MAP AND DIRECTIONS TO KAWAI NUI MARSH

To reach the trail entrance to Kawai Nui Marsh/Nā Pōhaku, from Kalaninana'ole Highway, turn onto Quarry Road (Kapa'a Quarry Road or “old dump” Road) at the stoplight and drive 1 mile. The trail entrance, a clearing in the vegetation, will be on the makai side of the road, just past the white speed zone sign. You will see a graveled pull-off site where you can park and a clearing in the vegetation where the trail begins. See the arrow on the map below for approximate location to the Nā Pōhaku trail at Kawai Nui Marsh.

From Mākapu Boulevard, turn onto Quarry Road (Kapa'a Quarry Road or “old dump” Road) at the stoplight and drive 1.5 miles. The trail entrance will be on the makai side of the road and you will see a clearing in the vegetation where the trail begins.
KAWAI NUI MARSH BACKGROUND INFORMATION

This unit was originally written as an investigation of wetlands in the Kāne’ohe and Kailua ahupua’a on windward O’ahu. Since Kawai Nui Marsh is the largest remaining wetland in the Islands, we encourage teachers to bring their classes there. The background information on Kawai Nui and Mōkapu from the original unit is provided below for those wishing to take their students to or learn more about Kawai Nui.

Introduction

Due to its importance in the history of the Islands of Hawai‘i and because it is the largest remaining wetland in the islands, restoration efforts at Kawai Nui Marsh on windward O‘ahu have begun. In March 2002, the Na Pōhaku O Hauwahine Wetland Restoration Project received a grant under the North American Wetlands Conservation Act (NAWCA) to create and maintain 1.0 acre of open water in Kawai Nui Marsh. It is the largest palustrine wetland in the Islands of Hawai‘i and covers over 800 acres (‘Ahahui Mālama I Ka Lokahi, 2004). Palustrine systems include any inland wetland which lacks flowing water, tidal action and contains ocean derived salts in extremely low concentrations.

The U.S. Fish and Wildlife Service and Hawai‘i State Division of Forestry and Wildlife have developed considerable resources and programs as they have identified Kawai Nui Marsh as a recovery habitat for endemic and endangered birds and it is now listed on the U.S. National Registry for Historic Places. ‘Ahahui Mālama I Ka Lōkahi is currently restoring native plants and clearing parts of the Marsh so that native wetland birds such as the ‘alae ke‘oke‘o (coot), ae‘o (Hawaiian stilt), koloa (Hawaiian duck), and ‘alae ula (moorhen) can reestablish populations. Similar efforts are underway at ‘Ōhi‘apilo and other wetlands on Moloka‘i.

In earlier days, trash polluted Kawai Nui Marsh, along with sewage and soil erosion or sedimentation. Introduced or alien plants remain a threat. Mongoose, dogs, cats, rats and pigs are all potential predators of water birds or their eggs, and the access of predators to nesting areas severely depletes or eliminates breeding activity.

Kawai Nui was once a great bay and open to the sea. Later, a sand barrier built up and it became a brackish-water fishpond. When Kawai Nui was used as a fishpond, it covered 450 acres and was said to have the sweetest tasting ‘ama‘ama (mullet) found anywhere.
Since the 1960s, the local community around Kawai Nui Marsh, and a variety of local and statewide environmental, educational, and Hawaiian groups and other individuals, have consistently advocated for resource protection and against development in and around the Marsh.

Reference


Lesson 1: Teacher Background Information

Mōkapu Peninsula in the Kāne’ohe alupua’a contains a 482-acre wetland/waterbird habitat that includes coastal ponds, salt flats, and remnants of five ancient fishponds—Halehou, Muliwaiolena, Nu’upia, Pā’ōhua, and Kaluapūhi (Kikuchi, 1973). At one time, much of the lowlands at Mōkapu were coastal marsh, but much of this has been filled in. The drainage channel that passes through the area and empties into Kāne’ohe Bay was once a large estuary that extended across the neck of the Mōkapu Peninsula and well into the uplands (Wilcox et al., 1998).

Today the former fishponds are known as Nu’upia Ponds Wetland Management Area. They are subdivided into eight interconnected ponds separated by roads and causeways. The ponds and surrounding salt flats are important habitat for wetland birds (Wilcox et al., 1998).

The gently sloping basin of Mōkapu extends below sea level so Nu’upia Ponds, the main drainage channel that runs through the peninsula and two marine ecosystems at Mōkapu all interact through tidal action. Brackish groundwater also supplies water to the ponds. Freshwater runoff from the land drains into the ponds, into the drainage channel, and into Kāne’ohe Bay. Although recent human-made storm systems intercept and redirect some storm water runoff away from Nu’upia Ponds into the central drainage channel (Wilcox et al., 1998).

References


Lesson 3: Teacher Background Information

At Nu'upia Ponds Wetland Management Area, the native 'akulikuli and the alien pickleweed ('akulikuli kai) growing on the edge of the ponds are salt-tolerant and have fleshy stems and narrow, succulent leaves to retain fresh water.

At Kawai Nui Marsh, the uki (sedge) and hau hele (hibiscus) are adapted to grow in wetland conditions. Unfortunately, the alien mangrove and California grass are well adapted to the freshwater marsh conditions and are crowding out the natives.

Lesson 4: Mo'olelo and Teaching Suggestions

Mo'okapu, the Sacred Land

Imagine a time long, long ago, before there were cars and houses, and shopping malls on every corner; long before our kapuna (ancestors) used horses to go from one end of the island to the next; long before there were even people. Our islands were rich with creatures like birds, fish, colorful flowers, and trees so tall that your neck would stretch trying to see the very top. This was a time when no humans lived in Hawai'i.

The creatures that settled here lived in harmony with each other. Birds, like the brilliant red 'apapane and 'i'iwi, sang beautiful songs in the forests. They sipped sweet nectar from the lehua flowers. Colorful land snails, the kahuli, were like tiny jewels glistening on the leaves of the trees. The makani (wind) and ua (rain) would bless the plants and creatures with cleansing breezes and life-giving water, and they would grow.

There were so many trees. The big trees protected the small trees and the small trees protected the little tiny plants. And all the plants protected the 'ai'ina (land) and created a beautiful green carpet that soaked up the ua (rain) and made the islands rich and healthy.
One magical day, man was created. He was born on a sacred beach on O'ahu where rich brown sand is found. The place is called Kaha-kaha-ke-ea at Mo'okapu, or as we know it today, Mōkapu. Mo'okapu translates the "birth place of man."

One day, the ancient Hawaiian gods, Kū and Lono, formed the body of man from the sands of Kaha-kaha-ke-ea. Kāne, their brother, waited patiently in a cave in the hills of Kapa'a.

When the body was completed, Kāne joined his brothers and breathed the breath of life into the nostrils of the man that had been created from earth and sand. The image stood up and became a living being. He was tall and brown and handsome and strong. His name was Kumu-honua, which means source of life. He represented the creation of the entire human race.

Three vital powers were given to Kumu-honua; they were the special gifts of mind, heart and expression. What this meant was that unlike all other living creatures man was given the power of imagination, the power of love and emotion, and the power of expression.

Since Kumu-honua was given these special gifts, it was his kuleana (responsibility) to care for the earth. From this day forward, it has always been the responsibility of all generations to aloha (love) and mālama (care for) the ʻāina. It was Kumu-honua's kuleana. Let it be ours as well!

(Adapted from: Paki and Haar. 1972. Legends of Hawai'i: Cahu's yesterday)
Kaulu and the Lepo ‘Ai Ia

O Kailua, nui kuapapa
O Kailua, great is your legacy
Ke pala mai ka hala
When the hala blossoms
‘Ula no ka a’i
Red lei for the neck
Aia I Kahiki, Kaulu-a-kalana
There, in Kahiki, Kaulu-son-of-Kalana
Nānā I Kiwa’a
Eyes fixed on Kiwa’a
I ka lepo ‘ai ia
There, the lepo ‘ai

(Words by Kīhei DeSilva for the song “Ka ‘Ulu Hala”; Musical Album “Kealo: Wehokoala - The Way is Open” by Walt Keale, 2006)

If you’ve ever taken a drive down the short road between the Pali highway and Mōkapu Boulevard (some call it “dump road”) in Kailua on the windward side of O‘ahu, you may have noticed the massive pōhaku (stones) on the slopes of the pu‘u (hill or mountain) overlooking the present-day Kawai Nui Marsh. These stones are another story for another time: However, long before the marsh thickened with the silt of mountain run-off and long before it was a swamp...even before it was a large network of loko i‘u (fishponds) and lo‘i (farming terraces), the ocean lapped gently against its shores. Here it was that Kaulu began to discover his kuleana or destiny.

Kaulu lived in Kailua just a few hundred years after the first arrivals of Polynesians to these islands. Yet the stories passed down through the ages tell us it had been long enough for those early inhabitants to lose touch with parts of their culture such as navigating by the stars. In fact, during the time Kaulu lived, Hawaiians then looked up at the night sky and saw only constellations where once their ancestors had seen maps and star trails! On the day he decided to rediscover those trails, many people then living in Kailua privately laughed and ridiculed the young chief. And with no knowledge of star navigation it would have been certain death to travel very far by sea.
Still Kaulu looked fearlessly out on the horizon from the massive pōhaku of Kawai Nui (the big water). On the first day he sailed in the direction of Hawaiʻi Island. Not far along the coastline of ʻOʻahu he spotted Molokaʻi, then Lānaʻi, and headed for what he saw. As the islands grew on the horizon he passed one, then another until finally, there was nothing to head toward except the open sea between here and the pillars of Kahiki (kūkulu o Kahiki).

On the first night, Kaulu dropped his sails and just sat in his canoe. Looking up at the night sky, he drew lines in his head from star to star. Yet nowhere did he find a star map for the next day’s journey. Finally he drifted off to sleep. That night he dreamed of terrifying, dark storms on an open sea and hanging on for his life with no idea of where and when it would all end! Then out of nowhere a dream took him into a deep forest where, seated on a lau hala (woven pandanus leaf) mat, he gazed up at a cloudless sky full of stars. Five stars came spiraling down only to become birds, four ʻūpeʻo then finally, one giant, white ʻiwa bird that was strong and fierce. All of them came to perch in the kōkui forest surrounding him but the white ʻiwa sat right in front of the young chief. Strangely, he felt no fear in the forest of dreams.

When he awoke the stars still shined faintly. At the dawning of first light on the horizon Kaulu looked up. His breath caught in his throat; for right in front of the waʻa (canoe), hanging in the air, was the fierce, giant ʻiwa from his dream! It seemed to be waiting for him to hoist the sail. In a flurry, the waʻa raced to follow the bird.

Day after day, Kiwaʻa, a canoe-leading kupua (supernatural guardian) led the way. And night after night, Kaulu would chart the journey, carving the long forgotten trails into the front of his waʻa.

Stories of the many exploits of the great chief Kaulu and his journeys to the pillars of Kahiki (kūkulu o Kahiki) were passed down by the generations that followed him. We can say for sure that the return voyage of Kaulu in the waʻa was full of danger. Some days the naiʻa (porpoises) rode the currents indicating the journey would be easy. On other days, the kohola (whales) swam on the surface of the water signaling stormy and dangerous travel ahead.
When the day finally dawned for his arrival, Kau lu set his foot upon the highest pōhaku (stone) overlooking the shore of Kawai Nui. From this wahi nānā (sighting place) Kau lu looked out on the sea feeling the deep knowledge of his kupuna (ancestors) in his naʻau (soul).

Nevertheless, the people of Kailua doubted it had happened at all. After his return, they said, “He’s only been to Moloka‘i hiding out all these years!” and to Kau lu they said, “Prove to us that you really have traveled beyond the horizon.” Kau lu then reached into his belongings and pulled out a large ʻumeke (wooden bowl). In it was a strange substance they say was the consistency of haupia (coconut pudding) but it tasted better and brought the best of health! Legends tell of the lepo ‘ai ia (edible mud) found only in Kahiki when the star trails had been lost. After sharing some with the people of Kailua, they also said that it was hidden in Kawai Nui only to be brought out in time of the people’s greatest need. (Moʻolelo provided by Wali Keite, September 2006, for Project Aloha ʻĀina)

**Discussion Questions for Moʻokapu**

- Why is Moʻokapu considered a sacred site?
- Kumu-honua was given three special gifts. What were they?
- How would you use these gifts to mālama the place where you live?
- What message(s) does this story provide? What cultural beliefs does the story teach us?
- What are the best ways to listen for key ideas and write them down?
- Stories are an important way to learn about the history of people and places. How else can we learn about our place?

**Discussion Questions about Kau lu**

- Who was Kau lu and what is special about his story?
- What is lepo ‘ai ia?
- Where do legends say lepo ‘ai ia is found?

**Lesson 5: Teacher Background Information**

Approximately 3,000 - 5,000 years ago, the marsh was a large lagoon that extended approximately a mile inland from the present shoreline. As the hillsides around the lagoon gradually eroded, sediments filled much of the lagoon to form Kawai Nui Marsh. Hawaiians converted the area to a large inland fishpond, once known as Kawai Nui Loko. As with Nuʻupia Ponds, Kawai Nui Loko provided a productive environment for cultivating fish such as ʻana tama (mullet), awo (milkvish) and ʻoʻopu (goby).
For more information about the fascinating history of the marsh, see the following Web site developed by Ko'olau Net: http://www.pixi.com/~isdl/Kawai_Nui.html.

Today many alien species, such as the invasive California grass and cattails cover much of the marsh. A number of community groups led by the efforts of 'Ahalui Mālama I Ka Lōkahi are working together to help restore native plants to the area. Native wetland plants that grow in the marsh include ʻuki (saw grass, sedge), ʻukiʻuki (lily) neke (fern), neki (bulrush), and native hibiscus (hau hele wai).

Nu'upia Ponds
The plants at Nu'upia Ponds Wetland Management Area on the peninsula of Mākapu include a number of alien species such as pickleweed that grows on the salt flats, Indian fleabane, which is common in the shrub lands around the salt flats, and a water lily that roots in the mud and has flat leaves that float on the open water. The water lily provides cover and food for the native waterbirds, so even though it grows quickly, it is not targeted for removal as much as the pickleweed and another alien, the mangrove (Wilcox, 1998). Mangroves were introduced to the Islands in 1902 to prevent silt from agricultural lands from washing into the ocean (Merlin, 1999). They spread quickly and are a major pest in Hawaiian wetlands. At Nu'upia Ponds about 20 acres of mangrove were removed mechanically with heavy equipment to maintain the open water of the ponds (Drigot, 2000). Volunteers continue to monitor the mangroves and remove them.

Pickleweed is also extremely invasive. It grows to about five feet in height and like the mangrove, it crowds out the native ʻakulikuli filling in the salt flat habitat that wetland birds need. Once each year, prior to ʻaeʻo (Hawaiian stilt) nesting season, the marines practice maneuvers on the salt flats using amphibian assault vehicles that help to break up the dense mats of pickleweed. The maneuvers of these 26-ton vehicles create a checker-board pattern with moats and islands where birds can nest without disturbances from the alien mongoose that prey on chicks and eggs.

Kokua
Statewide, more than 30 percent of wetlands in Hawai'i have been drained and filled for development or converted to other uses such as agriculture (DLNR, 2001). Wai'ākī was once a wetland where Hawaiians raised fish and taro and where native waterbirds flourished. Due to the loss of wetland habitat statewide and impact from alien predators, five of the native Hawaiian waterbirds - the ʻaeʻo (Hawaiian stilt), ʻalaʻala (Hawaiian moorhen), ʻalaʻea keʻokeʻo (Hawaiian coot), nēnē (Hawaiian goose) and ʻalolo (Hawaiian duck) are endangered species.
References


Lesson 5—Mo‘olelo

A long, long time ago, Kailua used to look very different. This was before Times supermarket or Pali Highway were built. There was no shave ice store or musubi at Kalapawai Market.

This was a time when Kailua Bay was so big, that Kawai Nui Marsh came up to meet it. Back then, Kawai Nui was not just a marsh, it was a very big fishpond (loko pu‘uone) and a big wetland where many water plants, birds and fish lived. Kawai Nui went so far mauka that it was hard for the fish to tell when they left the mountain streams and when they swam into Kawai Nui!

It was only when they could see or hear so many ‘ala‘ula, our red-headed mudhen, and ae‘o, the Hawaiian stilt with the very long legs, that the fish knew they had entered Kawai Nui. Then the fish would certainly know they had reached their destination, because they could hear the chirp-chirp of the little chicks in the nests, where the birds had made their homes.

Many years ago, there were many farmers growing kalo in the lo‘i (taro patches) high up in Maunawili Valley, all the way down to the edge of Kawai Nui. Hawaiians loved this kalo, because it made the most delicious poi. And it wasn’t just the people that loved the kalo, the fish loved the kalo too!
So the konohiki asked all the people of Kailua to kōkua, come help clean the pond. Men, women and children came to help, and among them was a little boy named Kahinihini‘ula – the little red-haired boy. Kahinihini‘ula lived with his tūtū wahine (grandmother) deep in Maunawili Valley in the area called Makawao. His tūtū wahine was too old, so he came alone to help in the pond.

For three days the people of Kailua helped clean Kawai Nui pond. At the end of each day, the konohiki would have a big pa‘ina (party) of poi and roasted pig and fish to thank the people for their hard work. And that wasn’t all. Each man, woman and child, was given a gift of four fish to take home to their kūpuna who were too old to work in the ponds.

Everyone was very happy, except Kahinihini‘ula. He was so little that he was ignored, and the fishpond keepers didn’t give him any fish for his tūtū wahine. So he went home empty-handed, tired after a long day of work.

His tūtū was not very pleased when she found out that the konohiki had not given Kahinihini‘ula any fish. What a shame that the konohiki ignored the little boy! She told her mōʻopuna (grandchild) not to go back the next day, but he did. And for the next two days, Kahinihini‘ula worked all day, and still the fishpond keepers gave him no fish!

His tūtū wahine was angry! How could the konohiki allow his fishpond keepers to be so lōlo, so unfair? If someone, no matter how little, gives their kōkua, they must be appreciated. If there are plenty of fish, they must always be shared so that no one goes hungry!

So in the morning, Kahinihini‘ula’s tūtū wahine gave him a special branch—a mākālei tree branch that belonged to her family from long, long ago. The branch was a gift from her ancestor Haumea, mother of the ‘āina, mother of all living things.

With this branch, tūtū wahine told Kahinihini‘ula to go to the pond and show the fish the mākālei branch. He did as he was told, and the fish knew that it was Haumea’s magic branch.
With this branch, tūtū wahine told Kahinihiniʻula to go to the pond and show the fish the mākālei branch. He did as he was told, and the fish knew that it was Haumea’s magic branch.

The fish formed a long thick line, and they followed Kahinihiniʻula and his mākālei branch. He walked around the pond along the stream, up the valley to his home. As Kahinihiniʻula walked from Kawai Nui to Maunawili, all the fish followed him. Soon the pond at Kawai Nui was empty and all the fish were in the pond just outside Kahinihiniʻula hale (home)!

It didn’t take long for the fishpond keepers to see that fish had left the pond! When the konohiki found out, he knew that a great wrong had been done. The ancestors (gods) were unhappy at how they had treated Kahinihiniʻula. It was wrong not to share the fish with everyone, especially those that had helped.

So the konohiki went to Maunawili to find Kahinihiniʻula and his tūtū wahine. He apologized for their terrible mistake and Kahinihiniʻula forgave him. The fish returned to the pond. From then on, the konohiki was sure to instruct his fishpond keepers to always be fair and share the fish from his pond.

Discussion Questions
- Where does this story take place?
- What is a loʻi? Why do the fish like it?
- Why did the konohiki call all the people of Kailua?
- Who is the young boy in the story? Where does he live?
- Why was his tūtū wahine so angry?
- What did his tūtū wahine give him? Where did it come from?