They also run an associated culturally based education program there that focuses on Indigenous stewardship.

#### *Ko'olau Foundation*

Ko'olau Foundation is a non-profit organization that is engaging in biocultural restoration of the forested area in Ha'ikū Valley on lands owned by the State's Department of Hawaiian Homelands (DHHL). Although this group does have permission from DHHL to do this work within a few hectares of that parcel, it has yet to negotiate a formal collaborative management agreement.

#### *He'eia National Estuarine Research Reserve*

In 1992, the community-led Kāne'ohe Bay Master Plan was published. One of the recommendations of that master plan was to establish a National Estuarine Research Reserve (NERR) in Kāne'ohe Bay as a means to bring in federal support for the community's conservation and restoration efforts (OSP 1992). However, it took more than 20 years for the political landscape, at both state and federal levels, to be conducive for this recommendation to be fulfilled. Although originally envisioned (but not explicitly referred to) as an ICCA that extended over the entire bay to include all the waters of nine *ahupua'a*, the area eventually designated in 2017 as a NERR shrank to an area that covered the estuary in the *ahupua'a* of He'eia only. Although previously described as an ICCA in and of itself (Winter et al. 2020b), the He'eia NERR is perhaps more accurately described as a "collaboratively managed meta-ICCA" because it formalized a collaborative stewardship agreement between two previously established ICCAs (Paepae o He'eia and Kāko'o 'Ōiwi), two other Indigenous-serving organizations (Ko'olaupoke Hawaiian Civic Club and Ko'olau Foundation), the State of Hawai'i (University of Hawai'i at Mānoa, Department of Land and Natural Resources, and Hawai'i Community Development Authority), and the Federal Government (National Oceanic and Atmospheric Administration, NOAA). The goal of this collaboratively managed meta-ICCA is to use Indigenous agency (e.g., Winter et al. 2021) in combination with state government authority and federal resources to synergistically revive Indigenous resource management on a landscape scale with the aim of achieving conservation and sustainability goals, and to conduct collaborative research to inform adaptive co-management. Indigenous-led governance of the Reserve ensures that this meta-ICCA will always function in the best interests of Place and IPLC of Place (Winter et al. 2020b).

#### **Collaboratively managed ICCAs in Ka'ūpūlehu (Island of Hawai'i)**

We highlight three collaboratively managed ICCAs in the *ahupua'a* of Ka'ūpūlehu. They are: Ka'ūpūlehu Marine Reserve, Ka'ūpūlehu Dryland Forest Preserve, and Uluha'o o Hualālai, each of which is described below.

### *Ka'ūpūlehu Marine Reserve*

Observing massive declines of reef fish and other shoreline resources over their lifetimes, the 'Ōiwi community working through the KMLAC proposed an idea in the late 1990s to temporarily halt any take of aquatic life from their *ahupua'a*, aptly naming the movement “Try Wait,” a play on a colloquial term uttered when requesting patience. The temporary “rest area” officially called the Ka'ūpūlehu Marine Reserve was not formally established until 2016 after a lengthy community and government consultation process. This ICCA restricts take of any marine plant or animal within the *ahupua'a* of Ka'ūpūlehu and Kūki'o along 6 km of shoreline out 20 fathoms (37 m) for a period of 10 years, and it is the first community driven rest area in the State (State of Hawai'i 2016). The goal of the reserve is to replenish the marine resources, while planning for sustainable and appropriate harvest once the rest area is opened with harvest restrictions and re-named in 2026. The KMLAC is currently preparing a management plan during this time of ecological stability and abundance, such that the management plan is born out of an abundance mindset rather than a scarcity mindset. The KMLAC plans on creating culturally appropriate and Place-based fishing regulations based upon the best available science to guide the sustainable harvest of marine resources by the local community.

### *Ka'ūpūlehu Dryland Forest*

In the 1990s two families in the region got permission from a Kamehameha Schools lessee to weed a section of the remaining dryforest, which serves as a refugia for a number of rare native plant species. Through confluences of energies, driven by the families of Kekahawai'ole, the Ka'ūpūlehu Dryforest has been a model example site for culturally based forest restoration, endangered species protection, and Place-based education. The ICCA exists through an agreement between the lessee and a local non-profit organization and involves funding and co-management with the landowner, Kamehameha Schools. Many of the same 'ohana that were involved with the “Try Wait” movement were also foundational to the creation of the dryforest reserve, and they continue to guide the work there today.

### *Uluha'o o Hualālai*

Further up the mountain in the mesic and subalpine forests is Uluha'o o Hualālai, a community-based non-profit organization focused on engaging local families through stewardship and education. Though Uluha'o is a relatively new organization, the family running the program has been engaged in stewardship of this upland area for four generations starting in the late 1950s. The organization formalized agreement with the landowner Kamehameha Schools to care for a cabin and the surrounding forest resources, and to conduct educational programming in the 2000s. Uluha'o provides opportunities for other IPLC families of Kona to continue their relationship to Place through purposeful experiences with this rarely accessed area.

## **SYNTHESIZED KNOWLEDGE**

Despite 150 years of colonization and occupation, a renaissance of 'Ōiwi culture, beginning in the 1970s, ushered in an era of revival of Indigenous practices, including Indigenous stewardship (Chang et al. 2019, Gon and Winter 2019). 'Ōiwi values, such as *aloha 'āina*, or loving the land as a familial elder; *mālama 'āina*, or caring for the land as a familial elder (Kealiikanakaoleohailani and Giardina 2016); and *kia'i 'āina* or protecting the land as a

familial elder, are at the foundation of this revival of Indigenous stewardship. When these values are acted upon, they represent forms of Indigenous agency in conservation efforts (Winter et al. 2021), which has been pivotal to the regeneration of Indigenous stewardship in mainstream conservation efforts in Hawai'i, including the growing number of Indigenous and community conserved areas (ICCAs).

Though there has been progress toward the reestablishment of Indigenous stewardship on a landscape scale, there is a major discrepancy between the decentralized scale of stewardship as conceptualized by Hawai'i's IPLC (the *ahupua'a* scale) versus the scale of management that Hawai'i's centralized bureaucratic system operates (the State scale). In order to effectively steward their Places using ancestral practices and values, communities have compromised and engaged in novel forms of collaborative management (co-management) regimes with governmental agencies. These innovative approaches build on Indigenous stewardship practices and represent some of the first formally recognized ICCAs in Hawai'i, which serve to protect multiple habitats and unique biodiversity while perpetuating Indigenous lifeways and operating within the community's *ahupua'a* scale (Delevaux et al. 2018, Vaughan 2018, Winter et al. 2021). In spite of being in as different environments as possible, in the context of Hawai'i, these culturally founded, community-based approaches share more similarities than differences.

## **Similarities in approach**

### *Land ownership is not a prerequisite in caring for Place*

Land ownership is a foreign concept that was brought to Hawai'i in the mid-19th century (Beamer 2014). Prior to that, one's relationship to Place, which can be viewed as a function of longevity in Place, is what determined one's responsibility (*kuleana*) to that Place (Meyer 2008, 2013, Winter et al. 2021). This concept is much more deeply ingrained in 'Ōiwi culture and worldview, than is the concept of land ownership. It is the relationships of families ('ohana) to Place that fuels the drive to care for and protect their Places, and lack of landownership in the contemporary period is seen as an obstacle to get around, rather than an insurmountable hurdle. A common utterance in these communities is, “If not us, then who?” This plays to the notion that it is the responsibility of those who have relationship to Place, not the absentee landowner, to care for Place. The goal is ensuring that the lineal descendants can continue to *mālama* (care for) their ancestral Place such that responsible subsistence harvesting can continue in perpetuity.

### *Shared values*

Efforts to find novel ways of caring for Place began over 30 years ago as elders in these communities began to articulate concerns about declining marine resources and their fear that future generations would not be able to sustain their families from the land and sea. Although there were differences of opinion on how to facilitate a return to a state of *'āina momona*, shared values have maintained cohesion between the families of Place, and these have guided the processes to develop and manage these ICCAs through the decades. Some of these most salient shared values are listed below.

- *Nohopapa* (enduring lifeways in Place): At the *piko* (central hub) of the community-based efforts described herein are

the traditions of those who have endured and continue to have presence on their *kulāiwi* (ancestral lands). Inherent in this value is the honoring of intergenerational roles that are so important to 'Ōiwi culture. Specifically, honoring the role of the elders (*kūpuna*) to provide guidance as the keepers of intergenerational knowledge and wisdom, the role of the parental generation (*mākua*) to do the heavy lifting when it comes to the actual work, and the role of the youth (*'ōpio*) to be present and to learn with the expectation they one day they too will be *mākua* and then *kūpuna* in the future.

- *Aloha kekahi i kekahi* (mutual respect): The *kūpuna* speak of the importance of this practice with the understanding that it permeates all interactions within and beyond the community, even if you sit on opposite sides of an initiative. This includes legal interventions, such as was seen in Ka'ūpūlehu. Hawai'i and its resource management community is small, those that you oppose at one conversation can be found to be your ally in the next. *Aloha kekahi i kekahi* has led to the successful initiatives and actions, which time and again has garnered support from the larger local community, new homeowners, absentee landlords, developers, funders, and the regulatory agencies.
- Sweat equity: The value of demonstrating community capacity through work, feeding, and hosting—through actions, rather than talk—was foundational to successful co-management efforts. Doing so led to a building of relationships and credibility between the State agencies and the community that had been entrusted with stewardship. For example, the late Thomas Hashimoto (respected fisher and elder from Hā'ena), always used to tell younger community leaders, it all starts with the *lo'i*, the first area the community formally began to co-manage with the State's DLNR. He reminded us always that we could not ask for more authority over the coastline, unless the *lo'i* was well cared for (Vaughan 2018).
- *Lawai'a pono* (taking only what you need, and harvesting with care and restraint) is a key value articulated by area elders, which shifts the paradigm of fishing from, "taking from the ocean" to "taking care of the ocean." This value is reflected in restrictions on overly extractive gear such as lay net and spear guns, as well as catch limits on key species from lobster to limpets, in Ka'ūpūlehu's case, temporarily restricting all marine harvest as a means to care for their Place.

#### *Holistic approaches*

A central tenet of 'Ōiwi IRM is the coupled relationship between the biodiversity of the land and that of the ocean, as well as the interrelatedness of the health of the mountains and the ocean (Winter et al. 2018). IPLCs that are engaged in biocultural restoration at the *ahupua'a* scale often have ICCAs within both coastal and upland areas, although few communities have both coastal and upland areas formally recognized through co-management agreements. The three *ahupua'a* highlighted in this case study do have multiple habitat areas formally protected through co-management agreements (Table 1). Each community in this study has multiple ICCAs to achieve mountains-to-sea

management of a social-ecological system, as is the tradition of Indigenous stewardship in Hawai'i. The formal coalescence of multiple ICCAs with other government agencies and landowners into a collaboratively managed meta-ICCA is an example of the novel approaches that IPLCs in Hawai'i have taken to engage in holistic stewardship.

#### *Monitoring the return of abundance*

Each of these communities has engaged in biological monitoring as an aspect of co-management; and all these protected areas have demonstrated ecological gains. In Hā'ena, fish abundance, biomass, and species richness are higher within the CBSFA than outside of its boundaries, and it is shown to be protecting larger fish (Rodgers et al. 2021). In Ka'ūpūlehu, environmental recovery of the reef fishery has been shown not only within the designated area itself, but also in surrounding zones. In just two years since the designation, monitoring has shown increases in biomass of important resource fish like surgeonfish, with a 46% increase within the reserve, and a 21% increase outside the reserve (Minton et al. 2020). In He'eia, restoration efforts across the *ahupua'a* have resulted in the return of culturally important, endangered water bird species to the area, including the number of successful breeding seasons (Harmon et al. 2022). The Ka'ūpūlehu and Hā'ena communities also partner and collaborate with Nā Maka Onaona, an 'Ōiwi research and capacity building organization that focuses on helping communities develop their own biocultural monitoring approaches in the intertidal zone that are locally tailored to the community's long-term goals of abundance (Morishige et al. 2018), and similar programs have been developed in He'eia (Winter et al. 2020b). This Place-based approach has built monitoring capacity within the communities and the data is being directly integrated into community-based management planning for a holistic thriving community, inclusive of ecological resources. At all sites, these surveys and results are possible through the communities' integral partnerships with 'Ōiwi organizations, conservation NGOs, the University of Hawai'i, and innovative funding mechanisms like the Ka'ūpūlehu Foundation. Furthermore, after the designations in Hā'ena and Ka'ūpūlehu, there has been a noticeable increase in overall support for community-based marine initiatives in Hawai'i, indicating statewide and even international recognition of these innovative Place-based approaches. For example, Hā'ena, along with the ICCA of Mo'omomi on Moloka'i, together won the UN Equator Prize in 2019.

#### *Timing*

The major milestones of the community-based, collaborative-management efforts among these communities followed a similar timeline in a way that follows the growth and evolution of the Hawaiian Renaissance in general (Fig. 3). When viewed as a timeline, the Hawaiian Renaissance can be seen as having five major phases thus far: (1) the mid-1970s, when first-generation Renaissance leaders openly rejected the notion of conforming to American colonization and initiated various cultural movements, including Place-based revival of Indigenous stewardship; (2) the early 1990s, when the efforts of these first-generation Renaissance leaders started to gain some major traction; (3) the early 2000s, when second-generation Renaissance leaders came of age and began building on the foundations laid by the first generation; (4) the mid-2010s, these now-multigenerational efforts began to garner broad-based support by the citizenry of Hawai'i, which



**Table 1.** The Indigenous and community conserved areas (ICCAs) that are formally recognized via collaborative management agreements in the Hawaiian communities of Hā'ena (Halele'a, Kaua'i), He'eia (Ko'olaupoko, O'ahu), and Ka'ūpūlehu (Kona 'Akau, Hawai'i [Island]).

Community (District, Island)	ICCA formally recognized through a co-management agreement	Habitats protected				
		Coral reef	Wetlands	Streams	Coastal forest	Upland forest
Hā'ena (Halele'a, Kaua'i)	Limahuli Garden and Preserve		X	X	X	X
	Lo'i-loko complex of Kē'ē		X	X	X	
He'eia (Ko'olaupoko, O'ahu)	Community-Based Subsistence Fishing Area (CBSFA)	X				
	Paepae o He'eia	X	X			
	Kāko'o 'Ōiwi		X	X	X	
	Papahana Kuaola		X	X		X
	Ko'olau Foundation					X
Ka'ūpūlehu (Kona 'Akau, Hawai'i)	National Estuarine Research Reserve (NERR)	X	X	X	X	
	Ka'ūpūlehu Marine Reserve	X		N/A		
	Ka'ūpūlehu Dryland Forest			N/A		X
	Uluha'o o Hualālai			N/A		X

has brought us into the current era; (5) we are globally sharing our experiences through scholarship (e.g., Winter et al. 2022) and contributing to cutting-edge conservation efforts in the international sphere (e.g., IUCN 2016).

*Challenges with community buy-in*

All of these communities have struggled with internal disagreements about whether or not engaging in collaborative management, particularly with state and federal governments, is a good thing. Many of the families in each of these communities have deep distrust of colonizing forms of government, and they often view the result of engagement with government as one in which something was taken from them, whether it be land, rights, language, and/or other cultural expressions. Some of the families of these communities have also been very active in various aspects of the 'Ōiwi sovereignty movement. Understandably so, the notion of entering into collaborative management agreements with government has been viewed by some as a nefarious attempt by the government to take yet even more, and some have even viewed the community members who advocate for co-management as unwitting enablers of further colonization at best, or traitors at worst. The communities of focus in this synthesis have, for the most part, overcome these challenges by focusing on their *aloha* for Place and for each other (described above under the value of *aloha kekahi i kekahi*).

*Compromises*

In all three areas, community members have had to compromise in order to conserve and protect the resources that sustain them. Sometimes these compromises have been necessary to resolve conflict with surrounding stakeholder groups, as in He'eia where property owners surrounding the fishpond and upland restored areas constantly challenge the hours of operations and access of educational and work groups. In Hā'ena, the specific protected area for spawning ended up being less than a fourth of the size the community initially proposed because of compromises with recreational users such as kite surfers who did not want access to key surf breaks and channels closed off. Multiple proposed rules were deemed unenforceable by State agencies, or not allowed under enabling co-management statutes as they pertained to other divisions within DLNR, such as boating instead of fisheries (Vaughan 2018). Ka'ūpūlehu may have avoided erosion of the

strength of proposed rules through one simple rule, a 10-year ban on all fishing activities in the region, rather than seeing the strength of their rules impaired through state agency and State legal review of every single proposed gear restriction. Yet, the community there must sacrifice teaching a generation of children to fish where their parents learned, and they will have to deal with these State reviews in their upcoming plans.

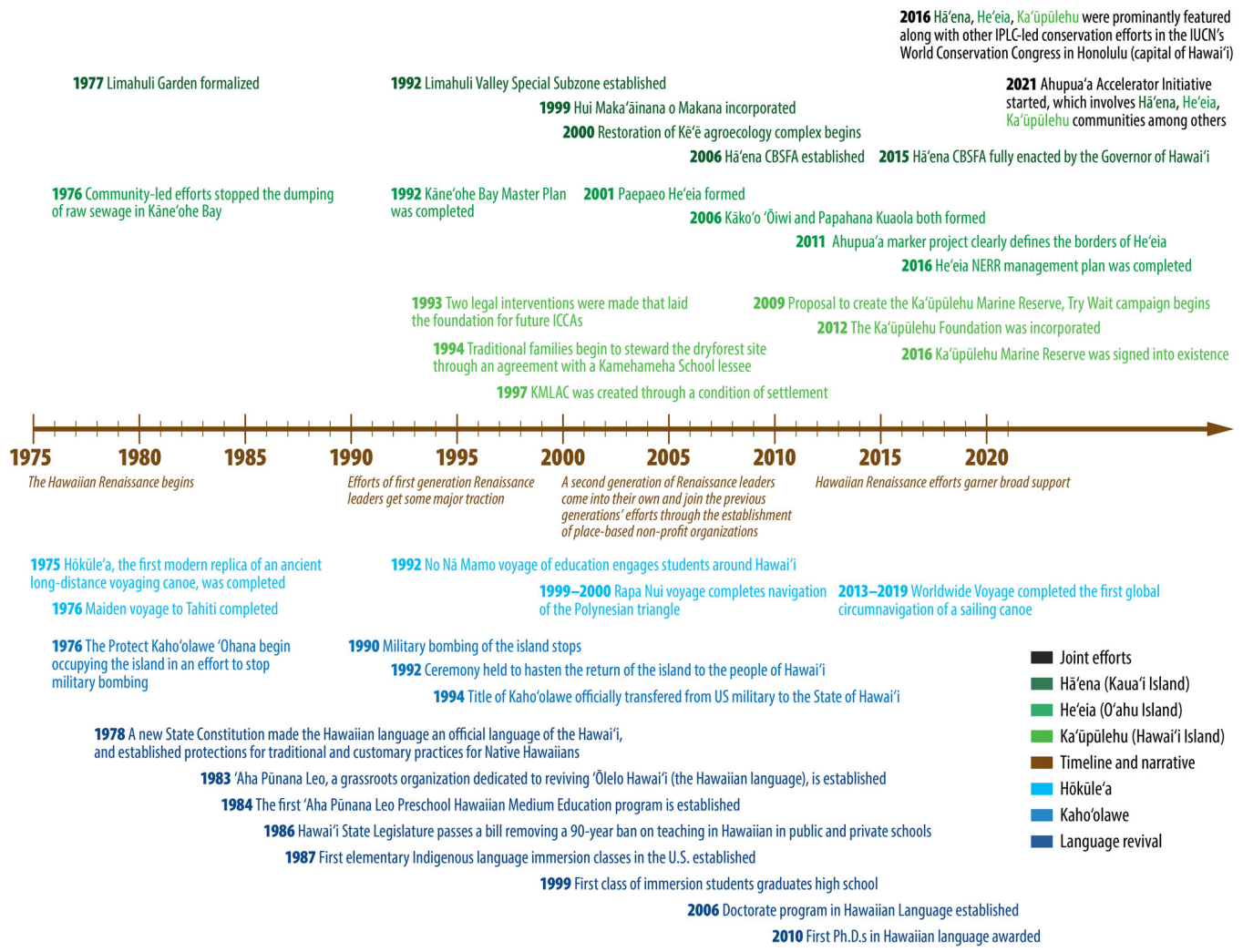
Another issue is the balance of public access rights with those of the community. ICCAs in Hawai'i often have to face giving up all activities they want to regulate, even if they might be sustainable when practiced only by a small group of 'Ōiwi families, because State law does not allow differential rules based on identity. For example, in the Hā'ena CBSFA process, State law would not allow for regulations that reserved fishing in the safest and most accessible reefs for only elders to gather from, a long-time practice in the area. However, the community still managed to emphasize knowledge of particular areas by banning gear that allows anyone to fish with little skill and no prior relationship with Place. This banned gear includes lay nets, spear guns (versus handheld spears), and spearing at night when the fish are sleeping.

Despite these conflicts and challenges, ICCAs in Hawai'i have moved forward through being willing to compromise, forging alliances with diverse groups, including non-Indigenous community members, and government agencies, and always keeping their broader goals in mind. The communities in each of these areas focus on the long term and cross generational outcomes, moving ahead in whichever ways avail themselves at the time. As one long time Hā'ena community member said of the CBSFA rules initiative, "It is not sovereignty, but it's what we can get now."

*Statements and plans*

Collaborative management agreements that formalized the ICCAs in this study have all been built on the vision statements, mission statements, strategic plans, and management plans that each of the community-based organizations made for themselves. These plans are vital to the success of these communities because they are a formal articulation of the relationship of the People of Place to the land. These documents are a critical piece in building partnerships with supporting NGOs (e.g., The Nature Conservancy), because they set and guide realistic expectations

**Fig. 3.** An abridged time line of the Hawaiian Renaissance with selected milestones of three iconic cultural movements (the revival of oceanic wayfinding via the voyaging canoe, Hōkūle‘a; the revival of the Hawaiian language (‘Ōlelo Hawai‘i); and the protection of Kaho‘olawe island (from military bombing) juxtaposed with selected milestones in the development of Indigenous and community conserved areas (ICCAs) in three Native Hawaiian communities (Hā‘ena on the island of Kaua‘i, He‘eia on the island of O‘ahu; and Ka‘ūpūlehu on the island of Hawai‘i).



for interactions between the communities and their partners. Collective documents that set out visions and long-term goals have been important in guiding applications for specific funding as well as in deciding which partners (i.e., researchers) to engage with.

*Outreach and enforcement*

Official rules and regulations within ICCAs, that are co-managed with State agencies, are codified in administrative rules packages within various State divisions (e.g., Division of Aquatic Resources, Office of Conservation and Coastal Lands, Division of Forestry and Wildlife, State Parks Division) within the State’s Department of Land and Natural Resources, which itself is a centralized bureaucracy. These rules and regulations are enforced by another division, the Division of Conservation and Enforcement (DOCARE). Creating holistic, decentralized rules

for *ahupua‘a* regulated by codified administrative rules within this bureaucracy presents challenges. IPLCs have had to make compromises to get enforceable rules accepted into law. For example, many of the tools of Indigenous resource management (e.g., *kapul* or Indigenous restrictions) are not allowed by the DLNR (Vaughan et al. 2017). As a result, if the IPLC wants to impose a *kapu* on a Place or a species, they do it themselves for themselves, but it is not a rule that is enforceable by law, so it is challenging to get outsiders to follow it.

All three communities highlighted here have never intended to rely solely on the State for enforcement. Their ability to enact formal State recognized management and regulations is built upon a long history of simply acting upon their *kuleana* (sense of responsibility) to care for their land and resources, often in the absence of any State action or presence because the State divisions

responsible for management and enforcement are perpetually underfunded and understaffed. In developing their fishery rules, the Hā'ena and Ka'ūpūlehu communities always expected that the majority of the enforcement efforts would be preventative education. Both through partnerships within DLNR known as Makai Watch, where community members serve as eyes and ears on the coast, then report violations to DOCARE for enforcement action, and through more informal presence and patrol of their area, community members in all three areas provide the main mechanism of enforcement of *pono* (right or balanced) practices. Although repeat offenders and folks who resist educational outreach may require calls to DOCARE, all three areas are now known for community care taking and stewardship. This reputation alone discourages many violations and enables the community to teach and ask behaviors that may not be approved in formal regulations but are nonetheless *pono*. Co-management authority is always contested with the State, against the backdrop of ongoing occupation of Hawai'i by the U.S. Government and the growing realization that State agencies are not only illegal under international law, but ineffective. Yet all three areas have forged relationships with State agencies.

#### Networking

The relationships between each of the IPLC communities included in this synthesis are cultivated through multiple archipelago-wide community-based networks. Notable among these are the following:

- E Alu Pū Network: a network of approximately three dozen communities (including those highlighted in this synthesis article) around Hawai'i, managed by the NGO Kua'āina Ulu 'Auamo, that has existed since 2003 to provide annual learning exchanges and mutual support for community-based resource management.
- Ahupua'a Accelerator Initiative: initiated in 2021 by Kamehameha Schools, the H.K. Castle Foundation, and the Hawai'i Conservation Alliance to support the communities (including those highlighted in this synthesis article) who have been at the forefront of *ahupua'a*-based biocultural restoration, with the aim to support their Indigenous stewardship and specifically aid these communities in achieving the goals that have been just out of reach.

The multi-layered relationships between each of these communities are founded in common values and goals, and these relationships are cultivated through these networks. Participation in such networks allow for shared learning and mutual support needed to navigate collaborative management agreements with government agencies.

#### Economic model

Each of these communities still contain elements of “ancestral circular economies (ACE)” that include reciprocal sharing of abundance and intergenerational feedback loops (Beamer et al. 2023), yet all of them exists within the context of the dominant market economy. Most community-based land and sea initiatives within these ICCAs are funded by short-term grants. The lack of long-term stable funding is unsustainable for long-term planning and success, for example, staff are often hired on a temporary basis and projects are funded in a piecemeal fashion. There is a

need for creative and sustainable funding models that can leverage economic investments into IPLCs to catalyze circular economies at the *ahupua'a* scale. One emerging project is the Ahupua'a Accelerator Initiative (described above) that has focused on directly supporting all three of these communities to develop their own Place-based solutions that can contribute to developing sustainable and functional economic models for *ahupua'a* management.

Another innovative funding mechanism is the Ka'ūpūlehu Foundation, a non-profit organization, mandated by the legal settlement in the area. Luxury homeowners in the area are required by their property agreements to pay a percentage of their real property value to the Foundation each year. This money is specifically earmarked to amplify Ka'ūpūlehu's 'Ōiwi lifeways, protecting the natural and cultural resources of the *ahupua'a* through providing perpetual cash flow to community-based land/sea-based projects in the relatively small area.

#### Differences in approach

##### *Departmental divisions and administrative rule pathways*

Each of these communities has had to navigate a different constellation of agencies and landowners, and even when different communities were working with the same agency, they all found different pathways through administrative rules to accomplish their goals.

- Hā'ena: The community created a “special subzone” through the administrative rules of the DLNR's Office of Conservation and Coastal Lands to restore forests, biodiversity, and agroecology in Limahuli Valley; established a “curatorship agreement” through the administrative rules of DLNR's Division of State Parks to restore wetland agroecology and aquaculture in the alluvial plain; and worked with DLNR's Division of Aquatic Resources to amend that division's administrative rules to allow for a CBSFA.
- He'eia: The community worked with the State's Hawai'i Community Development Authority (HCDA) to define the development in HCDA lands there as “agricultural development” instead of urban development as it is in other HCDA lands; and is in negotiations with DHHL to gain a formal co-management agreement; but the IPLC community has been at odds with DLNR's Division of State Parks, which has leased the park to a commercial enterprise against the will of the 'Ōiwi community. The community has also negotiated two different forms of agreements with Kamehameha Schools to engage in Indigenous stewardship and education activities in different parts of the *ahupua'a*.
- Ka'ūpūlehu: The community has worked with DLNR's Division of Aquatic Resources to amend its administrative rules for an already-existing “fish replenishment area” designation in the region rather than going through the more arduous process of getting a new designation for CBSFA there. The community is also restoring native forest areas through an agreement with Kamehameha Schools.

### *Involvement of federal government*

He'eia is the only community in this study that has opted in for a collaborative management agreement with the federal government. After generations of the federal government working against Indigenous interests, politically astute community leaders found a way to leverage federal support in the community's interests. In doing so, the IPLC has gained influence over the management of the most ecologically and culturally sensitive areas of the State park there, which was otherwise blocked on the state side.

### CONCLUSIONS

*Hana ka lima, 'ai ka waha* (When the hands work, the mouths are fed).

- Thomas Hashimoto, Lineal Descendent of Hā'ena

The IPLCs of Hawai'i have endured systemic injustice in the governance of their resources, the imposition of development, subsequent resource degradation, an influx of new residents, and decades-long legal battles to continue to do what they have always done: care for their Places. Though lacking the level of recognized rights that other Indigenous peoples possess in other parts of the world to govern their territories, each of the three communities highlighted in this study have used whatever tools were available to create their own pathways to Indigenous stewardship and self-governance. The communities of Hā'ena, He'eia, and Ka'ūpūlehu collaborate with a diverse array of community, private, and government entities in order to care for their ancestral territory, from the ocean, coasts, up to the mountain peaks of their watersheds. In all cases, community leaders have emphasized their Indigenous rights to care for these areas through their collective responsibilities to Place. Through their humility and perseverance, they have helped shift the function of numerous state and federal agencies to go beyond their conventional procedures, forcing government to develop new avenues to co-management that offer pathways to other Hawai'i communities seeking to exercise ancestral responsibilities to their home areas.

Designation of protected areas, such as fishing closures, and strictly regulated access to sacred forest sites are ancestral tools of Indigenous resource management globally and in Hawai'i. However, these tools along with many other decentralized and holistic approaches of Indigenous stewardship have not been compatible with the centralized and bureaucratic governance systems that have been imposed by settler-colonists. Hawai'i provides novel examples of how IPLCs nonetheless perpetuate Indigenous stewardship practices and community level decision making through informal means as well as through formal policy channels. Each of these communities in this study has entered into multiple co-management agreements to create ICCAs that synergistically achieve holistic, mountains-to-sea resource management, as is the tradition of Indigenous stewardship in Hawai'i. One key element woven through the efforts of these communities has been their emphasis on the revival of Indigenous food systems and associated lifeways. Another commonality are the educational endeavors that aim to teach the younger generations to *mālama 'āina* (care for the land) and to innovate, just as their predecessors have for generations, so that the families of Place will endure and continue to co-thrive with the land and the sea. Formal designation of ICCAs with delineated boundaries

for co-management is a progressive step toward reviving Indigenous stewardship now and in the future. In the establishment of each of these ICCAs, the IPLC embedded many of their values and lifeways as foundational elements to make sure their resources are cared for. The ultimate goal is for the community to co-thrive with their resources in their ancestral homes. These efforts share more commonalities than differences, and are indicative of enduring nature and adaptability of Indigenous People, as reflected in this quote by one of our elders:

*During our time, we have seen ali'i (royalty) rise and fall. We have seen our island nation born and die before its time. We have seen political parties wax and wane. We have seen elected and appointed officials come and go. But we remain. We have been chiefs and fishermen, goat herders and cattle ranchers, gardeners and homemakers. We have lived under two flags and a series of constitutions. Personally, caring less about the flag flying over the land than the life on the land, we aspire to contentment and to share the joy and blessing of calling Hawai'i Nei home. We aloha kekahi i kekahi (love or have reciprocity with one another), and mālama (care for) the same. And we remain on the land and pray that this long be so.*

- Hannah Kihalani Springer, Lineal Descendant of Ka'ūpūlehu

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### Data Availability:

*Data/code sharing is not applicable to this article because no data/code were analyzed in this study.*

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### LITERATURE CITED

- Andrade, C. 2008. Hā'ena: through the eyes of the ancestors. University of Hawai'i Press, Honolulu, Hawai'i, USA. <https://doi.org/10.21313/hawaii/9780824831196.001.0001>
- Baker-Médard, V. Rakotondrazafy, M. Haritiana Randriamihaja, P. Ratsimbazafy, and I. Maricarmen Juarez Serna. 2023. Gender equity and collaborative care in Madagascar's locally managed marine areas: reflections on the launch of a fisherwomen's network. Ecology and Society 28: in press.
- Beamer, K. 2014. No Mākou ka Mana: liberating the nation. Kamehameha, Honolulu, Hawai'i, USA.

- Beamer, K., K. Elkington, P. Souza, A. Tuma, A. Thorenz, S. Köhler, K. Kukea-Shultz, K. Kotubetey, and K. B. Winter. 2023. Island and Indigenous systems of circularity: how Hawai'i can inform the development of universal circular economy policy goals. *Ecology and Society* 28(1):9. <https://doi.org/10.5751/ES-13656-280109>
- Berkes, F. 2009. Community conserved areas: policy issues in historic and contemporary context. *Conservation Letters* 2 (1):20-25. <https://doi.org/10.1111/j.1755-263X.2008.00040.x>
- Berkes, F. 2021. *Toward a new social contract: community-based resource management and small-scale fisheries*. TBTI Global. ISBN: 978-1-7773202-4-9
- Burnett, K. M., T. Ticktin, L. L. Bremer, S. A. Quazi, C. Geslani, C. A. Wada, N. Kurashima, L. Mandle, P. A. Pascua, T. Depraetere, et al. 2019. Restoring to the future: environmental, cultural, and management trade-offs in historical versus hybrid restoration of a highly modified ecosystem. *Conservation Letters* 12(1):e12606. <https://doi.org/10.1111/conl.12606>
- Chang, K., K. B. Winter, and N. K. Lincoln. 2019. Hawai'i in focus: navigating pathways in global biocultural leadership. *Sustainability* 11(1):283. <https://doi.org/10.3390/su11010283>
- Delevaux, J. M. S., K. B. Winter, S. Jupiter, M. B. Vaughan, K. Stamoulis, L. L. Bremer, K. Burnett, P. Garrod, J. L. Troller, and T. Ticktin. 2018. Linking land and sea through collaborative research to inform contemporary applications of traditional resource management in Hawai'i. *Sustainability* 10(9):3147. <https://doi.org/10.3390/su10093147>
- Department of Business, Economic Development, and Tourism (DBEDT). 2021. *State of Hawaii Data Book*. DBEDT, Honolulu, Hawai'i, USA. <https://dbedt.hawaii.gov/economic/databook/db2021/>
- Department of the Interior, Fish and Wildlife Service. 2016. *Endangered and threatened wildlife and plants; endangered status for 49 species from the Hawaiian Islands*. Federal Register 81(190). <https://www.govinfo.gov/content/pkg/FR-2016-09-30/pdf/2016-23112.pdf>
- Gon, S., and K. B. Winter. 2019. A Hawaiian renaissance that could save the world. *American Scientist* 107:232-239. <https://doi.org/10.1511/2019.107.4.232>
- Gonschor, L., and K. Beamer. 2014. Toward an inventory of ahupua'a in the Hawaiian Kingdom: a survey of nineteenth- and early twentieth-century cartographic and archival records of the Island of Hawai'i. *Hawaiian Journal of History* 48:53-87. <http://hdl.handle.net/10524/47256>
- Handy, E. S. C., E. G. Handy, and M. K. Pukui. 1972. *Native planters in old Hawaii: their life, lore, and environment*. Bishop Museum Press, Honolulu, Hawai'i, USA.
- Harmon, K. C., E. N. P. Opie, A. Miner, I. Paty-Miner, J. K. Kukea-Shultz, K. B. Winter, and M. R. Price. 2022. Successful nesting attempts by 2 endangered Hawaiian waterbird species in a restored Indigenous agroecosystem. *Wilson Journal of Ornithology* 134(1):102-105. <https://doi.org/10.1676/20-00064>
- Hommon, R. J., 2013. *The ancient Hawaiian state: origins of a political society*. Oxford University Press, Oxford, UK. <https://doi.org/10.1093/acprof:oso/9780199916122.001.0001>
- ICCAs. 2022. *Territories and areas conserved by Indigenous peoples and local communities*. ICCA Consortium. <https://www.iccaconsortium.org/index.php/discover/>
- International Union for Conservation of Nature (IUCN). 2016. *Navigating Island Earth: The Hawai'i commitments*. IUCN, Gland, Switzerland. <https://www.hawaiiconservation.org/wp-content/uploads/Navigating-Island-Earth-Hawaii-Commitments.pdf>
- Kame'elehiwa, L., 1992. *Native land and foreign desires: pehea la e pono ai?* Bishop Museum Press, Honolulu, Hawai'i, USA.
- Ka'ūpūlehu Marine Life Advisory Committee. 2016. *Ka'ūpūlehu Administrative Record*. Submission to the Hawai'i State Department of Aquatic Resources. [https://dlnr.hawaii.gov/dar/files/2016/03/Kaupulehu\\_Admin\\_Record\\_Public\\_final.pdf](https://dlnr.hawaii.gov/dar/files/2016/03/Kaupulehu_Admin_Record_Public_final.pdf)
- Kane, C., R. K. Kosaki, and D. Wagner. 2014. High levels of mesophotic reef fish endemism in the Northwestern Hawaiian Islands. *Bulletin of Marine Science* 90(2):693-703. <https://doi.org/10.5343/bms.2013.1053>
- Kealiikanakaoleohaililani, K., and C. Giardina. 2016. Embracing the sacred: an indigenous framework for tomorrow's sustainability science. *Sustainability Science* 11:57-67 <https://doi.org/10.1007/s11625-015-0343-3>
- Kurashima, N., L. Fortini, and T. Ticktin. 2019. The potential of indigenous agricultural food production under climate change in Hawai'i. *Nature Sustainability* 2(3):191-199. <https://doi.org/10.1038/s41893-019-0226-1>
- Kurashima, N., J. Jeremiah, A. N. Whitehead, J. Tulchin, M. Browning, and T. Duarte. 2018. 'Āina Kaumaha: the maintenance of ancestral principles for 21st century indigenous resource management. *Sustainability* 10:3975. <https://doi.org/10.3390/su10113975>
- Maly, K. 1998. *Ka'ūpūlehu ma ka 'Āina Kaha: a report on archival and historical documentary research and oral history interviews, Ahupua'a of Ka'ūpūlehu, District of North Kona, Island of Hawai'i*. Kumu Pono Associates, Hawai'i, USA. [https://www.kaupulehufoundation.org/files/ugd/d06e0b\\_60436bec192a4d79-8d425a68d9b77a03.pdf](https://www.kaupulehufoundation.org/files/ugd/d06e0b_60436bec192a4d79-8d425a68d9b77a03.pdf)
- Meyer, M. A. 2008. Indigenous and authentic: Hawaiian epistemology and the triangulation of meaning. Pages 217-232 in N. K. Denzin, Y. S. Lincoln, and L. Tuhiwai Smith, editors. *Handbook of critical and Indigenous methodologies*. Sage, Los Angeles, California, USA. <https://doi.org/10.4135/9781483385686.n11>
- Meyer, M. A. 2013. Holographic epistemology: Native common sense. *China Media Research* 9(2):94-101.
- Minton, D., R. Carr, H. Lynch, R. Most, J. Rose, and E. Conklin. 2020. *Three year post-closure condition assessment: 2019 Ka'āpālehu, Hawai'i Marine Surveys*. The Nature Conservancy, Arlington, Virginia, USA.
- Morishige, K., P. Andrade, P. Pascua, K. Steward, E. Cadiz, L. Kapon, and U. Chong. 2018. Nā Kilo 'Āina: visions of biocultural restoration through indigenous relationships between people and place. *Sustainability* 10(10):3368. <https://doi.org/10.3390/su10103368>

- National Tropical Botanical Garden (NTBG). 2007. Master Plan for Limahuli Garden and Preserve: Hā'ena, Kaua'i, Hawai'i. NTBG, Kalāheo, Hawai'i, USA.
- Office of State Planning (OSP). 1992. Kane'ohe Bay Master Plan. OSP, State of Hawai'i, USA.
- Rodgers, K., A. Graham, J. Han, M. Stefanak, Y. Stender, A. Tsang, K. Stamoulis, J. Devevaux. 2021. 2016-2020 Five year efficacy study of the management regulations within the community based subsistence fishing area of Hā'ena, Kaua'i. Report prepared for the State of Hawai'i Division of Aquatic Resources. Coral Reef Assessment and Monitoring Program, Hawai'i Institute of Marine Biology, Hawai'i, USA.
- Sakai, A. K., W. L. Wagner, and L. A. Mehrhoff. 2002. Patterns of endangerment in the Hawaiian flora. *Systematic Biology* 51:276-302. <https://doi.org/10.1080/10635150252899770>
- Silva, N. K. 2004. Aloha betrayed. Duke University Press, Durham, North Carolina, USA. <https://doi.org/10.2307/j.ctv1ismzsz>
- State of Hawaii, Department of Land and Natural Resources. 2016. Hawai'i Administrative Rules for Title 13, Subtitle 4, Chapter 60.4 (§13-60.4) West Hawai'i Regional Fishery Management Area, Hawai'i. State of Hawaii, Honolulu, Hawaii, USA. <http://dlnr.hawaii.gov/dar/files/2014/05/ch60.4.pdf>
- Tipa, G. and R. Welch. 2006. Comanagement of natural resources: issues of definition from an indigenous community perspective. *Journal of Applied Behavioral Science* 42(3):373-391. <https://doi.org/10.1177/0021886306287738>
- Vaughan, M. B. 2018. Kaiaulu: gathering tides. Oregon State University Press, Corvallis, Oregon, USA.
- Vaughn, M. B., B. Thompson, and A. L. Ayers. 2017. *Pāwehe Ke Kai a'o Hā'ena*: creating state law based on customary indigenous norms of coastal management. *Society and Natural Resources* 30(1):31-46. <https://doi.org/10.1080/08941920.2016.1196406>
- Wagner, W. L., D. R. Herbst, and S. H. Sohmer. 2020. Manual of the flowering plants of Hawaii: revised edition. University of Hawaii Press, Honolulu, Hawaii, USA.
- Winter, K. B., K. Beamer, M. Vaughan, A. M. Friedlander, M. H. Kido, M. K. H. Akutagawa, N. Kurashima, M. P. Lucas, and B. Nyberg. 2018. The *Moku* system: managing biocultural resources for abundance within social-ecological regions in Hawai'i. *Sustainability* 10(10):3554. <https://doi.org/10.3390/su10103554>
- Winter, K. B., K. Chang, and N. K. Lincoln, editors. 2022. Biocultural restoration in Hawai'i. MDPI, Basel, Switzerland. <https://doi.org/10.3390/books978-3-0365-2619-5>
- Winter, K. B., N. K. Lincoln, F. Berkes, R. A. Alegado, N. Kurashima, K. L. Frank, P. Pascua, Y. M. Rii, F. Reppun, I. S. S. Knapp, W. C. McClatchey, T. Ticktin, C. Smith, E. C. Franklin, K. Oleson, M. R. Price, M. A. McManus, M. J. Donahue, K. S. Rodgers, B. W. Bowen, C. E. Nelson, B. Thomas, J.-A. Leong, E. M. P. Madin, M. A. J. Rivera, K. A. Falinski, L. L. Bremer, J. L. Deenik, S. M. Gon III, B. Neilson, R. Okano, A. Olegario, B. Nyberg, A. H. Kawelo, K. Kotubetey, J. K. Kukea-Shultz, and R. J. Toonen. 2020a. Ecomimicry in Indigenous resource management: optimizing ecosystem services to achieve resource abundance with examples from Hawai'i. *Ecology and Society* 25(2):26. <https://doi.org/10.5751/ES-11539-250226>
- Winter, K. B., Y. Rii, F. Reppun, K. Hintzen, R. A. Alegado, B. W. Bowen, L. L. Bremer, M. Coffman, M. Cypher, J. Deenik, M. Donahue, K. A. Falinski, K. Frank, E. C. Franklin, A. Hewett, R. Kaluhiwa, A. H. Kawelo, K. Kekuewa, K. Kotubetey, J. K. Kukea-Shultz, N. Kurashima, T. Lee, J. A. Leong, N. K. Lincoln, E. Madin, M. A. McManus, B. Neilson, C. E. Nelson, R. Okano, A. Olegario, K. Oleson, P. Pascua, M. Price, M. A. Rivera, K. Rodgers, C. Sabine, C. Smith, B. Thomas, T. Ticktin, and R. J. Toonen. 2020b. Collaborative research to inform adaptive comanagement: a framework for the He'eia National Estuarine Research Reserve. *Ecology and Society* 25(4):15. <https://doi.org/10.5751/ES-11895-250415>
- Winter, K. B., T. Ticktin, and S. Quazi. 2020c. Biocultural restoration in Hawai'i also achieves core conservation goals. *Ecology and Society* 25(1):26. <https://doi.org/10.5751/ES-11388-250126>
- Winter, K. B., M. B. Vaughan, N. Kurashima, C. Giardina, K. Quiocho, K. Chang, M. Akutagawa, K. Beamer, and F. Berkes. 2021. Empowering Indigenous agency through community-driven collaborative management to achieve effective conservation: Hawai'i as an example. *Pacific Conservation Biology* 27(4):337-344. <https://doi.org/10.1071/PC20009>