

*The customs and beliefs of most ancient cultures made it possible for them to live in harmony with the natural environment and utilize its resources in a sustainable manner. Although lower population density and labor intensive methods of harvesting and construction helped slow resource use in early times, another important factor was that ancient people functioned as an integral part of ecosystems. Likening themselves to other animals, they attempted to fit in and often contributed to the maintenance of natural processes through practices that replenished resources and enhanced their productivity.*

## The Ahupua'a Concept: Relearning Coastal Resource Management from Ancient Hawaiians

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**A**ncient civilizations developed regimes of farming, hunting, fishing and gathering that balanced use with periods for resource recovery. These traditions incorporated recycling and population control, while maintaining the natural flow of biomass, nutrients and energy through mountain, forest, slope and lowland ecosystems. Examples of such legacies include the nomadic, slash-and-burn agriculture of indigenous South American people; the chinampas, or floating farmlands, of ancient central Mexico; the seasonal harvest of tools, implements and earthen materials from underground caves by the Mayans; and the sustained harvest of the buffalo by Lakota and other North American plains people (until the introduction of the gun and the horse by Europeans).

The division and subdivision of terrestrial and coastal ecosystems throughout the Pacific Basin (and the world), which has destroyed their integrity and holistic function, is one result of the imposition of the philosophies and laws of a "western" civilization on well-developed indigenous cultures (the

established concept of "east" and "west" is ambiguous for Pacific people). Changes in the concepts of agriculture, urbanization, social responsibility and land ownership are some of the means whereby these destructive influences have been exerted. Modern land use practices in particular have caused deforestation, erosion, restriction of normal runoff and freshwater flow, unbalanced urbanization and pollution which may take centuries to reverse.

Isolated in the middle of the Pacific

Ocean, Hawai'i was one of the last areas to be reached by "western" explorers, and the last to become a part of the United States (of North America). As such, some ancient traditions were preserved in Hawai'i well into the 19th and 20th centuries, providing an opportunity to learn from a surviving indigenous culture. Ancient Hawaiians believed that because the land, sea and everything in them were created by the gods, they must be cared for. "No one must take more than they need, and everything must be shared."<sup>1</sup>

"To conserve the supply of all resources was constantly in the Hawaiian mind. When plants were taken from the forest, some were always left to replenish the supply. Replanting was done without fail at the proper time as beds of taro and sweet potatoes were used. Fishing grounds were never depleted, for the fishers knew that should all the fish be taken from a special feeding spot (*ko'a*) other fish would not move in to replenish the area... At the base of this action to conserve was the belief that the gods would have been

displeased by greediness or waste.”<sup>2</sup>

The concept of land ownership did not exist in Hawaiian culture, although land was an extremely valuable part of life. Because of its importance to them, Hawaiians had many words for the land and all its formations. The word for land ‘*āina* had a much deeper meaning, derived from the word meaning “to eat”.

The words for the land zones (too numerous to mention) denote not only increasing distance from the moutaintop and closeness to the sea, i.e., *mauka* (“towards the rise (mountain)”) or *makai* (“towards the sea”), but also the changes in vegetation due to altitude and climate.

The largest unit of land was the island. Because they are naturally separated from one another, each of these islands could be referred to as an ‘*āina*, but the more common term was *mokupuni*. The lands were not divided in ancient times but as the islands became crowded it was necessary to make additional subdivisions.<sup>3</sup>

These were the *moku’āina* (districts), *kalana* (similar to a *moku’āina*), ‘*okana* (divisions within *moku’āina* or *kalana*) and *ahupua’a*. The *ahupua’a* were the smallest major divisions, which cut the islands into a series of pie-shaped sections oriented in a *mauka-makai* direction. Figure 1 shows a schematic representation of a *moku’āina* divided into *ahupua’a*, showing the ‘*ili’āina* and *mo’o’āina*, which allotted land for farming, fishing, and the elaborate system of traditional dwellings to families and larger groups. The *ahupua’a* spread out at the base along the shore and were self-sufficient units, affording to the chief and people “a fishery residence at the warm seaside, together with the products of the high lands, such as fuel, canoe timber, mountain birds, and the right of way to the same, and all the varied products of the intermediate land as might be suitable to the soil and climate of the different altitudes from sea soil to mountainside or top”.<sup>4</sup> By defining the *ahupua’a* in this manner, ancient Hawaiians recognized the relationship between the land and sea,

rainfall, vegetation, nutrients and runoff, and preserved the integrity of the delicately balanced ecosystem of which they were a part and upon which they relied for their every need.

The Hawaiian philosophy and system of government promoted the fruitful and sustainable use of land and coastal areas. The chiefs had a responsibility to their king to administer the *ahupua’a* and ensure its productivity. This meant that the balance and abundance of other forms of life would be maintained in the mountains, forests and coastal areas, and that everyone should have a place to live, should coexist in peace, and share not only their food but also a sense of community. Of course, there were

agriculture still existing today that exemplifies the balance between multiple land uses, which was the way of life of ancient Hawaiians. The ponds were set off from the sea by walls of huge stones, expertly packed according to their size and shape without any form of cement. These sturdy walls were permeable, allowing an interchange of water with the sea. Through this interchange, the balance of brackishwater in the ponds was maintained; and since water flowed around and through the walls, rather than just pounding against them, the fishponds were resistant to the destructive forces of erosion and wave action. Although they were not expressly designed for these purposes, fishponds also served as settling ponds, thereby reducing the loss of soils to the ocean and protecting the reefs from siltation. Building and maintaining fishponds was a group effort that drew the Hawaiian people together,

and provided a source of food as well as a means of viewing fish up close where they could be appreciated. The keepers of the fishponds were powerful spiritual leaders who held a special understanding of the seasons and their changing relationship to sources of water and energy (waves, nutrients, etc.) from land and sea.

Fishpond construction required sustained and intensive periods of labor, during which time farmers, fishers, woodsmen and others would cooperate to produce the structures that sustained an entire *ahupua’a*. This work was coordinated through the bond to the chiefs, who guided the well-being of the *ahupua’a* for the benefit of all.

Harvesting large schools of fish was another task which required great effort and cooperation. The *konohiki* (land agents) with domain over the portion of reef directly *makai* of the *ahupua’a* directed fishing activity in this area. Fishing, like all other activities, had its strictly observed *kapus* (prohibitions or rules). These included rotating closed seasons and places for fishing, the reservation of certain fishes to the *ali’i* (upper classes) during all or part of the year (which had

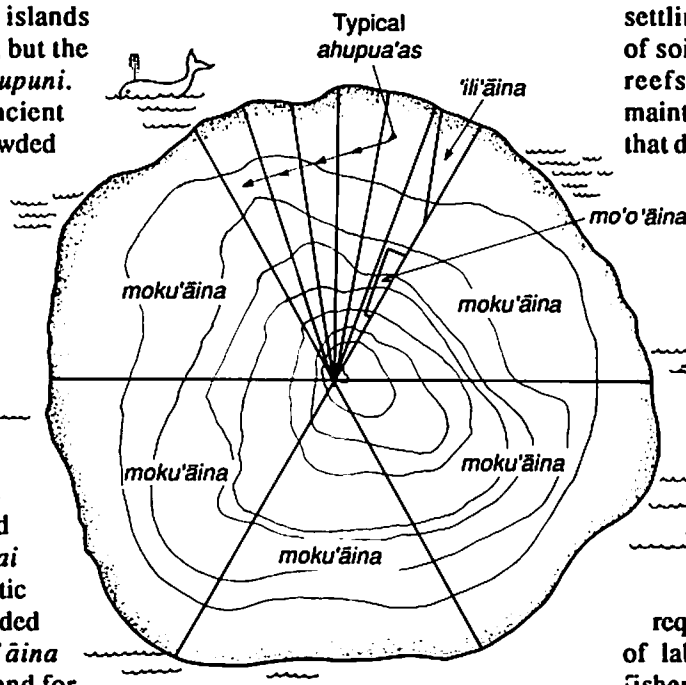


Fig. 1. Schematic view of a *mokupuni* (island) subdivided into *ahupua'a*.

occasional periods of hunger, when seasonal changes made hunting, fishing and harvests scarce. Wise chiefs and extended families learned to plan for these eventualities and were able to live comfortably most of the time.

Under this system, the eight main Hawaiian Islands sustained a population estimated at from 250,000 to nearly one million people, depending upon the source<sup>5</sup>. The upper limits of ancient population estimates are comparable to the number of modern Hawaiian residents<sup>6</sup>.

Fishponds are a form of Hawaiian



an effect comparable to that of modern quota systems), and the responsibility to lend a hand (*kokūa*) in some way when fish were abundant.

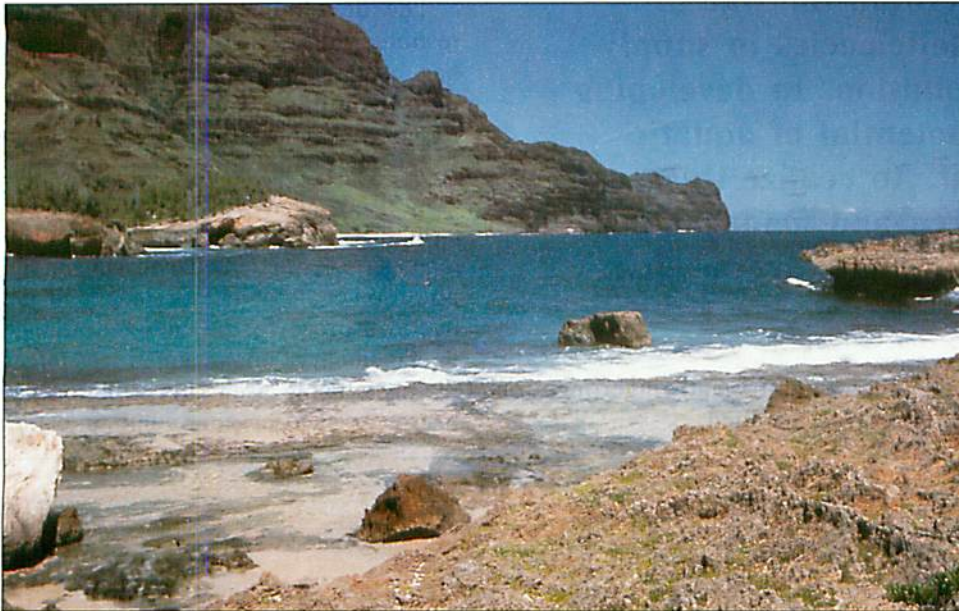
It was each chief's responsibility to see that his people were provided for through timely and cooperative planting, harvesting, fishing and construction. Healthy and well-fed people, well-tended crops, and abundant hillsides and fishponds were a source of pride. Skill and knowledge of traditional methods of planting and fishing were handed down through chants, songs and dance.

Modern parallels to this ancient system are broken and irregular. Their structure can be traced to the gradual erosion and takeover of the sovereignty of the Hawaiian nation. The power of the kings and chiefs

in a *mauka-makai* direction. Along a typical *mauka-makai* transect, ownership and jurisdiction is now interspersed between private, City and County, State and Federal agents. State Government is comprised of separate Offices, Departments and/or Divisions which manage Forestry and Wildlife, "Water" Resources (water only), Aquatic Resources (living organisms, including fisheries), Land Management, Transportation, Boating, Harbors, (Native) Hawaiian Affairs, State Planning, (Human) Health, Business and Economic Development (including tourism), Agriculture, etc. Boundaries run at all angles to the mountain, within which there are patches varying in ownership; but more often than not, jurisdiction is zoned along

and interagency cooperation to maintain successful management and ecological balance. Elaborate networks of commissions, boards and committees have been established to oversee the various jurisdictions.

Although steps are being taken to remedy the present situation, Hawai'i now ranks among the highest in the nation for its levels of pollution, endangered species and disappearing habitats. These problems will require a concerted and enduring effort over several decades if endemic ecosystems are to be revitalized and restored. More and more, the model for improved management is being sought in the revival of ancient traditions that were once silenced by a culture that failed to listen and learn from the wisdom of the Hawaiian people.



**A Hawaiian rugged coast. (Photos on p. 11 and 13 courtesy of the Division of Aquatic Resources of Hawaii's State Department of Land & Natural Resources.)**

was concentrated to a single monarch whose government was overthrown. Thus, Hawai'i became the land of sugar and pineapple plantations; and the *ahupua'a* system, which had survived more than sixteen centuries of Hawaiian rule disappeared into a system of private land ownership and interagency jurisdiction.

The reorganization of the *ahupua'a* system marked the beginning of the decline of Hawaiian ecosystems. There was no longer a clear lineage and hierarchy of responsibility and caring for the conservation of land and water resources

concentric circles which interrupt the *mauka-makai* connection. The Cities and Counties are responsible for management of urban lands and the immediate shoreline. Within this realm, lands zoned for conservation are under State jurisdiction. State waters extend from the shoreline to within three miles of the coast, where Federal jurisdiction begins. Inland and inshore (within the bays and/or fringing reefs), and archipelago-wide pockets of Federal jurisdiction also exist. The resulting matrix of private, State, County and Federal responsibility within the *ahupua'a* defies the limitations of communication

## Further Reading



- <sup>1</sup>Kelly, M. 1985. Statement to the native Hawaiians study commission, p.102-106. *In* Native Hawaiians study commission report. Hearings Commission on Energy and Natural Resources. U.S. Senate, 98th Congress. 2nd Session. Senate Hearing 98-1257, Pt. 1. Hawaii, April 17-20, 1984. US Government Printing Office, Washington, DC.
- <sup>2</sup>Titcomb, M. 1952. Native use of fish in Hawai'i. Originally published in 1952 as Memoir 29, Polynesian Society, Wellington, New Zealand. 2nd edition, 1972. University Press of Hawaii. 175 p.
- <sup>3</sup>Kamakau, S. M. 1839. The works of the people of old (*Na Hana a ka Po'e Kahiko*). Translated by M. K. Pukui. Bernice P. Bishop Museum Spec. Publ. No. 61. (1976) Bishop Museum Press, Honolulu. 170 p.
- <sup>4</sup>MacKenzie, M.K., Editor. 1991. Native Hawaiian rights handbook. Office of Hawaiian Affairs/ Native Hawaiian Legal Corp. University of Hawaii Press. Honolulu. 320 p.
- <sup>5</sup>Stannard, D.E. 1989. Before the horror: The population of Hawai'i on the eve of western contact. Social Science Research Institute, University of Hawaii Press. 149 p.
- <sup>6</sup>Department of Business and Economic Development and Tourism (DBEDT). 1990. The state of Hawai'i data book: a statistical abstract. DBEDT Research and Economic Analysis Division, Statistics Branch Publ.No. HA4007.H356.1990. 667 p.

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