**Culminating Activity**

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<th>Activity: Response over time</th>
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<tr>
<td>Students select a time period or period of time from the timeline they created in this unit and conduct research to determine how key people, events, and ideas in that period contributed to the decline of Hawaiian culture.</td>
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<td>Change and continuity</td>
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<td>Identify possible causal relationships in Hawaiian society.</td>
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**Assessment**

- Students evaluate their work and ideas.
- Students create a diagram of the Hawaiian economy.
- Students analyze the data and determine the causes of Hawaiian culture's decline.
- Students write a historical essay about Hawaiian culture.

**Key Concepts**

- Hawaiian economy.
- Interactions with others and the environment.
- Key dates and events in Hawaiian history.

**Focus Questions**

- What are the causes of Hawaiian culture's decline?
- How did these events impact Hawaiian culture?
- What are the important lessons we can learn from Hawaiian culture's decline?

**Content Standards**

- Social Studies: Change and continuity.
- Social Studies: Long-term and short-term explanations for other factors based on historical chronologies.
- Social Studies: Identify possible causal relationships in Hawaiian society.

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**Grades 6-8**
## Sample Rubric for Culminating Activity

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<tr>
<td><strong>Social Studies: Change, Continuity and Causality</strong>&lt;br&gt;Select key people, events and/or ideas in an era(s). Organize the key people, events and/or ideas into a chronology.</td>
<td>Project clearly shows key people, events and/or ideas in an organized chronology. Chronology includes additional ideas beyond what was presented in the unit.</td>
<td>Project clearly shows key people, events and/or ideas in an organized chronology.</td>
<td>Project lacks organization and focus to clearly show key people, events and/or ideas in a chronology.</td>
<td>Project does not show key people, events, and/or ideas in a chronology.</td>
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<td><strong>Points</strong></td>
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<tr>
<td><strong>Using the chronology, explain how key people, events and/or ideas changed or stayed the same over time.</strong></td>
<td>Project clearly explains how key people, events, and/or ideas in a time period led to the decline of fishponds. Explanation is in-depth and shows evidence of critical thinking.</td>
<td>Project clearly explains how key people, events, and/or ideas in a time period led to the decline of fishponds; shows evidence of critical thinking.</td>
<td>Project only partially explains how key people, events, and/or ideas in a time period led to the decline of fishponds. More information is needed.</td>
<td>Project does not explain how key people, events, and/or ideas in a time period led to the decline of fishponds.</td>
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<td><strong>Points</strong></td>
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<tr>
<td><strong>Use of References</strong></td>
<td>References used are correctly cited, extensive and varied; level of research is beyond expectations.</td>
<td>References used are appropriate for task and correctly cited.</td>
<td>References are not cited correctly or there is minimal use of references.</td>
<td>References are not cited in work.</td>
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<td><strong>Points</strong></td>
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<td><strong>Language Arts: Oral Communication Convention and Skills:</strong>&lt;br&gt;Uses pace, volume, stress, enunciation, and pronunciation to communicate and for effect. Uses speech patterns that are appropriate to the listeners and situation.</td>
<td>Dynamic presentation; well prepared; shows mastery of conventions—uses pacing, volume, stress, enunciation and pronunciation to communicate effectively.</td>
<td>Effective presentation; shows mastery of conventions; well prepared; pacing, volume, enunciation and pronunciation are appropriate to audience.</td>
<td>Presentation needs prompting; fluency and conventions are lacking</td>
<td>Presentation lacks appropriate use of conventions, which leads to poor communication.</td>
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<td><strong>Points</strong></td>
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**I NOTICED:**
Whose Kuleana Is It Anyway?

- What do legends reveal about values that were important to early Hawaiians, and how did these values apply to the maintenance and care of fishponds?

Hawai‘i DOE Content Standard

Social Studies: Historical Empathy
- Students learn to judge the past on its own terms and use that knowledge to understand present day issues, problems, and decision making.

Grades 6 – 8 Performance Indicators

Using historical evidence, students:
- Identify the values and norms of a specific era.
- Explain the feelings, thoughts and experiences of the people of the specific era.

Key Concepts

- Hawaiian legends are like windows to the past, shedding light on cultural values and how those values shaped human interactions with one another and their environment.

- The maintenance of fishponds was essential to their productivity. Early Hawaiians maintained their fishponds by keeping the pond walls intact and by removing excess limu (algae) growth and bottom sediments.

Prerequisites

Project Kāhea Loko: Call of the Pond Video;
Kai Moku: Turn of the Tide, Unit 2

Activity at a Glance

Students read a legend and play a board game to discover how Hawaiians maintained their fishponds and which values were important in human interactions with one another and their environment.
Time
3 - 4 class periods

Skills
critical thinking, communication, writing, reasoning

Assessment
Students select values from the story Kū'ula: God of Fishermen and write a summary (at least one page), from the perspective of an ali'i (chief) that describes:
• how the ali'i would respond to a natural disaster, such as a tsunami or volcanic eruption, that severely damaged the fishpond; and
• the value(s) that are important in interacting with others and the environment.

Vocabulary
‘ōlelo no'ea - Hawaiian proverbs; wise sayings
kuleana - responsibility, concern
konohiki - supervisor of an ahupua'a who controlled the land, water, and fishing rights
kia'i loko - (pond caretaker)

Materials
Needed
• 2 dice
• 12 game pieces (use shells, colored buttons, pebbles, or such)

Provided
• game board
• set of kuleana cards
• set of kia'i cards
• set of loko i'a cards
• student reading: Kū'ula: God of Fishermen

Advance Preparation
Make two copies of the kuleana cards and kia'i cards and cut them out. Make six copies of the loko i'a cards and cut them out. If possible, laminate all cards. Make two copies of each gameboard sheet and tape the two pages together to make two gameboards.

Background
The maintenance of fishponds was essential to their productivity. Early Hawaiians maintained their fishponds by keeping the pond walls intact and by removing excess limu (algae) growth and bottom sediments. When the bottom sediments of soil and decayed organic matter got too thick, the konohiki or the kia'i loko (pond caretaker) summoned the commoners. As tenants of the land, men, women, and children owed certain responsibilities to their ali'i. Often, this was the only time that commoners might have a share of certain fishes and
seaweeds living in the ponds of the ali‘i. Mullet were strictly kapu to the commoners, but “people cleaning the fishponds also used their hands to grope about and catch fish whenever they could. The catch was then the property of the commoner and not of the konohiki or chief” (Kikuchi, 1973). The commoners would stir up the sediment layer and scrape the mud and silt toward the ‘auwai kai to be flushed out with the ebbing of the tide. The ‘limu breakers’ would break loose the algal mats and filamentous algae and twist it into the shape of a ring. Then the broken off limu was pressed down like a dish, and all the fish that were caught in this limu dish were for the limu breakers (Summers, 1964). This regular pond maintenance was necessary to prevent the depletion of dissolved oxygen, which can occur when large amounts of organic matter are left to decay in the pond.

Kūʻulakai — the god of fishing

The moʻolelo provided with this activity introduces students to the legend of Kūʻulakai, the god of fishing. The Hawaiian values in the story are associated with conserving fish and having a fair and generous distribution of the fish catch. Moʻolelo, oli (chants), ʻōlelo noʻeau (proverbs) and mele (song) are an expression of Hawaiian oral traditions. Communication was often in the form of metaphors that revealed Hawaiian intellect, humor, wisdom, and dignity. Today these oral traditions reveal the thoughts and feelings of the early Hawaiian, providing a glimpse into the past of a people connected to their environment. The ʻōlelo noʻeau and moʻolelo provide a basis for understanding the essence and origins of traditional Hawaiian values.

Teaching Suggestions

1. Conduct a class discussion to review what students learned in the prerequisite lesson, Kai Moku: Turn of the Tide.

   Discussion Questions

   • What would happen if there was no circulation of water in a fishpond? (The water would become stagnant and bottom sediments would build up, leading to loss of dissolved oxygen that pond animals need.)
   • What do you think the kiaʻi loko (pond caretaker) did to prevent the pond water from becoming stagnant? (See Background. Accept any ideas; answers will be revealed in the game that students play.)
   • Which values are important in caring for the environment? (Define values as a set of standards or beliefs practiced by a group of people and discuss the importance of mālama [caring], laulima [cooperation], kuleana [responsibility], and other ideas that students may have.)

2. Distribute the student reading, Kūʻula: God of Fishermen and ask students to look for the values expressed in the moʻolelo. As they read, have students make a list of the values the characters exhibit in the story.

3. As a class, discuss the story and list the values on the board.

4. Introduce the game, “Whose Kuleana Is It Anyway?” and explain that the objective of the game is to discover important values and practices related to fishing and fishponds in early Hawai‘i.
5. Divide the class into two groups, one group for each gameboard. Within each group, have students form pairs to represent an ʻohana (family). There should be six ʻohana per group for a total of 12 players per gameboard.

6. Explain that each group lives in an ahupuaʻa (land division) in early Hawaiʻi. Each ʻohana has a kuleana (responsibility) to ensure that the community fishponds and particularly the fishponds of the aliʻi are properly cared for and maintained.

7. Review the game instructions (Unit 3 Page 41) and play the game.

8. After students have played the game, have a class discussion:

- Which values are important in the care and maintenance of fishponds? Why?
- What values would you expect to see in a leader today? Why?
- Are these same values evident in leaders of the past?

9. Have each student select values from the Kūʻula: God of Fishermen reading and complete the assessment activity.

Adaptations/Extensions

- Ask students to write a summary describing how the value(s) they’ve selected are incorporated into their day-to-day interactions with their classmates and/or family members.

- Have students select an ʻōlelo noʻeau (proverb) provided on the following page and describe how it could apply to Hawaiian interactions with the fishpond environment.

- Ask students to write their own ʻōlelo noʻeau and translate it.

- Have students choose a value and write their own moʻolelo (story).

- Have students create their own kiaʻi cards and play the “Whose Kuleana Is It Anyway?” game again.

References


‘Ōlelo Noʻeau (Proverbs)

- Hoʻokahi ka ʻilau like ana.
  *Wield the paddles together.*
  **Meaning:** Work together.

- He aliʻi ka ʻāina; he kauwā ke kanaka.
  *The land is a chief; man is its servant.*
  **Meaning:** Land has no need for man, but man needs the land and works it for a livelihood.

- E ʻōpū aliʻi.
  *Have the heart of a chief.*
  **Meaning:** Have the kindness, generosity, and even temper of a chief.

- Hoʻokahi no lā o ka malihini.
  *A stranger only for a day.*
  **Meaning:** After the first day as a guest, one must help with the work.

- Aloha kekahi i kekahi.
  *Love one another.*

- ‘Aʻohe hua o ka maiʻa i ka lā hoʻokahi.
  *No task is too big when done together by all.*
Kūʻula: God of Fishermen

Kūʻula lived with Hina, his wife, and ‘Aiʻai, their son, in Hāna on Maui. Kūʻula was a fisherman of great wisdom and power. He walled a fishpond on the edge of the sea and stocked it with all sorts of fish. Nearby he built a shrine where he made his offerings. Because of his wisdom and his reverence for the gods, Kūʻula could always catch the fish he wanted. He knew the best way to catch each kind and when he prayed, fish came at once to his hook, net or basket. When his neighbors had no luck fishing, Kūʻula shared with them.

These neighbors talked of Kūʻula’s wisdom and his kindness. They boasted of his success in fishing until his fame went all about the island. The high chief of Maui, hearing of Kūʻula’s skill, made him head fisherman. For many years Kūʻula served the chief both faithfully and well.

But about the time that ‘Aiʻai, the son, reached manhood, trouble began. Fish disappeared from the well-stocked pond so that it was no longer easy to supply the chief. Kūʻula was troubled and kept constant watch trying to discover what was destroying his fish.

One night, just as the morning star arose, Kūʻula opened his pond gate. The tide was coming in and he prayed that fish might come with it. At daybreak he stood on a rocky point above the pond watching the rush of water. There he was joined by a neighbor. “Look!” Kūʻula exclaimed. “There comes the one who destroys my fish!” The two saw an enormous eel enter the gate then disappear in the pond.

“That must be the great eel of Molokaʻi,” the neighbor whispered. “I have heard of such an eel which lives in a cave on the windward side of that island and is worshiped by the people. They say he destroyed a man-eating shark. This powerful eel caused rocks to fall on the shore and kill him. Then the eel made his home in the cave opened by those falling rocks.”

“Let him fish about his own island,” answered Kūʻula. “If he comes here day after day to steal my fish he shall die.”

“But he is worshiped by the men of Molokaʻi,” the neighbor repeated. “They will be angry if you kill him.”
“Let them be angry! If that eel comes
day after day to eat my fish he shall die.”
Ki‘ula went home to talk the matter over
with his wife. Finally he said to his son,
“Ai‘ai, you are a man. Here is our enemy,
a giant eel. Day after day he comes. Day
after day our pond grows empty of fish.
Let this be your
work, my son, to rid
us of our enemy.”

Ai‘ai was glad. His
father needed his help and he
should have it! The young
man called the neighbors
and asked them to make
ropes of hau bark. When
the ropes were ready many
canoes put out to sea.
Besides the ropes Ai‘ai took
two heavy stones and his father’s sacred
hook.

The young man had prayed earnestly
and watched the eel. Now, pointing
silently, he directed the canoes. He was
sure the eel hid in a cave in the ocean
floor. He found this place by landmarks
on the shore. When the canoes reached
the place Ai‘ai chewed kukui nut and spat
out the juice. Looking into the water
quieted by the oil he plainly saw the cave
mouth. He seized one of his heavy stones
and jumped. The stone’s weight took him
to the bottom. As he came near the cave
mouth he noticed fish swimming about in
a frightened way. They know the eel
hides in that cave, the young man
thought. He rose to the surface and
climbed into the canoe.

Now the hau ropes were unrolled. To
one end Ai‘ai fastened a stick and on the
stick the sacred hook baited with coconut.
The ropes were passed to other canoes for,
onece the eel was hooked, the strength of
many would be needed to pull him ashore.
By signs Ai‘ai showed his neighbors what
to do. Then, praying, he took his second
weight and dived. He hooked the sleepy
eel and jerked the line to show
the men that he was ready. With
a mighty pull they lifted the eel
out of his cave. Ai‘ai reached
the canoe and scrambled in.

The men dug their
paddles into the sea
trying to hold firm
against the mighty
thrashing of the eel.
Ai‘ai directed and,
pulling together, at last
they got the great fish into shallow water.
They tried to kill it but it thrashed about,
snapping angry jaws so that they could
not strike it with their spears. Then Ai‘ai
seized a huge rock and threw it at the eel.
Still the great body coiled angrily and the
jaws snapped. The young man threw
another rock. He threw a third and the
eel lay still – dead at last.

On Moloka‘i the caretaker was
troubled because the eel he worshiped no
longer came for food and ‘awa. One night
the spirit of the eel came to this caretaker
in a dream. “I have been killed,” he said.
“Men of Hāna, Maui, have killed my
body.”

Angered, the man went to Maui.
There he was shown the jaws of the dead
eel. “See there!” the men told him
proudly. “See those rocks, washed by
those waves. Those were the jaws of a
great eel. He robbed the fish pond of Kū'ula. ‘Ai'ai, Kū'ula's son, hooked the robber and we his neighbors, pulling with all our strength, stranded the eel. Here ‘Ai’ai killed him and his jaws have turned to stone. Over there is his backbone. That too is stone. See what a giant monster that eel was!”

“Yes, I see,” the man answered quietly but to himself he added, ‘Ai’ai and Kū'ula shall die because of this wicked deed.

The caretaker made his plans. He became a servant of the high chief and served so well that the ruler trusted him. One day, he came to Kū'ula asking him for fish. “Fish are still scarce,” Kū'ula told him. “Since that great eel robbed my pond, fish have been hard to get. The chief will understand. Take this ulua and tell him to have his servants cut off its head and cook it in the imu. Let its flesh be cut up, salted and dried in the sun.”

The man from Moloka'i took the ulua and returned to his chief. His chance had come to punish ‘Ai’ai and Kū'ula! “O heavenly one,” he said. “Kū'ula, your fisherman, sends only this one fish. These are his words, “Tell the high chief to have his servants cut off the chief's head and cook it in the imu. Let them cut up the chief's flesh, salt it and dry it in the sun.”

Hearing these words the high chief became angry. He forgot Kū'ula’s years of faithful service and believed the lies of his new servant. “Kū'ula shall die!” he shouted and made the man from Moloka'i his messenger. “Tell my overseers,” he commanded, “to have my people gather wood. Let this be piled about the houses of Kū'ula and let him, his wife and son perish in flames.” Gladly that man took the message.

‘Ai’ai saw the men bringing wood. “What is it for?” he asked them. But the men did not know. They obeyed the overseer and asked no questions.

“Father,” said ‘Ai’ai, “men are gathering much wood. See where they pile it! What can it be for?”

“For our death,” answered the wise Kū'ula. “The servant has changed my words to lies. The chief is angry and has ordered that we three be put to death.”

“There is time to escape,” said ‘Ai’ai.

“Yes,” his father answered, “there is time. Men will bind us three and start the fire. When the smoke blows seaward my spirit and that of Hina will escape into the sea. There we shall live as fish. When the smoke blows up the mountain slope run with it, my son. Find a cave for your home. When you have need of fish set up this little image of stone, make offering
and pray. Your mother and I will hear your prayers. We shall teach you many ways of fishing. We shall send fish to your hooks and baskets. Take my sacred hooks: the one you used to catch the eel, my aku hook of pearl and my cowry for catching he'e. All my wisdom I give to you my son, my wisdom and my power. You shall live and become a teacher of fishing throughout Hawai'i-nei. Show men good fishing grounds and teach them to worship and make offering."

Just at nightfall men rushed into Kū'ula's sleeping house. They seized Kū'ula, Hina and 'Ai'ai, bound their hands behind them and tied each to a post of the house. The Moloka'i man was with them, directing them. "Now block the doorway!" The three heard his command. "Pile the wood close to the house and start the fire."

Kū'ula, in his wisdom, knew that some did not obey these words. The neighbors with whom he had shared fish were not piling wood nor starting fire. They stood weeping, longing to help the three.

But Kū'ula and his family did not need their help. Before the fire was lighted the cords that bound them had fallen off. As the fire crackled and the thatch burst into flames the smoke blew seaward and with that smoke, invisible, the spirits of Hina and Kū'ula found safety in the sea.

The roof blazed and smoke blew up the mountainside. In that smoke 'Ai'ai escaped. Then flames leapt out and destroyed the man of Moloka'i and his helpers. But the neighbors who had refused to bind the three and start the fire – those neighbors were unharmed.

'Ai'ai found a cave which he made his home. Next day as he went out in search of food he met some boys who were practicing with bow and arrows. He made friends with them and one of the boys invited 'Ai'ai to his upland home. There the young man lived for some time unrecognized, helping the farmer with his work.

Because of the cruelty of chief and men, Kū'ula and Hina took away fish, shellfish, even seaweed. The high chief could not understand why no seafood was set before him and commanded men to fish for hinālea (wrasse) but none were caught.

One day 'Ai'ai asked the farmer, "Each day you and your wife and son go to the beach. Each day you come home empty-handed. Why do you go?"

"We obey our chief's command," the farmer answered. "Each day we go to catch hinālea but the sea is empty."

Then 'Ai'ai told those people to gather beach-morning-glory vines and taught them to make baskets. "Now come with me," he said and led them to a rocky place above the beach. There he placed the stone image his father had
given him. "This is your kū'ula," he told his friends. "Make offering and pray. Then set your baskets in that pool." He showed them how to weight each one with stones.

As they stood watching they saw fish gather about the baskets. "They have returned," the people whispered. "The fish are here once more."

"Call your relatives and friends," said "Ai'ai. "There is fish enough for all."

That night there was feasting in the village by the sea. "Kū'ula, our good neighbor, is not dead," the people said. "We shall pray to the image he has given us. We shall make offering of the first fish caught. Our old neighbor will bring us food as he did when he lived among us as a man."

A runner came from the upland. "The high chief is dead," he told the people. "He tried to eat the hīnālea and died." The people understood that the fish which gave strength to them brought death to the chief because of his cruelty to Kū'ula, his faithful fisherman.

After that day 'Ai'ai went about Hawai'i-nei. He showed men good fishing grounds and taught them many ways of catching fish. He established shrines. Sometimes a shrine was a heap of stones, sometimes an image carved like a person. One such was Mālei, a figure of white stone which stood long above Makapuʻu on O'ahu. Fishermen hung lei of seaweed about Mālei. They prayed to her and came home with full canoes. They laid their first-caught fish before her and offered thanks. The fishermen of that district love Mālei and longed to see her as a living goddess. Some saw her in their dreams. They heard her chants and learned and chanted them.

Many such shrines were brought or built by 'Ai'ai. Men called each a kū'ula in memory of the great fisherman of Maui whom they now worshiped as their god. Those shrines became landmarks for travelers among the islands of Hawai'i-nei.

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Game Instructions

Game Set-up
Place each gameboard on a flat surface in a cleared area of the classroom. Distribute game pieces: one per ‘ohana group. Shuffle the kia‘i cards and stack them face down on the square marked kia‘i. Do the same for the kuleana cards, stacking them on the kuleana square. Each loko i‘a card should be placed face up just off the gameboard next to the respective loko i‘a square.

Objective
The objective of the game is to collect all 6 loko i‘a cards and to discover important values and practices related to fishing and fishponds in early Hawai‘i.

To Win the Game
The ‘ohana with the most loko i‘a cards at the end of 30 minutes wins the game!

Directions
1. Have each ‘ohana place a game piece on one of the loko i‘a squares. (Only one game piece per loko i‘a.)

2. Roll the dice to determine who begins the game. The ‘ohana with the highest number wins the first turn, followed by the ‘ohana to the right and continuing counter-clockwise.

3. The ‘ohana who begins the game rolls the dice and moves the game piece the number of squares indicated by the roll of the dice. Each ‘ohana:
   - must only move the number of squares rolled
   - may move horizontally or vertically, forward or backward – but not diagonally
   - may change directions during a move but may not enter the same square twice during the same turn
   - may not enter or land on a square that’s already occupied by another ‘ohana, although two or more ‘ohana may land on the same loko i‘a.

4. As the ‘ohana lands on a loko i‘a square, the group to their right draws a kia‘i card and reads the card aloud. The ‘ohana has 30 seconds to answer the question.

5. If the ‘ohana correctly answers the question within the 30-second time limit, they acquire that loko i‘a card. If they are unable to answer the question, the ‘ohana group does not collect that loko i‘a card and must try again.

6. If an ‘ohana draws a card from the kia‘i stack marked “kuleana,” they must draw a card from the kuleana stack and follow the directions described on the card.
Loko I‘a Cards

Make 6 copies. Cut and laminate.
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Make 2 copies. Cut and laminate.
### Kia‘i Cards (back)

| The kia‘i notices the ‘ama‘ama nibbling something at the surface of the pond. What are the tiny plant and animal organisms in plankton called? | The kia‘i had to place additional fertilizers into the pond. Name at least three kinds of “natural fertilizers” he might have had to add. |
| Phytolankton and zooplankton | The kia‘i saw large amounts of limu growing near the north side of the fishpond. He has asked your ‘ohana to help remove it. Why would it be necessary for you to remove the excess limu from the loko i‘a? |
| **Uala (sweet potato)** | Too much limu depletes dissolved oxygen, which is important to the pond’s ecosystem. |
| **‘Ulu (breadfruit)** | **Mussels** |
| **Kalo (taro)** | **Stones with seaweed** |

| Auē! Several stones have fallen loose, leaving a small gap in the pond wall near the mākāhā. The kia‘i has asked for your help in rebuilding. Why are the fishpond walls and mākāhā critical to maintaining a healthy ecosystem? | The kia‘i smells a foul odor coming from the fishpond. You notice the water is very still. What is this called? |
| To control water circulation and prevent build-up of sediments | Stagnant water |

| Auē! Your kia‘i notices several of the ‘ama‘ama and awa (herbivore fish) floating in the loko i‘a. Identify one reason why this could have happened? | The limu and plankton are not growing in the loko i‘a. The kia‘i makes a hypothesis. The water has become too cloudy. Why would this cause the problem? |
| Too much limu, not enough oxygen, pollution | Plants need sunlight for the process of photosynthesis. |

| There are several crabs in the fishpond. How do they contribute to the health of the pond? | **They help to break down dead plants and animals and recycle the nutrients back into the pond.** |

---

Make 2 copies. Cut and laminate.
Kia‘i Cards (front)  

Make 2 copies. Cut and laminate.

Kia‘i Card  
Kia‘i Card  
Kia‘i Card  

Kia‘i Card  
Kia‘i Card  
Kia‘i Card  

Kia‘i Card  
Kia‘i Card  
Kia‘i Card
### Kiaʻi Cards (back)

**Auē! The kiaʻi notices the fishpond becoming choked with silt. Why is this a problem?**

*Too much silt can cause the water to be cloudy and decrease sunlight that plants need; it also can lead to loss of oxygen when organic matter in the silt decays.*

**The kiaʻi told your ‘ohana that the moʻo wahine appeared the other day. Why are these spirit guardians associated with fishponds?**

*They protect the fishponds.*

**A fisher is seen making an offering near the Kū stone at the fishpond. Who are the two gods connected to fishponds and why were they so significant?**

*Kūʻula and Hina. The offering was made to the gods to ensure a plentiful catch.*

---

**Auē! One of the slats in the mākahā has eroded. The kiaʻi has you gather wood to repair it. What is one function of the mākahā?**

- To allow pua iʻa into the pond
- To prevent larger fish from escaping
- To allow the flushing of sediment and water circulation

**In the story Kūʻula: God of Fishermen, when did Kūʻula exhibit the value of generosity?**

*When he shared his fish catch with his neighbors.*

**In which situation did Kūʻula show the value of faithfulness to his aliʻi?**

*Although the chief blamed Kūʻula, he did not question the chief’s order.*

---

**Who was ‘Aiʻai and what is one value that describes ‘Aiʻai best?**

*Devoted. He obeyed his father’s orders even though he knew they were at risk of dying.*

*Courageous. He fought the eel.*

**Why did the people of Molokaʻi worship the eel?**

*It destroyed a man-eating shark.*

**Name one quality (good or bad) that describes the aliʻi. Why?**

*Trust. Good – he trusts those under him. Bad – he believes the words of an unfaithful servant.*
Kia‘i Cards (front)

Kia‘i Card  Kia‘i Card  Kia‘i Card

Kia‘i Card  Kia‘i Card  Kia‘i Card

Kia‘i Card  Kia‘i Card  Kia‘i Card

Make 2 copies. Cut and laminate.
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>What happened to Kū'ula and Hina after their hale was set on fire?</td>
<td>They became fish and served as fishing gods.</td>
</tr>
<tr>
<td>How would you describe 'Ai'ai's relationship with Kū'ula?</td>
<td>'Ai'ai was devoted to his father and respected him.</td>
</tr>
<tr>
<td>Why would you call Kū'ula a wise and trusted leader?</td>
<td>He was devoted to the people and not to the cruel chief.</td>
</tr>
<tr>
<td>How did some people of Hāna react when they heard that Kū'ula, Hina</td>
<td>They were upset and did not participate in the preparations; they</td>
</tr>
<tr>
<td>and 'Ai'ai would be put to death?</td>
<td>remained devoted to the fishing family.</td>
</tr>
<tr>
<td>Kū'ula gave 'Ai'ai a hook made of pearl and a cowry for catching</td>
<td>Kū'ula wanted 'Ai'ai to use the tools as a way to teach the people</td>
</tr>
<tr>
<td>octopus. How was 'Ai'ai expected to use these tools?</td>
<td>of Hawai'i how to fish.</td>
</tr>
<tr>
<td>What did 'Ai'ai do to help the people of Hāna?</td>
<td>He taught them how to fish.</td>
</tr>
<tr>
<td>What is the ritual that Hawaiians go through before they fish?</td>
<td>They pray and make offerings. When they return from fishing, they</td>
</tr>
<tr>
<td></td>
<td>offer the first fish they caught at the fishing shrine.</td>
</tr>
<tr>
<td>Why did the chief die when he ate the hinālea (wrasse)?</td>
<td>It was punishment from the gods because the chief had been so cruel</td>
</tr>
<tr>
<td></td>
<td>to his faithful servant, Kū'ula.</td>
</tr>
</tbody>
</table>

*ko'a - fishing shrines*
Kiaʻi Cards (front)

Note: 12 "Pick a Kuleana Card" needed per gameboard.

Kiaʻi Card  Kiaʻi Card  Kiaʻi Card

Kiaʻi Card  Kiaʻi Card  Kiaʻi Card
Kiaʻi Cards (back)

Note: 12 “Pick a Kuleana Card” needed per gameboard.
Kuleana Cards

Make 2 copies. Cut and laminate.
## Kuleana Cards

<table>
<thead>
<tr>
<th>The konohiki has ordered everyone to clean the 'auwai (irrigation ditches) of the loko i'a kalo. You lose a day's work in the lo'i.</th>
<th>Your 'ohana decides to build a loko wai, which still allows plenty of fresh water and nutrients to flow downstream.</th>
<th>Part of the sand that holds water in the loko pu'ūone eroded away in a tsunami. Your 'ohana must hurry to help the others rebuild.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Skip your next turn.</em></td>
<td><em>You may advance to the loko wai and collect the card.</em></td>
<td><em>You may advance to the loko pu'ūone and collect the card.</em></td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Auē! Your ali'i's enemies have destroyed the loko kuapā in the ahupua'a in which you live. Everyone's attention must be devoted to the rebuilding of the loko kuapā.</th>
<th>Everyone is preparing for a huge feast to celebrate the Makahiki season. Your 'ohana must help the kia'i catch fish from the loko kuapā.</th>
<th>Tutū's umu has fallen apart. You help her to rebuild it.</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Skip your next turn.</em></td>
<td><em>You may advance to the loko kuapā and collect the card.</em></td>
<td><em>You may advance to the umu and collect the card.</em></td>
</tr>
</tbody>
</table>
Kuleana Cards

Make 2 copies. Cut and laminate.
**Kuleana Cards**

Make 2 copies. Cut and laminate.

---

A stranger has come to your hale and is hungry. Your 'ohana welcomes him and prepares food. You go to your loko 'i'a kalo to catch several 'o'opu.

*You may advance to the loko 'i'a kalo and collect the card.*

---

The lanes of the loko 'ume iki are teeming with 'ama'aama. Your 'ohana runs to the shoreline to catch some.

*You may advance to the loko 'ume iki and collect the card.*

---

Auē! Pele is furious and has spewed lava, which has destroyed some of the fishponds within your ahupua'a. Your 'ohana can only eat vegetables until the fishponds have been rebuilt.

*Move back 3 spaces. You may not land on a loko 'i'a.*

---

The konohiki has ordered your 'ohana to pay more taxes. You must collect all the fish from your loko 'i'a kalo to make your ali'i happy.

*Give the 'ohana to your right a loko 'i'a card from your pile.*

---

Auē! Heavy wind and rain has damaged the shoreline ponds. You must fish for food in the open ocean and you are gone from your family for days.

*Give the 'ohana to your left a loko 'i'a card from your pile.*

---

A dog stole a fish from the ali'i's fishpond. However, your 'ohana was blamed for it.

*Move back 5 spaces. You may not land on a loko 'i'a.*
Fishpond Fall

- What has caused the decline of Hawaiian fishponds over time?

Hawai‘i DOE Content Standard

Social Studies: Change, Continuity and Causality:
- Students employ chronology to understand change and/or continuity and cause and/or effect in history.

Grade 6 – 8 Performance Indicators

- Select key people, events and/or ideas in an era(s).
- Organize the key people, events and/or ideas into a chronology.
- Using the chronology, explain how key people, events and/or ideas changed or stayed the same over time.

Key Concept

Many factors contributed to the decline of Hawaiian fishponds, including battles, the introduction of diseases, the sandalwood trade, the Great Mahele, natural disasters, land development, and changes from a subsistence to a market economy.

Activity at a Glance

Students create a historical timeline that reflects the many events that led to the decline of fishponds.

Time

3 - 4 class periods

Skills

reasoning, analysis, writing

Assessment

Students:
- Complete a timeline that shows the chronology of events that contributed to the decline of fishponds.
- Create a drawing or write a summary of how key people, events and/or ideas affected fishponds over time.
Vocabulary

aquaculture – the cultivation of aquatic animals and plants in a natural or controlled saltwater, brackishwater or freshwater environment
decimate – to reduce drastically, especially in number
Raiatea - the second largest Island in the French Polynesian Archipelago known as the Society Islands, located directly between Bora Bora and Tahiti
sandalwood – the fragrant wood of certain trees used for ornamental carving and burned as incense

Materials

Provided:
- timeline date labels
- historical account cards
- event cards
- student activity sheet

Needed:
- 1 ball of twine
- masking tape
- small container
- labels for six stations in the classroom

Advance Preparation

- Set up six stations around the room with the following labels:
  - Period 1: A.D. 100 – 1600
  - Period 2: 1700 – 1790
  - Period 3: 1800 – 1819
  - Period 4: 1830 – 1853
  - Period 5: 1900 – 1946
  - Period 6: 1947 – present

- Copy the historical account cards, cut them out and laminate, if desired. Place the appropriate cards at the six stations.
- Stretch about 15 feet of twine across the front wall of the classroom (above the board). Copy the timeline date labels and tape them to the twine.
- Make a copy of the student activity sheet for each student.
- Copy the event cards, cut them out, and place them into a small container.
Teaching Suggestions

1. Write the following statements on the board:

   In the early 1900s less than 100 of the original 488 Hawaiian fishponds and fishtraps were still in operation. Today only a few ponds are in operation or being restored.

2. Ask students to share ideas about what events they believe may have led to the decline of fishponds and fishtraps over time. Tell students that they will be going on a historical journey that will address the question.

3. Ask pairs of students to draw one event card from the small container. Two students will share one card. Show them the six stations set up around the room and challenge them to go to the station that they think matches the time period when their event occurred.

4. At the stations, students should read the historical account cards to see if their events are listed for that time period and to find information to answer questions on their cards. If they are in the wrong period, students should move to another station.

5. When students have grouped themselves correctly into the six stations, ask them to discuss all of the events on the historical account cards for that period. Challenge each group to determine which events are most significant for the loss of fishponds (or in the case of station 1, events significant for the construction of ponds). Ask them to develop a way to teach that information to their classmates through oral presentation, role-playing, or storytelling.

6. Distribute the student activity sheet and encourage students to complete it as their classmates present the significant events in their time periods. As students present, have them tape each event card to the twine in the appropriate time period to create an historical timeline.

7. In the assessment activity, ask students to complete the sequence of events on the activity sheet and summarize the key events that led to the decline of fishponds and fishtraps. See the culminating activity described in Unit at a Glance for building on what students have learned.

8. Discuss students’ ideas about the factors that led to the decline of fishponds and fishtraps.

Discussion Questions

- What were some of the factors that led to the decline of fishponds and fishtraps? Which of these factors do you think had the most impact?
- Is there anything that could have been done to prevent the rapid decline? What is it? (Be specific.)
- What purposes could the fishponds serve today if they were restored?
- What can we do today to help preserve and protect the remaining fishponds and fishtraps?
Adaptations/Extensions

- Read the story of "Kanekua'ana" (provided at the end of this unit) to the class. As you read, ask students to guess where the story takes place. (Answer: Pu'uloa, now known as Pearl Harbor.) Explain to students that at one time Pu'uloa had more than 36 fishponds and fishtraps, comprising one of the most extensive systems of aquaculture in the Islands. Early Hawaiians raised many different kinds of fish in the area and oysters were abundant. Early Hawaiians cultivated oysters – not for the pearls – but for the meat. Today, almost all the fishponds and fishtraps of Pu'uloa have been destroyed.

- Divide the class into two teams. Have each student compose a question (and an answer) based on the information they acquired in this activity. Use their questions in a "Fishpond Feud" game. Place their questions in a container. Pull one question from the container and read it aloud. The first team to raise hands may answer the question. If students are correct, the team is awarded one point. No points are awarded for an incorrect answer. Continue until all the questions have been answered. The team with the most points wins.

- Encourage students to interview a kupuna who may have information about a fishpond or who may be involved with the restoration of a fishpond and ask him/her to share stories and experiences. Students should document these stories and invite the kupuna to share with the other students in the class.

- Have students illustrate each time period or create a class mural of the timeline they have created.

- Have students create a play that presents the events they have learned about in this activity. They could select music, design sets and costumes, and perform for the younger grade levels.

References


Cobb, John N. 1903. The Commercial Fisheries in the Hawaiian Islands in 1903. Appendix to the report of the Commissioner of Fisheries to the Secretary of Commerce and Labor for the year ending June 30, 1904. Washington, D.C.


A.D. 100 - 1600

1700 - 1790

1800 - 1819

1830 - 1853

1900 - 1946

1947 - Present
Event Cards

Migration

When did the first Polynesians arrive in Hawai‘i?
When did the second phase of Polynesian migration to Hawai‘i take place?

First Fishponds

When were the first fishponds built and who constructed them?

Hawaiian Battles

When did wars occur in the Islands?
How did these battles affect fishponds?

Introduced Diseases

When did introduced diseases begin affecting the Native Hawaiian population?
What is the connection between diseases and the decline of fishponds?

Sandalwood Trade

What was the sandalwood trade and when did it occur?
How might it have contributed to the loss of fishponds?

Introduced Animals

When were large animals like cattle, sheep, and horses introduced to the Islands?
What impact could they have had on fishponds?
Kapu System Ended
How and when was the Hawaiian kapu system ended? 
What impact did the loss of this system have on fishponds?

Whaling Industry
When did the whaling industry emerge in Hawai‘i? 
How did this early shift toward a cash economy affect fishponds?

Sugar Cane Plantations
When did sugar cane plantations begin operation? 
Was there a connection between sugar production and fishponds?

Great Mahele
What was the Great Mahele and when did it occur? 
What effect might this have had on fishponds?

World War II
When did World War II occur? 
What effect did the war have on fishponds in the Islands?

Tsunami
When did the last major tsunami hit the Islands? 
What was the impact on fishponds?
Event Cards

Make 1 copy. Cut and laminate.

Introduced Plants

When and why were mangrove trees brought into the Islands?
What impact have these trees had on fishponds?

Housing Development

When did large-scale housing development begin in the Islands?
In what ways did the creation of new neighborhoods affect fishponds?

Act 216 of Territory of Hawai‘i

What is Act 216? How was this Act designed to affect fishponds?
Student Activity Sheet

Summarize the significant events that led to the construction of Hawaiian fishponds and their decline over time.

Period 1: A.D. 100 – 1600

Period 2: 1700 – 1790

Period 3: 1800 – 1819

Period 4: 1830 – 1853

Period 5: 1900 – 1946

Period 6: 1947 – Present
Historical Account Cards

A.D. 100 - 400

The exact reason the Marquesans begin their voyage that leads them to Hawai'i will never be known. Some believe fishers from the Marquesas Islands are sent far out to sea to search for ideal fishing grounds. Others believe that war, severe climate and lack of natural resources force the Marquesans to leave their islands to search for new lands. About A.D. 447, the first group of Marquesans is believed to have arrived in the Hawaiian Islands and settle at Bellows Beach in Waimānalo, O'ahu. They discover that the islands of Hawai'i have valleys with many streams, and along the shoreline are small inlets and coral reefs important for fish cultivation.

"The Marquesans initially created three principal communities on O'ahu at Waimānalo, Kaneohe and Kailua. These offered conditions which clearly were most agreeable for their fledgling community; year-around fresh running waters, timbered and fertile valleys, offshore reefs which attracted marine life, sheltered lagoons for fishpond aquaculture and the highest grade of basaltic rock (used for stone tools)" (Hall III, 1997).

1000

Raiateans arrive from French Polynesia between the 9th and 15th centuries. They are fierce warriors enslaving the Marquesans whom they refer to as the “small people” or manahune (in Hawaiian culture, menehune). Thousands of these menehune are ordered to build fishponds. The Raiateans set up the social structure that would later govern the ahupua'a.

"The second phase of Polynesian migration to Hawai'i took place about A.D. 1000. Authorities are of the opinion that when the newcomers arrived in the Hawaiian Islands they promptly set about conquering the Marquesans already settled there...and [the Marquesans] became the working class under the new rulers" (Donohugh, 2001).

"Of the fishponds, Alakoko (or Alekoko) on Kaua'i and Huila on O'ahu were said to be built by Menehune....Their stonework includes heiau temples, 'auwai watercourses and fishponds" (Wyban, 1992).
Historical Account Cards

1300  Period 1

More than 30 fishponds in Kāne‘ohe Bay are already constructed. Tahitians develop an extensive agricultural system of lo‘i kalo (taro patches) and loko i‘a (fishponds) at Ka‘elepulu pond and Kawainui marsh in the Kailua, O‘ahu, area.

"...it is along and in the streams which rush through the bottoms of these narrow gorges that the Hawaiian is most at home. Go into any of the valleys, and you will see a surprising sight: along the whole narrow bottom and climbing often in terraces... you will see little taro patches, skillfully laid so as to catch the water, either directly from the main stream, or from canals taking the water out above.... Down near the shore are fishponds, with wicker gates, which admit the small fry from the sea, but keep in the large fish" (Dieudonne, 2002).

"Po‘alima was a work day, literally the fifth day of the week, when people in the community would work on the chief’s taro lo‘i and fishponds. Po‘alima assured that maintenance of fishponds was continued" (Farber, 1997).

1450  Period 1

Fishponds are rebuilt at Keone‘oi‘o (on Maui) after a lava flow damaged the original pond. Waikiki becomes the central site for the ali‘i.

1500  Period 1

The high chiefess Kala-manuia orders the construction of Kapa‘kea, ‘Opu, Pa‘aiau and Loko Pa‘kea, fishponds in Pearl Harbor. On Moloka‘i, Chief Lohelohe is said to be responsible for the construction of Keawanui fishpond and Mikiawa fishtrap.

1600  Period 1

An invading army of Chief Kama-lala-walu of Maui sends spies to Kiholo Bay on Hawai‘i Island. The spies observe that the fishponds of Wainânâli‘i are in full operation.
Historical Account Cards

1700

Period 2

Battles are occurring throughout the Islands. Fishponds, which are symbols of power and wealth, are ordered to be destroyed by rival chiefs in order that they may conquer more lands.

"Each fishpond was always associated with one and only one land unit...The wealth and power of a chief was measured in his lands and the production of those lands....Under conditions of war, a great deal of destruction was done in order to cripple the opponent" (Kikuchi, 1973).

"Having gained Hilo, Keōua...descended into Waipi'o and broke down the fishponds, drying up Lalakea, Muliwai, and all the other ponds. He pulled up the taro of Waipi'o, broke down the banks of the taro patches, and robbed the people...Such were the bitter fruits of war" (Kamakau, 1992).

1736

Period 2

An O'ahu chief, Kapi'ioho'okalani, wages war on the people of Moloka'i causing the people to flee to the mountains to escape his destruction. Kapi'ioho'okalani orders his men to tear down walls and destroy the fishponds. The battle continues for five days until Kapi'ioho'okalani and some of his warriors are slaughtered. Those who remain alive, return to O'ahu.

"The presence of a large fishpond indicated to any possible enemy that this chief and his people were united, at his command, and he could field an army to defend his territory from attack" (Farber, 1997).

1778

Period 2

Captain James Cook arrives in the Islands. The Hawaiian population at the time is approximately 300,000; 60,000 live on the island of O'ahu. Diseases are introduced: venereal, smallpox, measles, colds, and leprosy. Between 1778 and 1823, or 45 years from the time Cook arrives in the Islands, the native population declines by 80 percent. Many commoners who maintain the fishponds are lost to disease.
Historical Account Cards

1778

When Captain James Cook arrives in the Islands, Hawaiians do not understand the concept of trading food and materials for profit. Their economy is based on sharing resources. But they learn quickly, trading food for iron materials and weapons.

“The introduction of new goods and materials, plants, animals, diseases for which the Hawaiians had no immunity, and foreign beliefs, customs and institutions ultimately led to the destruction of the Hawaiian religion and the chiefs’ right to control the land, its resources and its people” (Farber, 1997).

1790

Kawainui in Kailua, O‘ahu, becomes the breadbasket for King Kamehameha’s armies. Kamehameha spends time hunting in this area and fishing in Kawainui and Ka‘elepulu ponds. To set an example for his people, Kamehameha works alongside his people cleaning the fishponds.

1800

An estimated 360 fishponds are in production throughout the Islands. A lava flow in North Kona destroys several fishponds. The people believe that Pele wants to consume the awa (milkfish) from two of the ponds. The flow destroys houses, topples coconut trees and fills fishponds with lava. Kamehameha I appeals to Pele, offering sacrifices and gifts, which halts the flow, but not before the lava destroys the ponds.

1800

Cattle, sheep, and horses are introduced to the Islands. Kamehameha I places a kapu on destroying the animals. Animals are allowed to roam freely and reproduce. As a result, soil erodes downstream into fishponds, depleting pond life and causing siltation.

“Presented as a gift to Kamehameha, the king would place a Kapu on the ‘pipi’ (beef cattle) and, grazing freely, their numbers would grow quickly. In 1803, the first horses are shipped to Hawaii. Also protected by a kapu, the ‘lio’ (wild mustangs) could be found roaming at will” (Hall III, 1997).
Historical Account Cards

1805 - 1810

Period 3

The sandalwood trade enters its boom years. More and more foreigners begin visiting the Islands, bringing with them new technology and materials. Iron, masts and guns make an enormous impression on the ali‘i. Possessing these materials symbolizes power and wealth. Ali‘i discover that sandalwood is highly prized by foreigners so they require their people to spend less time tending the fishponds and lo‘i kalo and more time cutting down sandalwood trees. The ali‘i profit from the sandalwood trade while their people experience food shortages and starvation.

“[Several captains of boats] informed the king [Kamehameha I] and his chiefs that the fragrant sandalwood was a valuable article of trade with the people of China. The king, accordingly, when he returned to Hawaii‘i, sent his people to the mountains after this wood” (Kamakau, 1992).

1819

Period 3

King Kamehameha I dies. The kapu system is ended and the many konohiki no longer have the right to command people to work. The maintenance and repair of fishponds decline. Diseases continue to deplete the Hawaiian population. Those who have the expertise to build fishponds gradually disappear.

“In the wake of Kamehameha’s death these two feminists [Ka‘ahumanu and Ke‘ōpūlani] would conspire to liberate all Hawaiian women from the oppressive kapu system in one fell sweep by taking their seats at the table of...Liholiho” (Hall III, 1997).

1830

Period 4

The whaling industry emerges and many young Hawaiians move to Honolulu and Lahaina hoping to earn good wages. Those who continue to practice agriculture begin growing food for sale. Fish are raised and sold. Instead of sharing resources in a subsistence economy, people start raising and selling fish and other goods, beginning the shift to a market economy.

“It was the first time that masses of Hawaiians were drawn into the cash economy as regular paid wage earners. Many young Hawaiians attracted to the promise of town life left the land for Lahaina and Honolulu. Hawaiian agricultural workers began growing food expressly for sale, further undermining the subsistence economy” (Farber, 1997).
Historical Account Cards

1835 - 1847

Period 4

The first large-scale sugar mill begins operation when a 50-year lease on land is signed at Kōloa, Kaua‘i. Workers are drawn to the plantation to receive wages and benefits. Perhaps the change in land use and especially the building of dams and irrigation systems for the growing of sugar cane contributed to the flooding that occurred in 1847.

“Signed by Kamehameha III and Governor Kaikio‘ewa of Kaua‘i, this lease was the first of its kind in the history of Hawai‘i. It was also the first formal recognition of the right of someone other than a chief to control land. This profoundly affected traditional notions of land tenure dominated by the chiefly hierarchy throughout the islands. In 1847...a flash flood...swept away most of the Hawaiian houses in Kōloa, ruined taro patches and fishponds, and even damaged the sugar mill” (Donohue, 2001).

1848

Period 4

The Great Mahele is proclaimed by Kamehameha III. During this period of land division, lands that were originally managed by the ali‘i and maintained by the people are converted to private land ownership. Most of the fishponds are awarded to the ali‘i. However, ali‘i no longer have control over their people to maintain the fishponds. The Hawaiian population throughout the Islands drops to 82,000 after a measles epidemic. Fishponds fall into disrepair or are leased out to foreigners.

“The Mahele and Kuleana Act resulted in about 70 percent of the adult male population, along with their wives and children, rendered landless at a moment when it was crucial to obtain a plot of land to live on and cultivate to support one’s family” (Farber, 1997).

“The ponds that were not maintained either fell into disrepair or were leased to and operated by Chinese (77) followed by Hawaiians (23) and Caucasians (less than 1)” (Farber, 1997).

1850

Period 4

The Resident-Alien Act becomes law, allowing foreigners to buy land. Most of the lands that were made available for the ali‘i and the commoners under the Great Mahele are lost to foreigners. By 1851, the traditional system of owning and operating fishponds is gone.
Historical Account Cards

1851

Fifty-five Hawaiian farmers from windward Oʻahu send a letter to the King’s government stating that ‘We are in trouble because we have no firewood and timber for houses...our children are eating raw potato for lack of firewood and their mouths swell from eating raw taro.’ Without money for sustenance, the farmers are forced to relinquish title to their land.

“As fishponds and sea fisheries were declared private property under the new laws, the common people soon became trespassers in their own lands” (Kelly, 1975).

1853

More diseases are introduced to the Islands from the Orient and the West. Native Hawaiians have no immunity to these diseases and a small pox epidemic kills more than 7,000 on Oʻahu. The population in the Hawaiian Islands dwindles to 75,000. The people are in despair.

1900s

Mangrove trees are introduced to the Islands to prevent soil erosion. The American Sugar Company plants seedlings on the upper slopes of Molokaʻi. However, the mangroves quickly spread to the coastline where they thrive in brackish water. The mangroves begin to extend to the shallow areas of fishponds and the root systems become established within the walls. This causes sediment to be trapped, turning some fishponds into wetlands and mudflats. Mangroves block sunlight, preventing the growth of limu, on which the ‘amaʻama (striped mullet) feed.

“...the first trees planted on the Molokaʻi Ranch were set out before I came to the ranch in 1908. The trees are from seed that came from Florida. The planting...was for the purpose of holding back soil that is being washed down by very heavy rain into the sea, and also as a pasture plant for bees” (MacGaughey, 1917).
**Historical Account Cards**

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**1902**

Period 5

There are 99 fishponds in production statewide.

"Ninety-nine fishponds were in production in 1900, Kaua’i - 6, O’ahu - 74, Moloka’i - 15, and Hawai’i - 4. These ponds combined employed a total of 191 people" (Cobb, 1902).

"In 1902, there were 99 ponds producing 682,464 lb. of fish; today (1994) we have six ponds State-wide yielding 31,639 lb. of fish...." (Farber 1997).

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**1903**

Period 5

More families from rural areas move to urban areas. Fishponds that were tended by families are no longer being cared for and fewer people are selling fish. Families have difficulty transporting fish to sell since the availability of ice is limited. Importing fish and local ocean fishing costs less and the labor is not as complex as maintaining a fishpond. Commercial fishpond operators are unable to compete with the more productive way of obtaining fish, and many fishponds are abandoned.

"The native population is rapidly disappearing, and where there were prosperous and populous villages in the early years of the last century there is practically a wilderness now. Owing to this depopulation there is no sale of fish in the immediate neighborhoods of the ponds there. The ponds have naturally been allowed to decay, the walls breaking down from the action of the storms, and the sea filling them with sand if they are located on the immediate shore. This condition is especially prevalent on Moloka’i" (Cobb, 1903).

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**1918**

Period 5

Artillery batteries are constructed around O’ahu’s south shore. Ten loko wai in Kalia (Fort DeRussey) are dredged and filled in.

"The area once known as Kalia (now Fort DeRussey) was the site of 10 loko wai. These large fishponds were also home to ducks and other waterfowl. Taro and sweet potatoes were grown, fed through an elaborately designed system of ‘auwai (water channels)” (Dieudonne, 2002).
Historical Account Cards

1941

Period 5

America enters World War II when the Japanese attack Pu‘uloa (Pearl Harbor). The American military occupation of Pearl Harbor has destroyed many of the fishponds and fishtraps. Several accounts indicate that at one time there were close to 36 fishponds and fishtraps in the area. “On Pearl Harbor, O‘ahu, two fishtraps are used for catching sharks and large akule (goggler), opelu (mackerel scad), weke (goat fish), and kawakawa (bonito)” (Sterling, 1993). “The development of Pearl Harbor by the military destroyed some of the oldest and most unique fishponds and fishtraps in Hawai‘i” (Farber, 1997).

1946

Period 5

A major tsunami hits the Islands. It is the most destructive natural disaster in Island history, causing $25,000,000 in property damage. Many fishponds are destroyed.

“Of a total of 85 tsunami recorded since 1813, 6 were severe enough to have caused extensive damage to both life and property, while 15 were of significant force to have caused lesser damage. The tsunami of 1946 did considerable damage to Ku‘uali‘i and Kahapapa fishponds on Hawai‘i, Kupeke fishpond and Honouliuliwai fishtrap on Moloka‘i, and Alekoko and Lawa‘i Kai fishponds on Kaua‘i” (Kikuchi, 1973).

1947

Period 6

Due to an increase in population and tourism, there is more demand for housing and resort development. Kalokohanahou, a 14-acre fishpond in Kāne‘ohe Bay on O‘ahu, is filled in to pave the way for residential development. Fishpond owners sell their lands at premium prices.

“...many of the fishponds of Kāne‘ohe Bay were filled shortly after World War II. Most others continue to deteriorate from neglect” (Devaney, 1982).

“The extensive loko wai in Waikīkī and many of the ponds in the Kāne‘ohe area were filled in and developed for housing and hotels. Urbanization, particularly on O‘ahu, has altered or destroyed many of the fishponds. Population pressure, changing shoreline use and resort development resulted in the filling in of fishponds. As recently as 1971, Puko‘o fishpond on Moloka‘i was destroyed for resort development” (Farber, 1997).
Historical Account Cards

1955

As a result of efforts to restore the fishponds as a means of solving food problems during wartime, Act 216 of the Session Laws of the Territory of Hawai‘i is finally enacted. This legislation calls for the rehabilitation and reconstruction of fishponds that are located on government lands and the lease of public fishponds to private persons.

"With minor modifications to the language but with its overall intent intact, this legislation has been in effect up to the present day (in 1985 to the present known as Act 171-28)" (Farber, 1997).

1994

Only six fishponds are producing fish statewide – Mōlī‘i, He‘eia, Lokoea on O‘ahu, ‘Ualapu‘e on Moloka‘i, and LokoWaka and Lahuipua‘a on Hawai‘i. The Lahuipua‘a pond complex, however, is part of the Mauna Lani Resort, and the fish in the ponds are for enjoyment and education, not cultivation.

"In 1902, there were 99 ponds producing 682,464 lb. of fish; today (1994) we have six ponds State-wide yielding 31,639 lb. of fish" (Farber, 1997).

2003

Only four fishponds are being used for aquaculture statewide – Mōlī‘i and Lokoea on O‘ahu, LokoWaka on Hawai‘i, and ‘Ualapu‘e on Moloka‘i. Restoration efforts continue, but not without many obstacles. Government regulations, differing viewpoints on the purpose of historic preservation, and methods of restoration are key concerns. Beach access, coastal water quality and wetland protection, navigable rights, and public and private use are other issues that must be addressed. Kaloko pond on Hawai‘i, Pa‘ai‘au, Huila, Waikalua, He‘eia ponds on O‘ahu and Ko‘ie‘ie pond on Maui are some of the fishponds currently in various stages of restoration.