

Cultivating the Unseen: Pa‘akai and the Role of Practice in Coastal Care

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Abstract This piece centers itself in *pa‘akai* (seasalt) practices as providing a critical lens for an ethnoecology of the rural Puna coastline on the island of Hawai‘i. Grounded by ethnographic engagement with ‘Ōiwi (Native Hawaiian) tradition, interweaving *mo‘olelo* (stories) from *kūpuna* (ancestors, elders) alongside contemporary praxis in Puna, Hawai‘i Island, we explore the role of *pa‘akai* gathering, *limu* (seaweed) provisioning, and offshore spring water collection in what we are calling coastal care—the reciprocal relationship of care between communities and coasts. Hawaiian cultural practices around *pa‘akai* are a striking home for biocultural linkages including practitioners’ understandings of human and other-than-human wellbeing that exemplify the diversity of cultural dimensions tangibly present in coastal places. Highlighting the plurality of roles culture plays in the sustainable stewardship and wellbeing of coastal places and communities, this work contributes to ongoing discourses around the role of human dimensions in coastal conservation and management. Here we use *water*, *pa‘akai*, and *limu* to make visible what we call the “unseen realm” within contemporary conservation—the persistent blind spots around Indigenous and local culture(s) within conservation policy, planning, and enactment. Encouraging conservation and island sustainability scientists and practitioners to better engage with their blind spots, we identify the need for collaborative coastal management inclusive of ‘Ōiwi practices and understandings of coastal care with implications for coastal studies in Hawai‘i and in other Indigenous contexts across Oceania.

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Introduction: Coastal Conservation and *Mo‘o*

This piece works to identify and discuss potential blind spots and unseen realms in coastal conservation. As an opening to the observations about conservation and coastlines which we wish to draw into view, we point to the complexity of elemental and biological entities when perceived through a cultural lens. On coastlines, these entities, including salt, seaweeds, or offshore freshwater springs, are often more, or other, than they appear to conservation scientists and

managers. For instance, in Hawaiian cosmology, a significant aspect of some waters that flow from uplands to coasts is that they can be home to a class of beings known as *mo‘o*—mediators between human and other-than-human worlds, conception and perception, mind and action, and rights and obligations. *Mo‘o* can be protective entities, as well as threats to be wary of. They may take a reptilian form, often glossed in English as dragon-like, perhaps reflecting their sublime character—both terrible and



beautiful. Because *mo'o* are *akua wai* (water deities), “when investigating them we should keep the life-giving and death-dealing properties of *wai* (water) in mind because as a collective body they embody most if not all of its attributes”, as professor of religion Alohalani Brown (2022:43) notes. *Mo'o* thus exemplify some of the character of the relationships between nature's materiality and the role of culture in sensitively shaping environmental behavior, in this case through an 'O'imi (Native Hawaiian) lens which brings into focus the potency of elemental deities physically manifested in the environment (Goldberg-Hiller and Silva 2011; Kanahale 2021; Kanaka'ole Kanahale and Wise 1989). Notable among the ontological and metaphysical plurality is the likelihood that the unaware may never perceive the culturally grounded presence of entities such as *mo'o* even as their presence may be actively bearing on and frequently threatening passers-by's wellbeing (Brown 2022:45-46; Torgersen 2018). Beyond the shores of Hawai'i, social anthropologist Veronica Strang positions such water beings as “provid[ing] symbolic support for the alternate beliefs and values that locate humankind in more egalitarian and reciprocal position in relation to the non-human world, and which might therefore encourage more sustainable modes of engagement” (Strang 2021:19). Thus, they exemplify land and waterscape presences or ‘metapersons’ (Sahlins 2022) immanent in everyday contexts. These too often go unseen, unfelt (Wiebe 2019), and unconsidered by some coastal actors including those whose conservation and management actions will profoundly affect the wellbeing of Indigenous and local communities.

In Hawai'i, where this paper is positioned, marine, coastal, and nearshore conservation and management may frequently find itself entangled in the relationships, values, knowledge systems, and practices which surround such complexly cultural entities (Dacks et al. 2019; Sterling et al. 2017). These management types include large-scale marine protected areas (LSMPAs) that are no-take zones such as Papahānaumokuākea Marine National Monument, meso-scale MPAs implementing fishing seasons and harvest limits enforced, as possible, by state-management bodies such as the West Hawai'i Regional Fishery Management Area, no-take zones for all but cultural descendants such as the Hawai'i Volcanoes National Park shoreline, and relatively community-scale protected areas such as the slow-emerging Community-Based Subsistence Fishing

Areas (CBSFAs) like Mo'omomi CBSFA (Akutagawa et al. 2016; Freestone et al. 2013; NPS 2020; Poepe et al. 2007; Stevenson and Tissot 2013). As attention to water bodies and water beings emphasizes, conservation and management areas may seek to enclose and govern these human and other-than-human worlds. In that sense, conservation areas may, too, be somewhat like bodies of water with unseen presences which may, at times, pose risks to the unaware. Contrasting with the unseen cultural dimensions which can escape the perception of some observers, coastal care-based practices and their knowledge bases foster reciprocal relationships that cultivate resilience and entangled multi-body and multi-dimensional wellbeing. These can manifest across spiritual, relational, and physical dimensions.

In the remainder of this paper, we seek to complement insights about the potent presences embodied by *mo'o* by drawing attention to *pa'akai*-related practices including *pa'akai* gathering, *limu* (seaweed) provisioning, and offshore spring water collection. We suggest that conservation scientists and practitioners may advance their work by better appreciating the presence of cultural complexity around particular species or entities on the coastal landscape which, like water bodies and all that they may contain, too often go unseen. Many scholars, Indigenous and otherwise, alongside diversely positioned practitioners, have called for the inclusion of Indigenous, local, and rural ways of knowing within conservation and environmental management. These calls include an acknowledgement of land-use legacies' contribution to ecosystem diversity and resilience (Armstrong et al. 2021; Berkes 2018) alongside the “mainstreaming” of social sciences necessary to synthesize human dimensions within the conservation, sustainability, and environmental sciences (Bennett et al. 2017; Moon et al. 2019). 'O'imi practitioner engagement with *pa'akai* (seasalt) offers an exemplary lens for understanding coastal places and provides an effective and embodied monitoring approach. This highlights the opportunities of biocultural approaches (Betley et al. 2021; Sterling et al. 2020) to contribute to the linked wellbeing of coastal communities and local environments by drawing into view relevant dimensions that might otherwise go unperceived and unengaged.

The Unseen Realm and the Need for Effective Management of Coastal Areas

The presence of unseen, culturally grounded



aspects of place tangibly manifested in diverse Indigenous and local perceptions, conceptions, and responsive practices of community members that we focus on within this piece resonates with what Chamorro jurist and environmental philosopher Julian Aguon calls “perpetual light” (Aguon 2021). Just as water holds eddies, currents, and minerals that cannot readily be seen, so too do our places hold practices and ways of knowing, inclusive of culturally immanent entities, such as *mo’o*, that have yet to be well incorporated into active conservation and management approaches including visioning, policy, and implementation. This persists despite their potential to contribute to effective management, sustainable stewardship of resources, and an ethic of care for community that is inclusive of respective environmental and ecological linkages. Asking the reader to dwell, for a moment, on the relations between *mo’o* and waterways brings to mind an observation which deserves continued attention by conservation scientists and practitioners. As anthropologist of science Stefan Helmreich observes, water exemplifies the challenge to understand the interplay of both natural and cultural substances: “For natural science, water’s effects depend on its state (solid, liquid, gas), on its scale (from molecular to oceanic), and on whether it is fresh or salty, still or turbulent, deep or shallow. For interpretative social sciences, water can be sacred substance, life, refreshment, contaminant, grave” (Helmreich 2011:132-133). A key point here for those coming from disciplinary backgrounds outside the social sciences is that the ‘nature’ of water, in any particular culture, with all the locally salient irreducible uniquenesses of conception, perception, and practice, is tangible and material, in a different sense than the molecular definability of some substance. Water, that is, exemplifies the obstacle confronting approaches to conservation and management when attempting to perceive, understand, and incorporate expertise within Indigenous worlds inclusive of knowledge, perception, value, or practice (Fabre et al. 2021; Lauer 2017; Moon et al. 2019). Engaging with place may reveal cultural dimensions which are material and tangible to practitioners and social scientists, but which may linger in the realm unseen, unperceived, or felt to be intangible by many conservationists despite the more or less emerged consensus that all such practices benefit from engagement with local communities and their socio-ecological worlds (Abas et al. 2022; Cronon 1995; West et al. 2006).

This challenge of bridging between the unseen/unfelt and the tangible/material in cultural dimensions may be particularly salient for coastal areas, home to vibrant biocultural linkages (Lepofsky et al. 2017), which are often obscured within conservation bins: as neither land nor sea, yet featuring both extraordinary and ordinary dimensions. In Hawai‘i for instance, the ability for ‘*Ōimi* to represent themselves, their knowledge, goals, and practices within the context of biocultural conservation of coastal areas may be hampered, not only because of legacies of dismissiveness of Indigenous and local knowledges in (post)settler colonial societies (Tuhivai Smith 2012), but also because of the persistent tendency to perceive coastlines as mere boundaries between terrestrial or marine conservation contexts, each with their own particular concerns and literatures, and which persistently overlook the density of cultural practices that are specifically coastal. The intertidal zone presents a geography central to ‘*Ōimi* culture and provisioning that is under-explored in coastal management and research in comparison to fisheries or reefs. In the Hawaiian archipelago, as elsewhere, we argue that coasts are areas that deserve nuanced negotiation and engagement as “sentient cultural landscapes,” comparable to the Australian Country described by Strang, not only informed by but realized within cultural practice(s) as way of knowing (Strang 2021:18). Here, we engage with active cultural practitioner-based understandings of *pa‘akai* to exemplify the unseen dimensions surrounding particular resources or resource-complexes subject to conservation and management. Allowing for consideration of ways that place-based, culturally grounded approaches can contribute to an alternate modality of knowing, monitoring, and sustainably managing coastal wellbeing. Such approaches have material implications for conservation and sustainability impacts, resulting in desired outcomes for any number of valuable cultural resources such as *limu*, among others.

While emerging work continues to highlight the need for the turn to place (Andrade and Morishige 2022; Hale et al. 2022; Kamelamela et al. 2022; Larson 2020), we note that cultural dimensions, including some of the most salient, continue to be overlooked in engagement by extra-local experts or difficult to capture through more familiar disciplinary lenses (Dacks et al. 2019; Verschuuren 2007) seeking to support effective coastal management in Hawai‘i and beyond (Leong et al. 2019; Toniello et al. 2019). At

root, our argument suggests that ‘*Oimi* knowledge systems and practices remain underrepresented and overshadowed in the status quo of conservation and marine resource management because they remain unseen, unfelt, and thus go unacknowledged by non-practitioners despite frequent articulations of best intentions and shared goals towards sustainable management of coastal resources and areas.

The implications of this work extend well beyond Hawai‘i. Recent work suggests that 47.9% of coast regions across the globe are under pressure from heavy anthropogenic impact and will face changing climatic and harvesting pressures in the near future (Bindoff et al. 2019, Williams et al. 2021). As the world community increasingly recognizes the growing challenges facing shorelines, there are and will continue to be calls for coastal conservation interventions such as the above-mentioned management-styles. In Hawai‘i, for example, the Holomua Marine 30 x 30 Initiative calls for the Hawai‘i Department of Land and Natural Resources to “effectively manage Hawai‘i’s nearshore waters with 30% established as marine management areas by 2030” (DAR 2020). But could effective management benefit if filtered through a place-sensitive lens and implementation which pragmatically engages with diverse cultural dimensions (Winter et al. 2021)? What might conceptualizing coastal management through care-based cultural practices bring ever more clearly into view (Morishige et al. 2018)? Moreover, this lens brings into view an assembly of other entities and associated practices on the coast which require similar attention to the too often unseen cultural dimensions tangibly present in local practices around diverse flora and fauna and elemental entities such as *pa‘akai* and offshore freshwater.

Place-based Engagement & Methods

We would like to nuance our place-based engagement, introducing the *piko* (navel) of this work. Our understanding of cultural praxis as a lens for liminal coastal spaces is informed by recent ethnographic experience on the rural coastline of Kalapana, which is located on the southeastern shore of Hawai‘i Island in the Puna district. Kalapana is best-known for its position downslope of the active Kīlauea Volcano. Kalapana’s coast is a rich biocultural landscape (Dacks et al. 2019; Morishige et al. 2018), woven through cultural lifeways such as *lavai‘a* (fishing), *‘obi* (gathering), *nobokūpuna* (to reside in ancestral homelands), and *kanikapila* (impromptu

music composition). These exemplify the interconnectedness of ‘*Oimi* culture and ecological knowledge systems which undergird *‘āina* (land, literally that which feeds) as the site of the linked sustainable wellbeing of human and other-than-human communities (McGregor et al. 2003, 2007). Kalapana is a key site of continuing care-based relationships by long-persisting *kua‘āina* (rural subsiding) communities who maintain niche-based sites of vibrant *ola* (‘*Oimi* term for health, wellbeing) (McGuire in press). *Kua‘āina* is “someone who embodied the backbone of the land...the Native Hawaiians who remained in the rural communities of our islands, took care of the *kūpuna* or elders, continued to speak Hawaiian, bent their backs and worked and sweated in the taro patches and sweet potato fields, and held that which is precious and sacred in the culture in their care” (McGregor 2007). We pair contemporary conversations with *kūpuna* and gathering practices with documented oral history accounts from the same coastline to emphasize the value of *mo‘olelo* (story) and *mo‘okūaubaun* (genealogical) or other ancestral based understandings (Nākoa and Wright 2015, Wilson-Hokowhitu 2019). Engagement included *holoholo* (purposefully meander) along the Kalapana coastline with elders (2020–2022), and *limu* provisioning for medicinal, ceremonial, and dietary purposes conducted by McGuire.

McGuire was raised and continues to subside within the Puna district where she navigates several roles as Native woman, community member, and Hawaiian medicine student-practitioner. The lived experiences, ethnographically documented, provide the grounded context and sensory engagement with the entities discussed with elders and within this paper. ‘*Oimi* scholar Kaiwipunikauikawēkiu Lipe writes of “*mo‘olelo aku, mo‘olelo mai*” as methodology, to share and receive three kinds of *mo‘olelo* including *mele* (musical compositions), *‘olelo no‘eau* (Hawaiian proverbs and sayings), and narration or storytelling (Lipe 2015). We focus, here, on the third kind, the stories told by both ancestral and contemporary *kua‘āina* of Kalapana. Using *mo‘olelo* engagement, from both current practitioners together with ancestral voice, provides a genealogical understanding of our *piko* and attempts to meet Hawaiian historian Noelani Arista’s call to not just position “native voice” within scholarly work but to nuance and contextualize it within an honoring of ancestral voice (Arista 2009). In an effort to “compose anticolonial genealog[ies]” of place (McDougall 2021:52), we

engage with *kaona*, the Hawaiian term for veiled inner meaning within the stories considered (Arista 2010:665) calling attention to the understated and poetic aspects of coastal care.

Semi-structured interviews were completed with individuals who have intergenerational connections to the Kalapana coastline and are current residents and/or maintain *pilina* (un-severable relationships) with coastal sites. Interview questions focused on understanding how individuals maintain their *pilina* to this coastline. Interviews were transcribed, returned to knowledge holders for consent and review, and coded for elements of coastal care and ways of knowing coast. Of the wider group of interviewees, the primary knowledge holders included within this constellation of *pa'akai* practices include Uncle Sam and Uncle Primo Keliioomalū, who both reside in Kaimū. With their permission and guidance, their names are included rather than anonymized within this work. Engagement with oral histories particularly draws on 25 oral histories collected by Dr. Charles Langlas and students spanning from 1987-2010, providing the most comprehensive source available for accounts of Kalapana lives within the 20th century (Langlas and Kūpuna 2016). We primarily draw from the oral history of Auntie Emma Kauhi which provides insight into the lives of the *kua'āina* of the Kalapana coast within 1916-1935 (Kauhi and Langlas 1996). In the discussion below, we do not report across the full range of interview findings but tease out key ideas from those which brought *pa'akai* practices into focus, emphasizing practitioners' maintenance of *pilina* and coastal care.

***Pa'akai*, 'Uao Kapakai (Coastal Mediator)**

Pa'akai practices are an embodied, place-based lens with which to understand the 'Ōiwi coastline. Like water, *pa'akai* evidences a plurality of chemical, molecular, and physical properties readily engaged by natural scientists alongside a lush range of cultural and social properties which become visible through 'Ōiwi-grounded ways of knowing, perceiving, and holding practical expertise with sustainability and ecological management implications. Grounded in the Kapa'ahu section of the wider Kalapana coastline, Auntie Emma Kauhi shares that the gathering of seasalt was known by two names: *ka 'ohi 'ana o ka pa'akai* and *hahāpa'akai* (Kauhi and Langlas 1996). In the Hawaiian language the crystallized form of salt is known as *pa'akai*. *Pa'a* literally means to be firm, secure, steadfast. *Kai*, the sea. *Pa'akai* is thus a

powerful embodiment—unseen but tasted and felt in its *kai* (sea water) form and '*ehu kai* (sea spray) form, only seen in its crystallized form (Pukui and Elbert 1986). Across the Hawaiian archipelago, *pa'akai* has many different uses, primarily for the preservation of food and seasoning, but also medicinal and ceremonial purposes (Nobrega-Oliveira 2019). In McGuire's experiences with *pa'akai* gathering on Hawai'i Island—in Kona and Puna districts, gathering sites look different, dependent on the size of coastal shelves and depressions, and remain consistent sites of return, following the weather events that allow for the shelf's wave-inundation and subsequent evaporation. With Hawai'i Island sites differing from those previously documented on Kaua'i (Nobrega-Oliveira 2019), the style and size of the sites also vary by island. *Pa'akai* is used in all elements of Hawaiian healing—as a cleansing agent, topically in combination with several different herbs for wounds, bruises, and broken bones, and internally in combination with herbs for a multitude of ailments (Gutmanis 2006). Among healing and subsistence practitioners, *pa'akai* is used in death ceremonies, blessings, and as a preservative of food and of the dead. Among its many highly culturally significant roles, *pa'akai* is sometimes used in protocol exchanges of greeting to establish and mediate social relationships between *kia'i* (caretakers) of that place and visitors. It is positioned as an entity that has value in the ordinary and every-day contexts of community wellbeing. However, it is also positioned within ceremonial and sacred domains, highlighting its role as a medium or even vessel of *mana* (loosely glossed as spirit, energy, or power) within 'Ōiwi worldviews.¹ *Kua'āina* connection to the coast through *pa'akai* practice is emplaced, temporally rooted in a past which is embodied, plural, and active.² Each of these dimensions of *pa'akai* practice brings into view the selective attention, directed responsiveness, and lived experience of community members as what we call 'care'. It is these components of care that this piece identifies as valuable to coastal management conversations and approaches.

"What keeps me attached to the land, is this right here," Uncle Primo Keliioomalū said as he shared his bucket full of his home-made *pa'akai* (Figure 1). Uncle Primo is the only traditional salt-maker within the Kaimū community and wider Kalapana coastline. This salt is a delicate crust, rather than the hard granules that we can buy in the store... made from the waters of Kaimū, the traditional homeland of the



Keliioomalū family within the wider Kalapana area. McGuire observed, when talking to Uncle Primo, that this practice gives him great pride, and maintains his intimate relationship with this specific coast. In her account of life in neighboring Kapa‘ahu from 1916–1935, Auntie Emma Kauhi shares of the practice of *hāhāpa‘akai*:

If the ocean is stormy, the waves cover the shore far inland and the depressions in the rock get filled up with seawater. And then if the hot weather comes back, the water in those depressions dries up and turns into seasalt. And you have to be careful to collect the salt before it rains. The places to get salt were at ‘Apua or Kekaha... So there were certain places to get seasalt, places with big, flat rocks, with the proper depressions, huge depressions. You got clean seasalt... Only when the time was right would you gather seasalt... they'd be observing the nature of the clouds, perhaps the kind of wind that blew, and the movement of the ocean” (Kauhi and Langlas 1996:102).

Auntie Emma’s account shares intimacy of knowledge of weather patterns and wave activity over time as well as of specific rocks and shelves. Following dramatic geologic activity along the coastline, which have altered the coastal depressions needed for the evaporative process (such as at Kekaha) and altered relationships of access within the boundaries of Hawai‘i Volcanoes National Park (such as at ‘Apua), *pa‘akai* gathering practices have shifted from western portions of the coastline to areas of more immediate access (Figure 2). As with other cultural practices such as Hawaiian healing, *laubala* (*Pandanus tectorius*) weaving that have declined due to limited availability, shifts away from subsistence-based livelihoods, and breaks in practitioner-knowledge transmission, salt gathering has declined within Hawai‘i (Boyd and Kūpuna 1997, Nobrega-Oliveira 2019). Uncle Primo shared the challenges he faced in traditional-style salt-production including unknowing passersby stepping on the salt beds which makes production in traveled areas potentially difficult and has led to an adaptive practice—the evaporation process now done further inland, away from the immediate coastal edge, in raised trays (Figure 1). Additional causes of decline of this practice include the high levels of development and pollution across the shores of Hawai‘i.

Pa‘akai, and engagement with it in its *kai* (sea) form as well as mineral form, is essential not only for establishing human wellness via ‘*Oimi* practice, but to knowing and intimately understanding other-than-human wellness within our coastal spaces. Within the Kalapana coastline, for example, which has no large freshwater-bodies such as streams, the presence and absence of *pa‘akai* acts as a biocultural indicator for specific *limu*, certain marine invertebrates, and dependent-fish. From practitioner groundings—drawing from McGuire’s and Kalapana-*kua‘aina* experiences provisioning *limu*—we³ know that seaweed, *limu ‘ele‘ele* (*Enteromorpha prolifera*) will only grow in areas where there is freshwater input (brackish areas). On seeing *limu ‘ele‘ele* on the Puna coastline practitioners know by association that the water is more *wai* (freshwater) than *kai* (saltwater) from potential spring or groundwater sources. In these areas, too, practitioners know to look for our brine shrimp, ‘*ōpae‘ula* (*Halocaridina rubra*) (Figure 3), which like to hide in the thin ‘*ele‘ele* fronds. Kalapana-based practitioners know this from gathering practices. Uncle Sam Keliioomalū shares, “Guarantee if people go look outside here, the ‘*ōpelu* schools out here, guarantee the ‘*ōpae‘ula* stay popping out, over there, someplace.” Uncle Sam’s knowledge aligns with ancestral accounts of the coast. Auntie Emma Kauhi shares, “As for the bait for ‘*ōpelu* fishing, it was ‘*ōpae‘ula* (a small, red endemic shrimp). Before at Kapa‘ahu, there was plenty of that kind of shrimp, ‘*ōpae‘ula*. In the ponds. But goldfish were brought in, let loose into the ponds. The ‘*ōpae* were eaten by these goldfish, and the ‘*ōpae‘ula* completely disappeared” (Kauhi and Langlas 1996:109). Practitioner experiences gathering *limu ‘ele‘ele* and Uncle Sam’s knowledge can be paired with Auntie Emma’s account to show a return of these beings within this coast, an ecological indicator for which biogeographic data in this space is lacking. The consideration of what we are calling *wai kai* (freshwater and saltwater/marine) relationships on this coast and subsistence-based understandings of place provides an embodied and dependent relationship with species assemblages of ecological communities.

This practice-based knowledge of how *wai kai* dynamics inform the status of inter-dependent coastal wellness can provide for more intimate, site-specific ways of knowing coast. Just as *pa‘akai*-presence provides a lens for understanding the *limu* and dependent biota communities, the niche-pockets of its



Figure 1 Left: salt beds at Kaimū. Right: Kaimū pa'akai, 2022. Photo credit: Gina McGuire.

absence provide the lens with which to intimately engage with other areas that are easily overlooked. Not easily perceived sites such as offshore springs called *punalu'ū*⁵ and *hoaka*⁶ in 'Ōlelo Hawai'i, engaged in past and present by skilled practitioners, provided access to *mea waiwai* (valuable entities) including those used in *lapa'au* (healing), *loko i'a* (fish pond), and *lawai'a* (fishing) practices (Harden and Kūpuna 1998:50, Nishimoto and Akutagawa 1991:74, 83). Historic maps and stories (Langlas and Kūpuna 2012) show that springs are abundant along the Kalapana coastline. Writing on the hygiene and sanitation of the Hawaiian Islands, Bushnell wrote of the “numerous” springs that were each “known and named, even those that came up in the sea, beyond the edge of land” within Hawai'i (1966:331). Bushnell goes on to write of villagers who could “dive into the sea with an empty water-gourd and to come up with it filled with its cool water” (1966:331). This intimate and named knowledge base exemplifies ways of knowing that are lived, dependent on recurring site-relationships, and

that highlight reciprocal care. These springs, through their taste and consistent presence, provide insight into island groundwater happenings that may otherwise go unobserved. Just as we, persons, cannot exist without freshwater, these offshore springs cannot exist without proper island-based management that will be better grounded when the role of cultural practices, sensory engagement and dependencies, and presences (and as importantly, realized absences) around such entities as *pa'akai* are taken into account.

**Pa'akai as Coastal Management Intervention:
Concluding Thoughts**

In their work with Vhavenda plant knowledge holders, Natasha Constant and Milingoni Tshisikhawe suggest that “hybrid knowledge co-production through the development of collaborations between state-sponsored management, conservation experts, researchers, and Indigenous and local knowledge holders can lessen the dominance of science and positivism as the primary decision-making

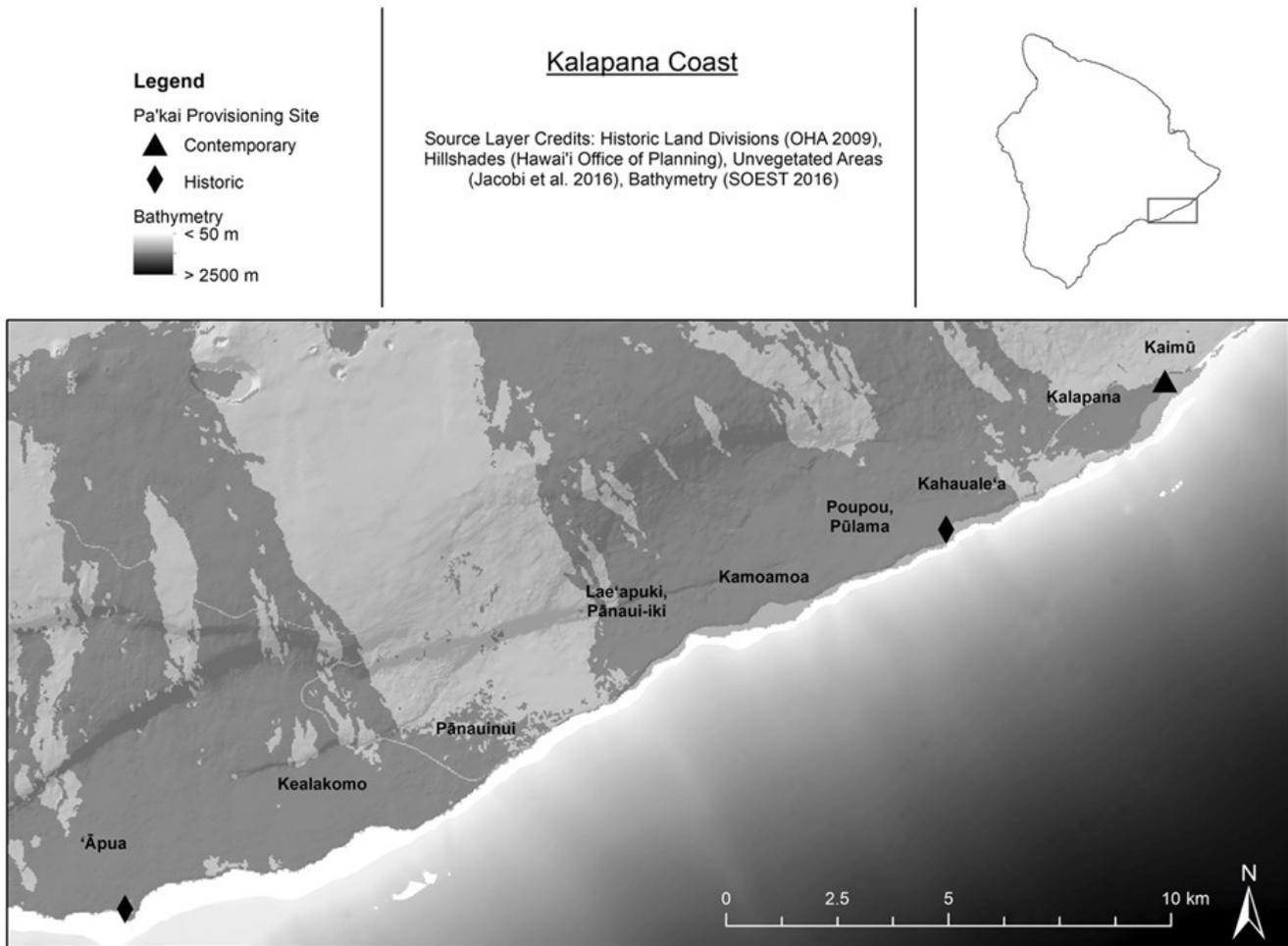


Figure 2 Kalapana coastline, displaying historic and contemporary sites of pa'akai practice.

frameworks for natural resource management” (2018:26). We echo this sentiment. Engaging with practice is a lens for better perceiving the multi-dimensionality of land- and sea-spaces in which management and conservation actions are enacted. By considering practice, ecological connections that were formerly difficult to perceive, much less incorporate within policy and decision making through previously available indicators (Dacks 2018; Sterling 2020), improve on existing tools that advance broadly shared goals of sustainable wellbeing for coasts and communities. Decisions and management schemes should work to be aware of the presence of, if not incorporate, cultural dimensions that would otherwise go unseen, which may emerge only in the context of particular cultural practices at certain seasons and places, and which are not easily dismissed as

“intangible” once their lived materialities are taken into account. In one example of how this inclusion leads to more dynamic modalities of care, Yuku Baja Muliku⁷ observations within their traditional seasonal calendar “have led to changes in management practices at some levels (the way we manage our cultural burning regime) or to adapted Indigenous Knowledge in others (using a different flowering tree as an indicator of fish presence)” (Hale et al. 2022:236).

Similarly, *pa'akai* provisioning offers conservationists and managers the opportunity to incorporate knowledge on coastal wellbeing indicators such as water quality or weather patterns (consistency/seasonal fluctuations) to inform place-based monitoring and care. When scientists and



Figure 3 Mixed media 'ōpae'ula contributed by LOI.

practitioners make space for these praxis-based ways of knowing, we also make visible these indicators for others engaged in conservation-based management and/or sustainable harvest. We ask that conservation bodies directly promote and support cultural practices such as *hāhāpa'akai*, *limu* provisioning, or offshore *wai* collection as valid ways of informing ecosystem-wellness and as ways that build community investment in their place-health. “If we want our shorelines to be productive and continue to produce for us, we need to understand how to tend to them” (Andrade et al. 2022:191). This action-basis of ‘tending’ ensures long-term care in and of our coastal places, their resources, and cultural imminencies. We identify the need for collaborative coastal management inclusive of cultural practices and understandings of coasts, making room for ancestral and contemporary knowledge transmission-based relationships in conservation while at the same time identifying that these ways of knowing often occur outside of state-sponsored conservation modalities. Rather, they are maintained by cultural knowledge keepers without expectation of recognition toward coastal care.

Returning to the challenge of the unseen realm of cultural dimensions, particularly of Indigenous ecological practices within conservation and management regimes emplaced over coasts, we are reminded of the way that Hawaiian scholar Emalani Case describes *pō'ai*, domains at the edge of what is visible, by which Hawaiian cultural practitioners understand relationships to entities and spaces that are not visible to the eye (2022:102). These *pō'ai* particularly call for engagement within coastal realms,

as neither entirely terrestrial nor marine. They are more than the sum of their parts. *Pa'akai* embodies this unseen realm, as not just mineral but spiritual entities with mana. The sea waves, rocks, sites of gathering, and the *pa'akai* itself through inter-relationships take on kin-based relations. *Pa'akai*, and correspondingly the coast, is alive because we are alive (and vice versa): *i ola 'oe, i ola mākou nei* (my life is dependent on yours; your life is dependent on mine). We present *pa'akai* as an entity that shapes our ecologies, our coast-spaces, and as integral to 'Ōivi cultural practices, with practice-based engagements that remain, largely, in the unseen realm of conservation-based and other forms of coastal management. We call this into sight as a *kino* (corporeal) embodiment of a care-based engagement for coastal management that incorporates practice within place-wellness indicators. In our experiences, management bodies have tended to focus on easily quantified indicators of human wellness that can be compared across sites (e.g. water quality levels) and biota abundances rather than practice-based indicators, which can be more individual, un-generalizable, and experience based.

In reflection of the relevance of our suggested insight about what the *mo'o*-like elements of management or conservation areas/regimes can hold for those not positioned as cultural practitioners, we are reminded of the way in which European cartographers would illustrate a large dragon-like entity over parts of the sea as yet uncharted. In discussion of Olaus Magnus' 1539 map, *Carta marina*, European historian, Lindsay Starkey writes, “The ocean continually gave birth to more and more



marvels, meaning that no matter how much a person investigated its sea monsters, that person could never fully know either the ocean's contents or its potential contents, leaving the spectator of that ocean... to wonder about both the ocean and the sea monsters it repeatedly produced" (Starkey 2017:37). This visual history of other peoples' sea monsters, juxtaposed with *mo'o*, reminds us that one person's unseen realm may be another's tangible, immanent, and mediating ecological and environmental praxis. If we accept the cultural, cosmological, and mana-based understandings of coast as immanent and tangible, what then changes? What might it mean for conservation? We support the call to better develop and incorporate indicators of cultural dimensions frequently described as "intangible", often unseen, and almost always unmeasured within coastal management, as embodied in our discussion of *mo'o*. As Dacks et al. (2019) note, significant gaps in addressing place- and cultural praxis-based indicators persist. We encourage conservation scientists and practitioners, as well as sustainability actors to attend to the following interventions:

- The ongoing development of biocultural indicators that are specifically coastal, and which indicate for coastal environmental states the linked wellbeing of sites and their supported human and other-than-human communities, and the culturally salient practices which are linked within them (Dacks et al. 2019; Leong et al. 2019; Sterling et al. 2017)
- The consideration of the persistence and resilience of practitioner-linked *pilina* to elements and entities that indicate and/or carry *mana*, such as *pa'akai*. We recall Uncle Primo's words about *pa'akai* provisioning as what keeps him connected to the land. We encourage evaluation of: 1) the diversity and plurality of entities, practices, and cognitions which tie us to place (inclusive of that which is shared or not shared between differently positioned actors, e.g. Indigenous knowledge holders maintaining relations to ancestral lands and seas, local/rural residents, managers, caretakers); the status over time of those ties; and 2) how conservationists, managers, and stewards can sustainably facilitate these practice-based ways of knowing and caring for coasts within respective place-based contexts.
- The assessment of the survival of enduring *nobokūpuna*, of whether knowledge transmission

from *keua'aina* within ancestral sites is occurring and the continuity of sustained residence in ancestral homelands. We would like to flag this concept of *nobokūpuna* of particular importance and as currently under-emphasized in considerations of coastal wellbeing. When *nobokūpuna* is intact, mana-bearing ancestral presences that are embedded and remain alive within coasts are known and cared for in modalities of selective attention, directed responsiveness, and lived experiences.

- The use of *mo'olelo* as key sources on how elements and entities of coasts are storied and appropriately cared for. *Mo'olelo* often present non-linear ways of knowing a place, with past, present, and future frequently co-aligned. We suggest the analysis of *mo'olelo keua'aina* alongside contemporary stories and compositions to inform temporally dynamic and ancestrally grounded coastal wellbeing.
- The composition of management teams that practice *makawalu* (eight ways of seeing), which allows for the consideration of the place or entity from a plurality of worldviews and ontological stances (cf. Todd 2014 for a resonant call in a First Nations context).

The ocean, and the coast in particular, remain jumping-off points for tangible engagements of care with seemingly intangible aspects of cultural practices around *pa'akai* or *punalu'u*, as well as for the known entities and relations we depend on such as *'ōpae'ula*, *'ōpelu*, or *limu*. When engaged with practice-based care, practitioners advance from observers of these coastal and marine spaces across scales (Andrade and Morishige 2022, 312) into embodied and action-based roles within wider communities committed to tending ancestral lands and seas. Pihana et al. identify knowledge sharing, storytelling, and engagement with cultural practice as ways to create and sustain long-lasting relationships to place that strengthen the wellbeing of future generations as ocean stewards (2022). Our work similarly calls into sight the value of practitioner-based engagement to inform coastal care. In doing so, we emphasize the need to make room for care and knowledge transmission-based relationships in conservation around plural ontologies. As Uncle Primo shared, cultural practice is an umbilical cord—one which links community members to ancestral home coasts. Such connections enable the reciprocal relationships necessary for coastal care: the vital

relationships of people to place that advance integral wellness through practice and consciousness of the lifeways within geographies of care.

Notes

¹ For a robust treatment of this important term, see the edited volume Tomlinson & Tengan 2016.

² For Hawaiian cultural practitioners this past may be conceived as “before us” (Wilson-Hokowhitu 2019).

³ Like other Polynesian languages, ‘Ōlelo Hawai‘i observes two series of first-person plural pronouns. One series (*māua/mākou*) includes the speaker/writer and one or more others but not the audience/reader. The other series (*kāua/kākou*) includes both the speaker and audience/reader or the speaker, audience, and yet others. These distinctions in positionality are not readily captured by the, relatively speaking, depauperate ‘we’ of English. Here we (*māua*) note that McGuire and the Kapalana *kua‘āina* community of practitioners, in whose knowledge this work is embedded, engages a ‘we’ (*mākou*) that does not include the co-author and may or may not include the reader depending on their positionality. For an important treatment of the role of these shifting ‘we’ in scholarly writing, particularly that bearing on Indigenous worlds, see Tengan 2018 and the large linguistics literature on “shifters.” We encourage other scholars to attend to the nuance of we-stance in their research and writing.

⁴ *Decapterus* spp.

⁵ *Puna* - springs, *lu‘u-* to dive, reference from Ka‘ū and Puna districts, Hawai‘i Island.

⁶ *Hoaka-* reference for blue holes from ‘Ualapu‘e, Moloka‘i (Nishimoto & Akutagawa 1991:74).

⁷ Traditional Custodians of land and sea country of Archer Point, North Queensland, Australia.

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