

Wai Ola: The Water of Life

Vocabulary

kalo, makua, keiki, 'ohā, hā, 'ohana, piko, lau, lū'au, Hāloa, lo'i, 'auwai

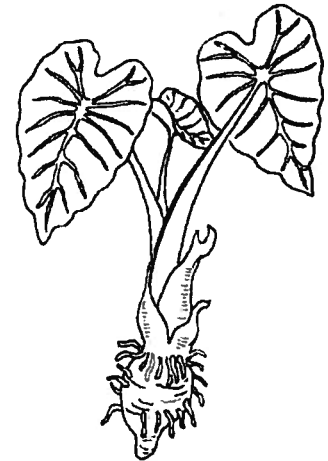
Teacher Background

The early Polynesian settlers of the Hawaiian Islands identified water with wealth. *Wai* is the Hawaiian word for fresh water; *waiwai* means prosperity. *Ola* means life; *wai ola* is the water of life. The Hawaiians believed that all the land and the water belonged to the gods. The highest chief, *ali'i nui*, acted for the gods and ruled the land. Land use was governed in sections called *ahupua'a*, which usually extended from the upland summit peaks or ridge crests down to the outer edge of the reef. Within the *ahupua'a* boundaries, the *maka'āinana* (commoners) had most of the resources they needed for survival—fish from streams and reefs, fresh water and land to grow *kalo* and other crops, and forests for wood and medicinal herbs. The only resource people could not use freely within the *ahupua'a* was water. The rights to use water were overseen by a chief—the *konohiki*. When *ahupua'a* were combined to create a *moku* (district), the *konohiki* was responsible to the *ali'i 'ai moku*.

At a prominent place where two *ahupua'a* met, there was an *ahu* (collection of stones) on which an image or offering of a pig (*pua'a*) was placed. During the Makahiki season, the ancient festival that began when the constellation of Makali'i rose at sunset, people placed offerings of fish, food crops, or forest bird feathers at the *ahu* for the touring *ali'i*.

Kalo is a staple food plant of Hawaiians. The underground stem or corm of *kalo* is known as the *makua* (parent). Its offshoot is the *keiki* (child) known as the *'ohā*. The word for family, *'ohana*, shows the close relationship of Hawaiians to *kalo*. The origin of *kalo* is Hāloa the son of Wākea, the first man and ancestor of all Hawaiians. Hāloa was born a shapeless mass and buried next to Wākea's house. In that spot the first *kalo* plant grew.

Kalo cuttings (*huli*) are used for replanting. The harvested parts of the plant are the corm, which is cooked, mashed and eaten as *poi*; and the *hā* (stem) and *lau* or *lū'au* (leaves), which are eaten as a vegetable. *Kalo* is usually grown in irrigated terraces known as *lo'i kalo*. The Hawaiians engineered an extensive system of irrigation to keep cool water flowing over their *kalo* crops. Some of the water in streams was diverted to the *lo'i kalo* through irrigation canals called *'auwai*. Water fed into individual *kalo* patches from this canal and then flowed back into the stream. Hawaiians planted other crops, such as *mai'a* (banana) near the *lo'i kalo* so the plants could be watered along with the *kalo*.



The *konohiki* distributed water to each *'ohana* according to how many men the farmer brought to build and maintain the *'auwai* and *lo'i*. The farmers were known as *mahi'ai* and only men were allowed to cultivate *kalo*.

In dry areas, growing *kalo* was more labor intensive. When it was not raining, crops were covered with a mulch of ferns and other plants to minimize evaporation and hold in precious water. When it rained, the mulch was removed to allow the moisture to penetrate the soil. Hawaiians living in dry areas had a much more difficult time obtaining fresh water. They collected fresh drinking water that seeped from the roofs of caves and flowed from springs that welled up in the sea. Some of these springs were found at the ocean's edge at low tide. Divers located these under sea springs and collected the water in gourds.



The steady flow of streams from the land to the sea is important for freshwater and marine organisms. Native stream organisms such as 'o'opu (gobies) or 'ōpae (shrimp or prawns) spend part of their lives as larvae in the sea and then return to streams where they mature. Marine algae and fish are nourished by the flow of nutrients from streams to the sea. Hawaiians took advantage of many of these stream-nourished coastal areas to harvest food and build fishponds. These areas of "sweet water" are still important fisheries today.

The vital connection between the land and sea has been disrupted in the last 200 years by a growing human population. The activities of people and feral animals in upland areas have muddied streams, killing some algae and stream life, and smothering reefs with eroded silt and mud. Some water uses, such as growing sugarcane or housing developments, divert a substantial amount of water from streams. Unlike the Hawaiian *kalo* irrigation system, however, modern diversion of water does not return water to a stream. Streams have also been lowered by residential water uses. When groundwater is tapped by wells, springs that feed into streams can dry up. The result is reduced streamflow and the loss of native stream life and productive marine fishing grounds. When streamflow is low, water stagnates in the *lo'i* and the *kalo* rot. In some areas, streams have completely dried up and *kalo* production has become no more than a memory of days gone by.

Teaching Suggestions

1. Divide the class into five family groups or 'ohana. Have students imagine that they are the first settlers in old Hawai'i. Ask them to describe where they would settle on the island (e.g., mountain crest, windward side, leeward side, rainforest, coastal area, near a stream) and the reasons for their chosen location.
2. Establish the importance of streams in early Hawai'i. Ask the 'ohana what they would do when their population grew and more and more people were competing for water, fish and other resources. Describe the system of ahupua'a.