

NOAA's role in addition to help coordinate the *Ho'ala Loko I'a Permit application Guidebook*, was in helping develop best management practices related to threatened and endangered species monitoring. These include:

1. All on-site personnel shall be apprised that they are working in an environmentally sensitive area and that endangered or threatened Hawaiian waterbirds, turtles, and monk seals may be in the vicinity of the project.
2. Each authorization will contain the requirement that the authorized entity document and report to DLNR OCCL (and thereby the Corps, NMFS and FWS) all interactions with listed species, including the disposition of any listed species that are injured or killed. Should an ESA-listed species be adversely affected, all work must stop pending reinitiation and completion of consultation between DLNR OCCL, the Corps, NMFS PRD and/or FWS for that action.
3. Constant vigilance shall be kept for the presence of ESA-list species during all aspects of the permitted and/or authorized action(s);
 - a. responsible party, i.e., site manager I project supervisor, shall designate a competent observer to survey work sites and the areas adjacent to the authorized work area for ESA-listed marine species;
 - b. Surveys shall be made prior to the start of the work each day, including prior to resumption of work following any break of more than one-half hour. Periodic additional surveys throughout the work day are strongly recommended;
 - c. If any federally protected waterbird species appears within 100 feet (30.5 meters) of ongoing, in-water work, work activity shall be temporarily suspended until the bird species leaves the area of its own accord.
 - d. If a waterbird nest, turtle nest, or monk seal pup or pregnant monk seal is discovered, all work shall cease and DLNR OCCL should be contacted immediately, who shall then notify FWS and/or NOAA immediately.
 - e. All in-water work will be postponed or halted when ESA-listed marine species are within 50 yards of the proposed work, and will only begin/resume after the animal(s) have voluntarily departed the area, with the following exemption: if ESA-listed marine species are noticed within 50 yards after work has already begun, that work may continue only if, in the best judgment of the responsible party, the activity is unlikely to disturb or harm the animal(s); and
 - f. No one shall attempt to feed, touch, ride, or otherwise intentionally interact with any protected species.
4. Project footprints must be limited to the minimum area necessary to complete the project.
5. The project area must be flagged to identify sensitive resource areas, such as seagrass beds, coral resources, listed terrestrial plants, and turtle nests.

6. Work located makai of the Mean Higher High Tide Line of a navigable water or makai of the upward limits of adjacent wetlands must be timed to minimize effects on ESA-listed species and their habitats.

7. Project operations must cease under unusual conditions, such as large tidal events and high surf conditions, except for efforts to avoid or minimize resource damage.

8. Additional conditions may be required based on a site-specific analysis of potential biological resources in the area and potential impacts.

Hui Mālama Loko I‘a recently had their annual meeting on Lāna‘i, at Waia‘ōpae fishpond, and had group discussions on collective work together. Here are some issues that came up in the discussions:

- a. Availability of pōhaku for restoration at sites where the original pōhaku are insufficient, especially accounting for the need to adapt to climate change and rising sea levels (which many loko i‘a are already experiencing). Someone mentioned that there was an old agreement worked out with Maui county, that facilitated pōhaku to go from the quarry on Moloka‘i to Keawanui fishpond (stewarded by Walter Ritte and Hui o Kuapā, which you mentioned you reached out to...perhaps you can ask about this specific old example).

****A response pertaining to section a. This agreement was an old resolution signed by Mayor Apana that stated the county will support restoration efforts of fishponds. So the county hauled rocks to our fishpond site from the rock quarry.

- b. The need for more flexibility and self-determination to be able to adapt to changing conditions (i.e., related to some of the permitting barriers that came up in the May council meeting; we would support any efforts that would make it easier to remove sediment from within loko i‘a, in addition to continued watershed work up mauka).
- c. Improving partnerships with landowners, agencies, counties and state.

Documents including background information about Molokai Fishponds and the communities vision for them:

The 1993 Governor’s Task Force on Molokai Fishpond Restoration recommendations-- attached are portions of the executive summary.

The 1998 Molokai Rural Empowerment Zone Application. The section on Molokai Fishpond is attached--the ask was for a marine finfish hatchery, "This project offers a unique opportunity for the Oceanic Institute to work jointly with local residents to establish a working hatchery that will serve as the economic

impetus for the development of an aquaculture industry on Molokai and as a driving force in the restoration of the island's native Hawaiian fishponds."

The state legislature did appropriate monies for the hatchery but it was never built though the need for it remains (see attached SB 663).

THE HUI MĀLAMA LOKO I'A

(The Hui) is a growing network of fishpond practitioners and organizations from across ka pae'āina o Hawai'i (the Hawaiian archipelago). The Hui was formed as an opportunity for practitioners to empower each other and leverage their skills, knowledge and resources related to restoration and management of loko i'a (traditional Hawaiian fishponds).

The Hui has met opportunistically since 2004. In 2013, KUA received a grant from the Office of Hawaiian Affairs and Conservation International's Hawai'i Fish Trust to support the Hui in building its operational structure and overall capacity. In May 2014, KUA facilitated the largest-ever gathering in Hāna on the island of Maui, a place where fishponds and other significant fishing practices originated.

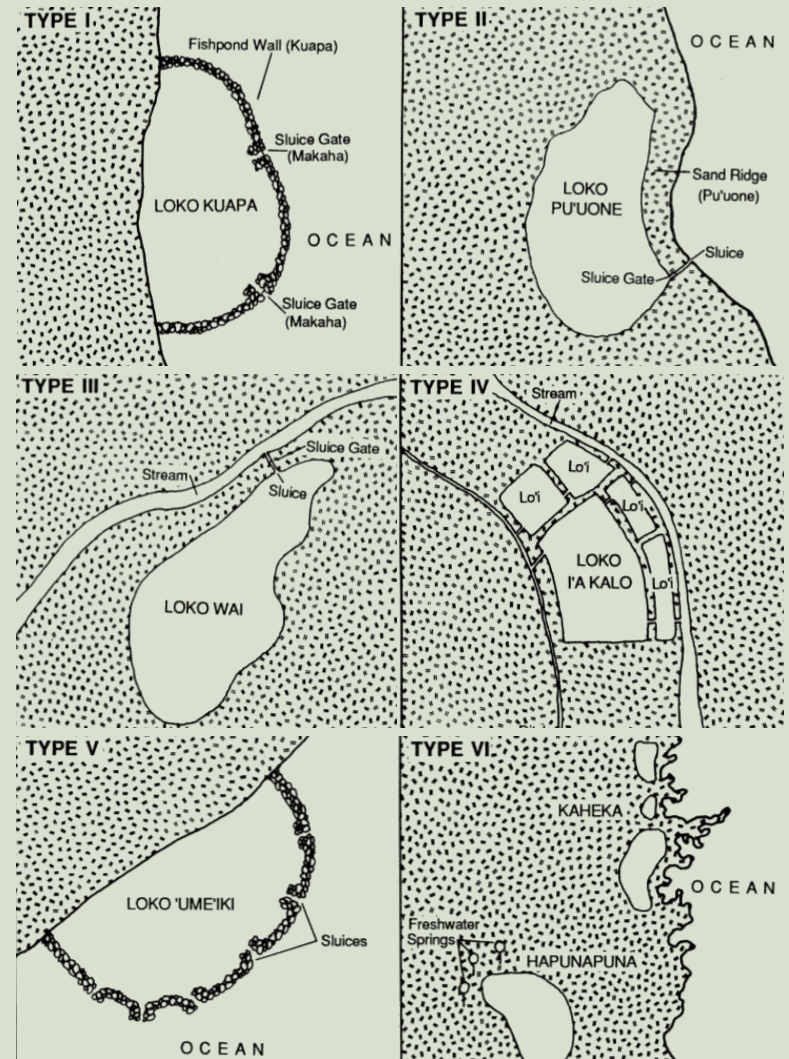
Four hundred eighty-eight fishpond sites were identified in the last statewide survey (DHM 1990). Among these 488 loko i'a sites, many are in degraded conditions, sometimes completely beyond repair or unrecognizable as fishponds. However, for the sites that are partially intact, there are communities and stewardship groups who actively restore or have expressed interest in reviving the integrity and productivity of these places.

Loko i'a, or Hawaiian fishponds, are unique aquaculture systems that exist throughout Hawai'i, and continue to feed and connect communities around the islands.

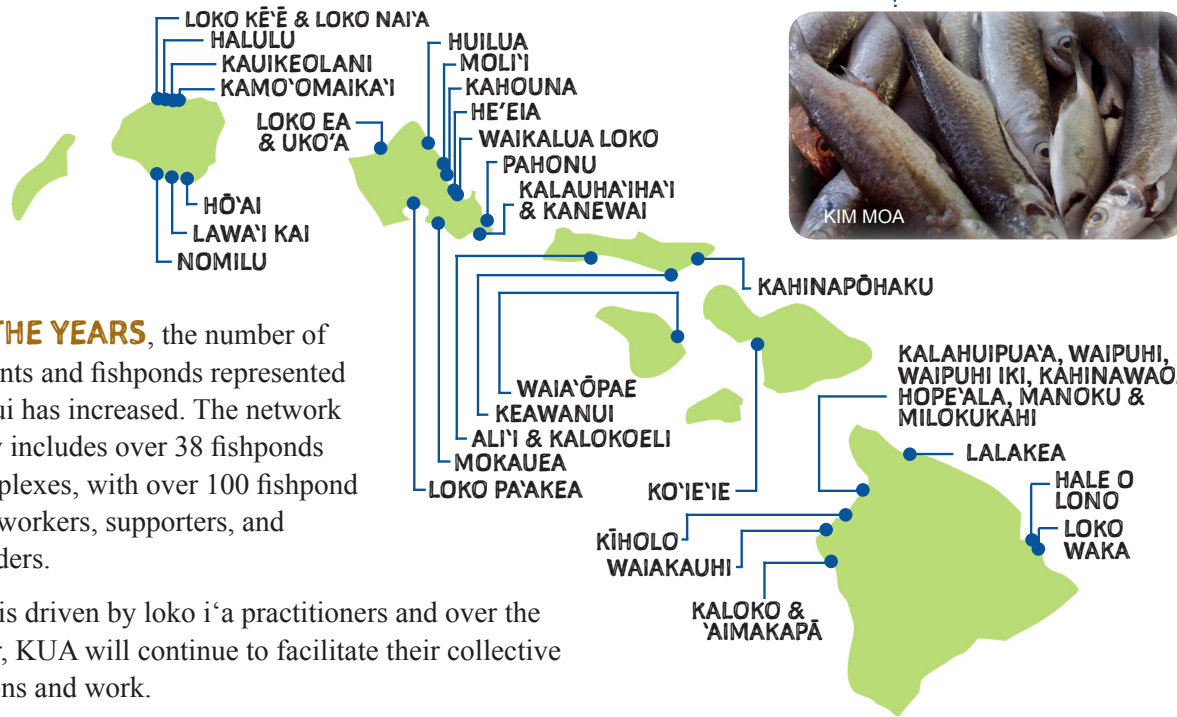


ALEX CONNELLY

LOKO I'A are important components of the ahupua'a (traditional land stewardship framework) that contribute to a healthy and robust food system. They are unique aquaculture systems that exist throughout Hawai'i, and were developed to optimize natural patterns of watersheds, nutrient cycles, and fish biology. There are six general types of loko i'a.



Figures modified from: DHM Planners Inc., Bernice Pauahi Bishop Museum, Applied Research Group, Public Archaeology Section. Hawaiian Fishpond Study: Islands of O'ahu, Moloka'i and Hawai'i. Honolulu: DHM Planners, 1989.



OVER THE YEARS, the number of participants and fishponds represented in the Hui has increased. The network currently includes over 38 fishponds and complexes, with over 100 fishpond owners, workers, supporters, and stakeholders.

The Hui is driven by loko i'a practitioners and over the next year, KUA will continue to facilitate their collective discussions and work.

DHM Planners Inc., Bernice Pauahi Bishop Museum, Applied Research Group, Public Archaeology Section and Moon, O'Connor, Tam & Yuen. Hawaiian Fishpond Study: Islands of Hawai'i, Maui, Lāna'i and Kaua'i. Honolulu: DHM Planners, 1990.



LIZ FOOTE

kuahawaii.org



Today, Hawai'i's communities are coming together. They are working to reclaim their role as stewards of their places, advancing just solutions to Hawai'i's most difficult environmental and social problems.

They are joined in this work by others who are researchers, teachers, businesses, artists, resource managers, decision-makers and individuals in Hawai'i and around the world.

KUA exists to serve this movement.

KUA Board of Directors

- Hi'ilei Kawelo, Chair
- Maka'ala Ka'auamoana, Vice Chair
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2014 Supporting 'Ohana

Mahalo nui loa to The Harold K.L. Castle Foundation, Office of Hawaiian Affairs, Wallace Alexander Gerbode Foundation, Hawai'i Community Foundation FLEXgrants & Omidyar 'Ohana Fund, Keith & Judy Swayne Family Foundation, Sidney E. Frank Foundation, Toyota TogetherGreen by Audubon, Hawai'i People's Fund, Conservation International Hawai'i Fish Trust, the Pacific Aquaculture & Coastal Resources Center, and individuals around Hawai'i and the world who help make this work possible.

808-672-2545
brenda@kuahawaii.org



*When we care for our resources,
our resources care for us.
- Ancient Hawaiian Proverb*

Loko I'a Restoration Needs by MA'ANA

- 1) **Help** with the Army Corps of Engineers permitting:
 - a. Wetland classification verses neglected taro patch classification
 - b. Permit application
- 2) **Volunteers (or stipends to hire workers)** to help clear invasive plants, especially mangrove, and replace them with indigenous trees and plants. Also, to help stack rocks to restore the wall.
- 3) **Ban mill saw** to process useable sections of mangrove, java plum, Christmas berry trees, monkey pod, etc.
- 4) **Commercial wood chipper** to mulch smaller plants parts that are not usable otherwise.
- 5) **Passenger van** to transport teens to the ponds for educational purposes and hana hana.
- 6) **Small hand tools** for clearing invasive plants:
 - a. Chainsaw & blades
 - b. Loppers
 - c. Weed eaters
 - d. Machetes
 - e. Pitchforks
 - f. Steel/iron rakes
 - g. Shovels
 - h. Digging sticks
 - i. Work gloves
 - j. Safety glasses
 - k. Hearing protection
 - l. First aid kit
- 7) **Portable toilets (2)** (porta pottie)



*When we care for our resources,
our resources care for us.*

- Ancient Hawaiian Proverb

- 8) **Potable water** hook-ups/tanks/dispensers with meter
- 9) **Power Wagon** – to haul rocks (motorized wheel barrow)
- 10) Two Storage pods – 20' **shipping container(s)**
- 11) **Heavy Equipment:**
 - a. Backhoe
 - b. Amphibious excavator
 - c. Dump truck



Hawaiian Fishpond Cultural Education Curriculum

Curriculum Units

Unit I – Welcome & Safety (1 hour and 20 minutes)

- A. Welcome & Introduction of MA'ANA (15 minutes)
- B. Identifying hazards & accident prevention (15 minutes)
- C. Working near water (10 minutes)
- D. Working with tools (20 minutes)
- E. Maintaining tools (15 minutes)
 - a. Sharpening tools
 - b. Storage of tools
 - c. Inventory of Tools
- F. Behavior Expectations -No Horseplay (5minutes)

Unit II - Ho'oponopono (1 hour)

- A. Identifying problems (15 minutes)
- B. Making amends (10 minutes)
- C. Pono (being positive with good intent) (10 minutes)
- D. Hewa (avoiding negativity) (10 minutes)
- E. Puwalu (working together) (15 minutes)

Unit III – Traditional Hawaiian Tools, Instruments & Practices

- A. Tools
 - 1. O'o (digging stick) (1 hour)
 - 2. Lauhala (mat weaving) (Getting started: 1 hour)
 - 3. Poi Pounder & Pa'i ai (2 hours)
 - 4. Umeke (bowls) (2 hours)
- B. Instruments
 - 1. U ke ke (2 hours)
 - a. Making



Hawaiian Fishpond Cultural Education Curriculum

- b. Playing
- 2. Uli uli (2 hours)
 - a. Making
 - b. Playing
- 3. Ukulele (playing only) (2 hours)
- 4. Ipu (playing only - if available) (2 hours)
- C. Hula (if available – instructor needed) (2 hours)

Unit IV – Hawaiian Loko I’a History

- A. Mo’olelo – Mythology of Hawaiian Fishponds (1 hour)
- B. Hawaiian Cultural use of Fishponds (30 minutes)
- C. History of Ualapu’e (30 minutes)

Unit V - Wall-building

- A. Traditional Dry Stack Techniques
 - 1. Different method to dry stack fishpond walls (45 minutes)
 - 2. Weather factors impact on fishpond walls & makaha (15 minutes)
 - 3. Wall construction considerations (30 minutes)
 - 4. Makaha function & use (30 minutes)

Unit VI – Gathering fish and other food items

- A. Laying nets (45 minutes)
- B. Scoop netting/Lama lama (15 minutes)
- C. Throw nets (30 minutes)
- D. Repairing nets (30 minutes)
- E. Limu gathering (1 hour)
- F. La’au gathering & usage (1 hour)



Hawaiian Fishpond Cultural Education Curriculum

Unit VII – Fishpond Culture

- A. In the loko I'a (in water)
 - 1. Traditional methods (2 hours)
 - 2. Modern aquaculture considerations (1 hour)
- B. Around the loko I'a (on land)
 - 1. Organic gardening (1 hour)
 - 2. Kalo farming techniques (2 hours)

Unit VIII – Marketing and Sales of Products

- A. Wholesale (30 minutes)
- B. Retail (30 minutes)
- C. Direct Marketing (30 minutes)
- D. Developing Marketing Materials (30 minutes)

Unit IX – Entrepreneurship

- A. Starting your own business
 - 1. Licenses (30 minutes)
 - 2. Permits (30 minutes)
 - 3. Budgets (1 hour)
 - 4. Finding starting capital (30 minutes)
 - 5. Special permitting considerations for Loko I'a (30 minutes)

Extra activities: Hikes, singing, storytelling by Kupuna, readings, art projects, celestial navigation lessons, water-reading skills, etc.

NOTE: Each unit will come with a certificate of completion and documentation of service hours (hana hana) completed on the last day. Total Available Service Hours = 34 hours over 6 weeks.



Hawaiian Fishpond Cultural Education Curriculum

Daily Schedule

Day 1

8:30 A.M. to 9:50 A.M. = **Unit I**

9:50 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = **Unit II**

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 2

8:30 A.M. to 8:45 A.M. = Review of Units I & II

8:45 A.M. to 9:45 A.M. = Digging Stick (III.A.1)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Lauhala - Beginning Mat Making (III.A.2)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 3

8:30 A.M. to 8:45 A.M. = Review of Safety, III.A.1 and III.A.2

8:45 A.M. to 9:45 A.M. = Poi Pounder & Pa'i ai (III.A.3)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Poi Pounder & Pa'i ai continued (III.A.3)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home



Hawaiian Fishpond Cultural Education Curriculum

Day 4

8:30 A.M. to 8:45 A.M. = Review of Safety and III.A.3

8:45 A.M. to 9:45 A.M. = Umeke (bowls) (III.A.4)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Umeke (bowls) continued (III.A.4)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 5

8:30 A.M. to 8:45 A.M. = Review of Safety and III.A.4

8:45 A.M. to 9:45 A.M. = Making a U Ke Ke (III.B.1.a)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Playing a U Ke Ke (III.B.1.b)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 6

8:30 A.M. to 8:45 A.M. = Review of Safety and III.B.1a & III.B.1b

a. 8:45 A.M. to 9:45 A.M. = Making a Uli uli (III.B.2a)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Playing a Uli uli (III.B.2b)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home



Hawaiian Fishpond Cultural Education Curriculum

Day 7

8:30 A.M. to 8:45 A.M. = Review of Safety and III.B.2a & III.B.2b

8:45 A.M. to 9:45 A.M. = Playing Ukulele (III.B.3)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Playing Ukulele continued (III.B.3)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 8

8:30 A.M. to 8:45 A.M. = Review of Safety and III.B.3

8:45 A.M. to 9:45 A.M. = Playing Ipu (III.B.4)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Playing Ipu continued (III.B.4)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 9

8:30 A.M. to 8:45 A.M. = Review of Safety and III.B.4

8:45 A.M. to 9:45 A.M. = Hula (III.C)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Hula continued (III.C)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home



Hawaiian Fishpond Cultural Education Curriculum

Day 10

8:30 A.M. to 8:45 A.M. = Review of Safety and III.C

8:45 A.M. to 9:45 A.M. = Mo'olelo – Mythology of Hawaiian Fishponds (IV.A)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 10:30 A.M. = Hawaiian Cultural use of Fishponds (IV.B)

10:30 A.M. to 11:00 A.M. = History of Ualapu'e (IV.C)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 11

8:30 A.M. to 8:45 A.M. = Review of Safety and IV.A, IV.B, & IV.C

8:45 A.M. to 9:30 A.M. = Different method to dry stack fishpond walls (V.A.1)

9:30 A.M. to 9:45 A.M. = Break

9:45 A.M. to 10:00 A.M. = Weather factors impact on fishpond walls & makaha (IV.A.2)

10:00 A.M. to 10:30 A.M. = Wall construction considerations (V.A.3)

10:30 A.M. to 11:00 A.M. = Makaha function & use (V.A.4)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 12

8:30 A.M. to 8:45 A.M. = Review of Safety and V.A.1, V.A.2, V.A.3 & V.A.4

8:45 A.M. to 9:30 A.M. = Laying nets (VI.A)

9:30 A.M. to 9:45 A.M. = Scoop netting/Lama lama (VI.B)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 10:30 A.M. = Throwing nets (VI.C)

10:30 A.M. to 11:00 A.M. = Repairing nets (VI.D)



Hawaiian Fishpond Cultural Education Curriculum

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 13

8:30 A.M. to 8:45 A.M. = Review of Safety and VI.A, VI.B, VI.C & VI.D

8:45 A.M. to 9:45 A.M. = Limu gathering (VI.E)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = La'au gathering & usage (VI.F)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 14

8:30 A.M. to 8:45 A.M. = Review of Safety and VI.E & VI.F

8:45 A.M. to 9:45 A.M. = In the loko I'a - Traditional methods (VII.A.1)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = In the loko I'a - Traditional methods continued (VII.A.1)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 15

8:30 A.M. to 8:45 A.M. = Review of Safety and VII.A.1

8:45 A.M. to 9:45 A.M. = In the loko I'a - Modern aquaculture considerations (VII.A.2)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Around the loko I'a (on land) Organic gardening (VII.B.1)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home



Hawaiian Fishpond Cultural Education Curriculum

Day 16

8:30 A.M. to 8:45 A.M. = Review of Safety and VII.A.2 & VII.B.1

8:45 A.M. to 9:45 A.M. = Around the loko I'a (on land) Kalo farming (VII.B.2)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Around the loko I'a (on land) Kalo farming cont. (VII.B.2)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 17

8:30 A.M. to 8:45 A.M. = Review of Safety and VII.B.2

8:45 A.M. to 9:15 A.M. = Wholesale (VIII.A)

9:15 A.M. to 9:45 A.M. = Retail (VIII.B)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 10:30 A.M. = Direct Marketing (VIII.C)

10:30 A.M. to 11:00 A.M. = Developing Marketing Materials (VIII.D)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 18

8:30 A.M. to 8:45 A.M. = Review of Safety and VII.B.2

8:45 A.M. to 9:15 A.M. = Licenses (IX.A.1)

9:15 A.M. to 9:45 A.M. = Permits (IX.A.2)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Budgets (IX.A.3)

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch



Hawaiian Fishpond Cultural Education Curriculum

1:30 P.M. Return home

Day 19

8:30 A.M. to 8:45 A.M. = Review of Safety and IX.A.1, IX.A.2, & IX.A.3

8:45 A.M. to 9:15 A.M. = Finding starting capital (IX.A.4)

9:15 A.M. to 9:45 A.M. = Special permitting considerations for Loko I'a (IX.A.5)

9:45 A.M. to 10:00 A.M. = Break

10:00 A.M. to 11:00 A.M. = Hawaiian Games

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Day 20

8:30 A.M. to 8:45 A.M. = Review of Safety and IX.A.4, & IX.A.5

8:45 A.M. to 10:30 A.M. = Nature hike and site seeing in the mountains.

10:30 A.M. to 11:00 A.M. = Break

11:00 A.M. to 12:30 P.M. = Hana hana with Loko I'a restoration

12:30 P.M. to 1:30 P.M. = Lunch

1:30 P.M. Return home

Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	Units 1 & 2	Unit 3	Unit 3	Unit 3		
	Unit 3	Unit 3	Unit 3	Unit 3		
	Unit 3	Unit 4	Unit 5	Unit 6		
	Unit 6	Unit 7	Unit 7	Unit 7		
	Unit 8	Unit 9	Unit 9	Hike		
	Hana hana	Hana hana	Hana hana	Awards Party		




Hawaiian Fishpond Cultural Education Curriculum

mo'o/e/o or story which inspired the song, and background information on the composer's life. If the song is a hula boys and girls may learn to sing and dance it for their own enjoyment and for public presentation. The music specialist demonstrates the use of authentic instruments and sound makers from the exhibit. She also chants and dances to the accompaniment of some of the hula instruments.

Hula

After relating the history of the ancient hula and its significance in Hawaiian culture, using implements such as: the ipu or gourd, pebbles or 'ili'ili, feather gourd or 'uli'uli, rhythm sticks or ka /a'au and the split bamboo or pii'ili.



**Moloka'i
Rural
Empowerment
Zone
Application**

Submitted to:
United States Department of Agriculture
October 9, 1998

by

The Community of Moloka'i

■ **Subsistence Abilities:** In 1983 the In 1987 a tuberculosis epidemic led to the decision to eradicate all the cattle on Moloka'i. Moloka'i's unemployment rate was three times the state's average at 20%. Many small businesses shut down. Subsistence fishing, hunting, gathering, and cultivation provided a reliable means of support for the community during these rough economic times. Many families on Moloka'i, particularly Hawaiian families, continue to rely upon subsistence fishing, hunting, gathering, or cultivation for a significant portion of their food – 28% of the diet for families across the island, and 38% for Hawaiian families. This ability to survive during hard times is a very valuable resource, and a testament to the resilience and independent spirit of Moloka'i's people.

last pineapple company closed its operations.



Hawaiian Fishermen Haul Their Nets

■ **Aquaculture Infrastructure:** Moloka'i's sheltered southern coastline and numerous fishponds are tremendous resources for the development of an aquaculture industry on the island. Much work has already been done to lay the groundwork for this industry. Moloka'i has been fortunate enough to be awarded \$750,000 of funding from the USDA to create a multi-purpose marine finfish hatchery on the East End. This facility will be constructed next year with the purpose of providing consistent, high quality fingerlings of mullet (*Mugil cephalus*), milkfish (*Chanos chanos*) and Pacific Threadfin (*Sexfilius polydactylus*) for cultivation in traditional Hawaiian fishponds. Construction of the facility will be managed by the Oceanic Institute, and plans are to turn it over to the Moloka'i Ice House Cooperative (a fishermen's cooperative) when it is finished.

■ **Fishponds:** Existing partners for the restoration of Moloka'i fishpond and development of the aquaculture industry include:

- USDA Aquaculture Industry Development on Moloka'i \$125,000/year until 2002
- USDA Moloka'i Multi-purpose Marine Finfish Hatchery \$700,000
- Office of Hawaiian Affairs - Moloka'i Cooperatives \$50,000/year
- Dept. of Labor-Office of Community Service \$50,000/year
- Queen Lili'uokalani Children's Center \$47,000
- Alu Like, Inc. Training/VocTech Funds \$40,000/2 years

Fishpond restoration is being done under the auspices of a non-profit, all-volunteer 501(c)(3) corporation, Hui o Kuapā. The Moloka'i Aquaculture Alliance, a non-profit

association of volunteers, has functioned over the past three years to coordinate the development of aquaculture on Moloka'i, including community-based research, Hawaiian fishpond initiatives, education, and legislative and regulatory advocacy. The University of Hawai'i College of Tropical Agriculture and Human Resources has also dedicated its staff time to fishpond restoration and production initiatives.

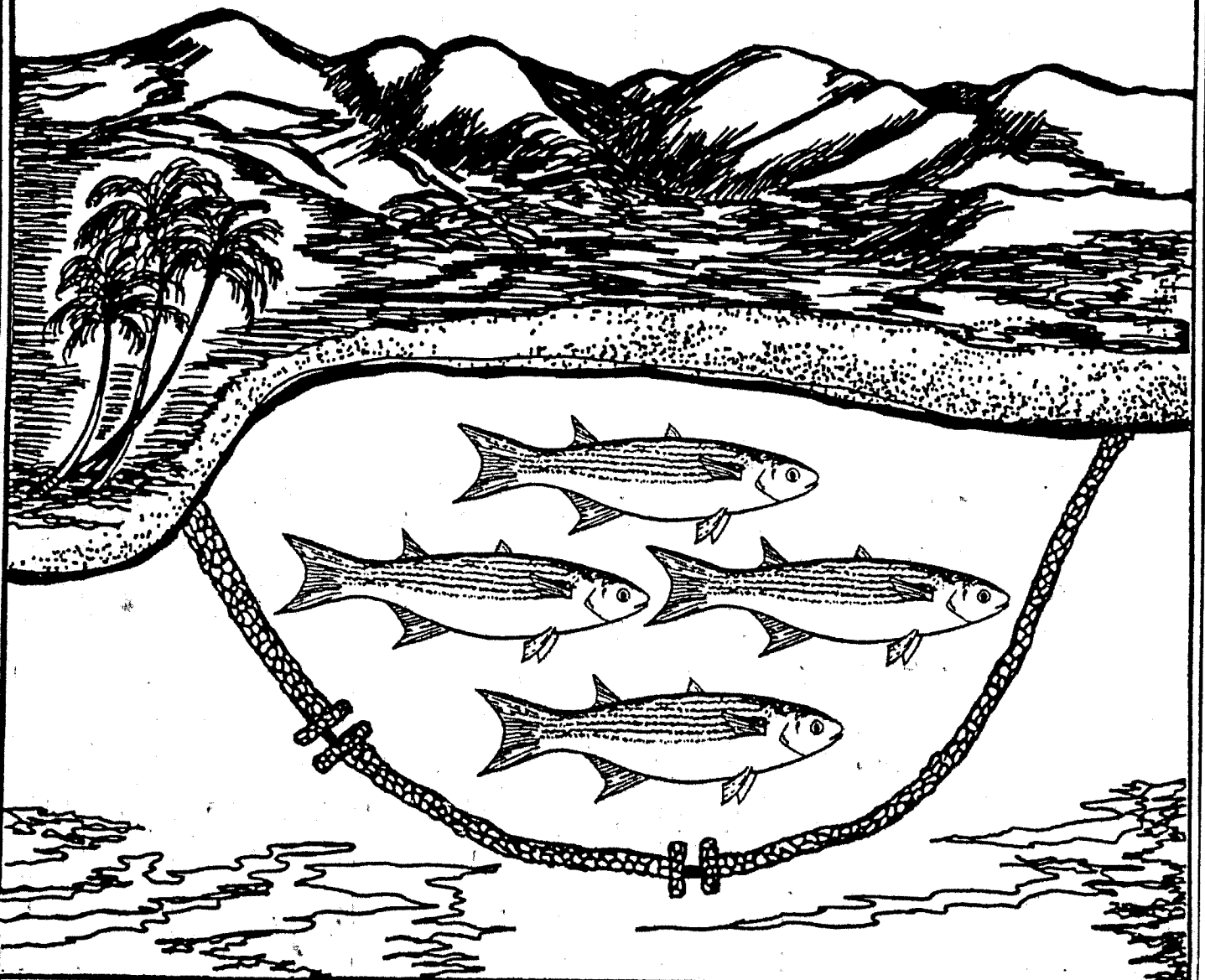
■ **Agricultural Cooperatives:** Moloka'i is now home to five agricultural cooperatives, in various stages of maturity. These cooperatives provide an important part of the infrastructure needed by producers in order to build successful farms. The five cooperatives are: The Hikiola supply cooperative, the Moloka'i Cooling Plant post-harvest service cooperative, the Moloka'i Icehouse fishermen's cooperative, the Moloka'i Livestock Cooperative for ranchers, and the Hui Laulima production cooperative, which is still in its infancy. In 1997, these cooperatives did a total of \$2 million worth of business. They will play an important role, presently and in the future, in helping their memberships, farmers and fisherman, to develop a competitive edge in the broader markets.

■ **Technical and Training Support:** Support is available to farmers and other entrepreneurs from many resources. The Maui Community College-Moloka'i Farm conducts post-secondary agriculture education programs on a 25-acre farm facility. The Moloka'i Research and Demonstration Farm of the University of Hawaii's College of Tropical Agriculture and Human Resources conducts farmer-driven research projects that address agricultural production problems, identify new crops, and demonstrate new production concepts and technologies. The Moloka'i Farm Bureau provides farmers with a statewide voice to advocate needs and concerns and coordinate legislative involvement. The Cooperative Extension Service-Moloka'i Office delivers education programs to Moloka'i on agriculture, home economics, community resource and economic development, leadership, nutrition and health, aquaculture research coordination, and 4-H youth program. USDA Natural Resource Conservation Service assists farmers in developing farm conservation plans. Moloka'i-Lāna'i Soil and Water Conservation District assists farmers with conservation cost-sharing program and administers the Moloka'i Agricultural Community Committee. Moloka'i Agricultural Community Committee (MAAC), composed of Hawaiian Homestead farmers, oversees the implementation of a special federal cost-sharing program to develop on-farm infrastructure, including water meters, fencing, irrigation, and long-term crops. The State Department of Agriculture manages the Moloka'i Irrigation System. The USDA Plant Material Center develops and tests plant materials for windbreak and soil erosion control.

■ **Capital:** Moloka'i entrepreneurs have access to relatively low-cost capital through

Report of the Governor's Task Force on Moloka'i Fishpond Restoration

May 1993



Executive Summary

In January 1992, Governor John Waihee appointed a group of individuals from government, the Moloka'i community and the private sector to a Task Force on Moloka'i Fishpond Restoration. The Task Force was developed as a result of community interest in the cultural and economic revitalization of ancient Hawaiian fishponds on Moloka'i.

The Task Force explored the opportunities and constraints for native Hawaiian fishponds in the modern world. Issues of tenure, permits, environmental concerns, appropriate use, historic preservation and community input were at the forefront of discussion. In recognition of these areas of concern, Chairperson William Paty appointed the following committees to field the issues: the Regulations Committee, Economics Committee, Cultural, Historic, and Community (CHC) Committee, and the Demonstration Project Committee.

Task Force members reviewed legal and regulatory issues with counsel from the Attorney General's Office; Department of Health, Native Hawaiian Legal Corporation; Kaneohe Bay Task Force; Maui Economic Development Board; Department of Transportation; Office of Conservation and Environmental Affairs; DLNR; and Preservation Division, DLNR; and the County of Maui. These groups were invited to answer specific questions about fishpond restoration and revitalization. Meetings were held on Moloka'i to receive input from the community and to inform interested residents of the progress of the Task Force. The Moloka'i sessions inevitably helped shaped the path of the Task Force, as resident input brought forth issues and formed some of the initiatives. The Task Force worked toward the resolution of additional fishpond-related problems of utilities access for 'Ualapu'e fishpond and affordable liability insurance for volunteers working at fishponds.

The activities of the Task Force were furthered by funds acquired through the Coastal Zone Management Program in the Office of State Planning. Permits for the demonstration project were facilitated by the Aquaculture Development Program. The broader areas of Master permits and generic Environmental Assessments were studied by MBA International which was contracted to fulfill seven specific tasks which are discussed in the appendix of this report. To further ensure that adequate input from Moloka'i residents was obtained, the consultant conducted a community survey on various fishpond issues.

To achieve the goals of restoration and revitalization of Moloka's fishponds, the following recommendations have been developed: (For more details on these recommendations, please refer to Chapter 7.)

Cultural, Historic, Community

It is recommended that:

- * the State fund a Fishpond Restoration and Revitalization Plan
- * the State form a Moloka'i Fishpond Commission
- * the State assist the Commission to physically rebuild all State fishponds
- * the State rebuild two fishponds per year for the next five years
- * Moloka'i residents have first preference to lease State-owned fishponds
- * the State and Maui County collect and provide a stockpile of rocks and coral
- * the State encourage traditional stewardship of fishponds by *ahupua'a* tenants or those who have established customs, use, practices, and traditional rights of access
- * OHA provide funding and services for restoration of Hawaiian fishponds
- * OHA provide training for fishpond operators
- * OHA fund an oral history project on the Moloka'i fishponds
- * Maui County develop Kaoaini fishpond park for culture, education and science

Permit/Regulatory

It is recommended that the:

- * Moloka'i Fishpond Commission act on the following items regarding Federal, State and County regulations:
 - develop a general permit for the Army Corps requirement or
 - amend Federal rules to include fishponds in the Nationwide permits or
 - amend Federal law to exempt fishponds from the Clean Water and the Rivers and Harbors Acts
 - develop a master CDUA plan and general CDUA permit or
 - amend State law to enable the County to implement the State's Laws
 - amend the Maui County General Plan/Moloka'i Community Plan regarding fishponds

Economics and Incentives

It is recommended that:

- * the State make fish and *limu* (seaweed) production be made the top priority for fishponds
- * the State and OHA help fund a hatchery

- * the State conduct research, development, and training for fishpond aquaculture production
- * the State provide tax Incentives to individuals
- * the State improve its leasing program
- * the State conduct a pre-survey of metes and bounds be conducted for State-owned ponds
- * OHA relinquish its ceded lands income from fishponds leased by Hawaiians
- * the State provide a trust account to assist in loans, grants, and to receive funds
- * the State develop a support infrastructure

Chapter 6. Conclusions

- * Moloka'i residents want homerule with initiatives coming from the community, rather than from top-down, with government and big businesses setting the directives and determining the use of fishponds. Moloka'i residents do not want outsiders from government or outside businesses dictating the use or development of fishpond resources.
- * There is an active interest in rebuilding fishponds for family, subsistence and traditional use on the island of Moloka'i. Several family and community groups are eager to participate in the revitalization of fishponds on Moloka'i.
- * Cooperative efforts on the part of government and rural communities on Moloka'i can work. Communication, interaction and ongoing efforts are necessary for continued progress on fishpond revitalization.
- * Historically, State-owned fishponds belonged to the Hawaiian Kingdom. The State had the obligation to maintain and care for the fishponds as food production entities as well as historic sites. The State has made little effort to maintain these important resources and, to date, the fishponds have been allowed to degenerate.
- * Moloka'i residents would like to see a renewed respect for the ancient and spiritual aspects of fishponds. This involves documentation of the spiritual aspects of fishponds, the high regard in which people held fishponds and the histories of individual fishponds.
- * As fishponds develop, there should be a balance of traditional use and modern technology. Modern technology and methods can be applied only if appropriate to the physical, cultural and historic aspects of fishponds.
- * Activities inappropriate to fishponds must be identified and prohibited. Some of the activities which disregard the cultural, physical and spiritual integrity of fishponds are jet-ski operations, wind-surfing, and large-scale tourism. Others need to be determined by the proposed Moloka'i Fishpond Commission.
- * Cultural, educational and scientific programs at fishponds are encouraged but must be conducted in an appropriate manner to be determined by the Moloka'i Fishpond Commission.
- * No polluting elements should be introduced in the area of, or adjacent to, fishponds. This includes pesticides, chemicals, sewage outfalls and dumping of garbage.

- * Use of fishponds for the aquaculture of seafood products for economic purposes is appropriate. Traditional subsistence use of fishponds, family businesses at fishponds and small business ventures which are in keeping with the rural community atmosphere of Moloka'i are to be supported.
- * The permit process is lengthy and complex; it should be streamlined while still providing for critical environmental review.
- * Historic fishpond species should be given priority for aquaculture. Additional species might be considered in the future.

Chapter 7 Recommendations

7.1 Cultural, Historic and Community

It is recommended that:

- * the State fund a Moloka'i Fishpond Restoration and Revitalization Plan.
- * the State form a Moloka'i Fishpond Commission, whose structure shall be similar those of the Burial Council of Moloka'i, for the following purposes:
 - Provide administrative services and coordination of fishpond rebuilding revitalization on Moloka'i.
 - Spearhead the implementation of recommendations to streamline the permit process as outlined by the Regulations Committee.
 - Set and maintain guidelines for fishpond restoration and use including the development of acceptable methods for silt and mangrove removal that are cost effective and efficient and
 - determine appropriate methods and machinery for fishpond restoration.
 - Ensure compliance with established guidelines for design.
 - Plan, program, budget and raise funds for fishponds on Moloka'i.
- * the State assist the Moloka'i Fishpond Commission to physically rebuild all of the State-owned native Hawaiian fishponds on Moloka'i at the rate of two fishponds per year for the next five years .
- * the State continue the activities of the demonstration project by identifying other State-owned fishponds and associated 'ohana, family and community groups on Moloka'i.
- * the State give Moloka'i residents first preference in rebuilding, operating and maintaining State-owned fishponds on Moloka'i.
- * the State Department of Transportation, together with Maui County Department of Public Works collect and provide a stockpile of rocks and coral for fishpond restoration projects on Moloka'i.
- * the Office of Hawaiian Affairs (OHA) work towards obtaining government acknowledgement of native Hawaiian rights, *konohiki* (land steward) rights, and fishing and gathering rights pertaining to Hawaiian fishponds.
- * OHA provide funding for the restoration of Hawaiian fishponds.

- * OHA fund a training program to assist 'ohana and other interested parties in learning basic aquaculture techniques. The training should include the development of business plans, acquisition of start-up funds and the development of community-based small business and family-style operations.
- * OHA fund an oral history project to collect histories and stories about specific fishponds on Moloka'i. The project could be assisted by the University of Hawaii's Center for Oral History for training interviewers and transcribing of tapes. The project should hire Moloka'i youth to seek out *kūpuna* (elders) of various *ahupua'a* (land divisions) to collect stories, histories and legends of the fishponds which will be included in a published report.
- * the County of Maui develop Kaoaini fishpond in Makakupaia on Moloka'i for cultural, educational and scientific purposes.

7.2 Regulations/Permits (refer also to matrix on page 13)

It is recommended that the proposed Moloka'i Fishpond Commission work with the following authorities on the following solutions regarding Federal, State, and County permits:

* Federal Army Corps of Engineers

Authority: Section 10, Rivers and Harbor Act 1899 (33 USC 403) Section 404 of the Clean Water Act (33 USC 404)

Solutions:

- Develop a general permit for the Army Corps and Clean Water requirements for a short-term solution.
- Amend Federal rules to include fishponds in the nationwide permits or amend Federal law to exempt fishponds from both acts for a long-term solution.

* State CZM,CDUA,DOH

Authority: Coastal Zone Management-Act of 1972, as amended (16 USC 1451 et seq), Conservation District Use Application (-HRS 183, Title 13, Ch. 2) Section 404 of the Clean Water Act.

Solutions:

- Develop a master plan and general permit for a short-term solution.
- Amend State law to enable the county to implement the State's Laws and Master Plan governing fishponds; and develop rules to implement HRS 183-44

* Maui County-SMA

Authority: Special Management Areas-Chapter 205A, Part II, HRS as amended
Solution:

- Amend Maui County General Plan and Moloka'i Community Plan for appropriate land use policies.

7.3 Economics/Incentives (refer also to 4.3 Matrix of Economic Opportunities)

It is recommended that:

- * the State consider food production of mullet, milkfish and *limu* (seaweeds) to be high priority in the near term, *moi follows in priority* in the mid-term, and *pāpio, o'io, āholehole*, mangrove crab, oysters, and clams are lower priority crops.
- * the State should consider additional species that were considered which may have some future merit which include: marine tropicals, baitfish, tilapia, and mantis shrimp.
- * the State of Hawaii and the Office of Hawaiian Affairs actively support and help fund the development of a hatchery to provide seedstock for fishponds and stock enhancement of the reefs.
- * the State should consider research and training activities for development and technology transfer for improved rearing and pond management practices represent additional economic opportunities.
- * the State should provide tax incentives:
 - a "tax holiday" where an aquafarmer would not be required to pay property, income or general excise tax on earnings from the operations for a period of time. The time period should last for a minimum of 4 years and begin when the permits and legal requirements have been fulfilled.
 - a fishpond deferred or roll back tax similar to agricultural tax incentives for fishpond owners currently utilizing fishponds for aquaculture or are maintaining their ponds as historic sites,
- * the State should improve its leasing program to grant long-term, low-cost leases. Rent schedules should be based on predetermined general appraisals which are adjusted for estimated start-up costs. Rents should be waived or have low rent for start-up period.

- * the State should develop an aquaculture lease requirement exemption, that would allow fishponds to have lease benefits and other benefits similar to agricultural leases.**
- * the State should pre-survey metes and bounds of all State-owned fishponds to eliminate time delays in processing State leases.**
- * OHA should relinquish payments for ceded lands income from fishponds leased by Hawaiians. The Office of Hawaiian Affairs currently has rights to a percentage of lease rents on ceded lands which formerly belonged to the Hawaiian Kingdom.**
- * the State should develop a Moloka'i Fishpond Trust Account to fund long-term, low interest loans (similar to the Moloka'i Loan Program), grants, and receive public funds.**
- * the State should develop infrastructure to include hatchery facilities, ice house/fish processing and information dissemination.**

Chapter 8. Budget

Wall Repair	\$117,000
Training and Research	
Basic Aquaculture Training	30,000
Research	20,000
Archaeological Coring	22,000
Oral History Project	30,000
Moloka'i Fishpond Restoration/Revitalization Plan	50,000
Moloka'i Fishpond Commission (two year budget)	
Executive Director	70,000
Secretary	36,000
Fringe (35%)	37,100
Office	70,000
Hatchery	1,214,748
Total:	\$1,696,848

Budget Justification

- Wall Repair

This is the cost of rebuilding two fishponds per year for 5 years for a total of 10 ponds. The funds will be used for community groups to contract expert pond builders, transport materials, buy or rent appropriate machinery, and pay for other expenses to rebuild and revitalize fishponds. If rock and coral are unavailable from County and State stockpile sources, funds will be used to acquire these building materials.

*** Training and Research**

- Basic aquaculture training: to be provided to community groups and interested individuals. Experts will be brought to Moloka'i to teach basic principles and requirements for a successful community-based aquaculture industry.
- Research: funds to conduct a feasibility study for multi-cropping of fishponds. Research is to include species for *loko wai*, freshwater ponds as well as *loko kuapā*, coastal zone ponds.
- Archaeological coring: funds to conduct an archaeological assessment and coring of at least four fishponds.
- Oral history project: Moloka'i youth will be trained in conducting oral history interviews. The interviews will be taped, transcribed and published. The Center for Oral History at the University of Hawaii will assist in the project.

*** Moloka'i Fishpond Restoration/Revitalization Plan**

- A comprehensive plan will be developed for Moloka'i's fishpond resources on The plan will define the roles of traditional, subsistence and small business ventures, as well as the role of Hawaiian sovereignty and native Hawaiian fishponds. The focus of the plan will be the State-owned fishponds, however, it will include a survey of private owners of fishponds. Also included in the plan will be a description of products and markets, identification of appropriate technology, business structure options and an implementation plan for State-owned fishponds, including tasks, sequencing and costs.

* Moloka'i Fishpond Commission

- The role of the Moloka'i Fishpond Commission is to provide administrative services and coordinate fishpond revitalization projects. It will also set and maintain guidelines for fishpond restoration, use, raise funds and budget for fishponds on Moloka'i. Funds are for a two-year budget for two full-time employees, fringe benefits and office equipment, supplies, and communications.

* Hatchery

- Funds are for planning, design, survey, permits, site improvements, construction, utilities, well, buildings, discharge and aeration systems, tanks, pumps, office equipment and lab equipment, per Moloka'i Finfish Hatchery Feasibility Study, 1991.

Resolution

No. 00-155

URGING THE ADMINISTRATION TO PROVIDE ITS SUPPORT IN THE RESTORATION OF MOLOKA'I FISHPONDS

WHEREAS, traditional Hawaiian fishponds, or *loko i`a*, are generally made of stone and can only be found along Hawai`i's shorelines; and

WHEREAS, the first *loko i`a* was created by Ku`ula Kai, a resident of Leho-ula, in the district of Hana, Maui over 700 years ago; and

WHEREAS, *loko i`a* are cultural treasures that can be restored and made productive today; and

WHEREAS, the island of Moloka`i features more than 60 of these unique fishponds along its southern coastline; and

WHEREAS, Moloka`i has the largest reef system in Hawaii consisting of approximately 14,000 acres; and

WHEREAS, Moloka`i has identified the revitalization of these fishponds as a high priority in its economic future; and

WHEREAS, once restored, these ponds will be used to raise fish and to hold them for re-stocking and enhancement of Moloka`i's extensive reef system; and

WHEREAS, the organization, Loko i`a, was formed in October 1999 and is dedicated to the restoration and production of traditional fishpond aquaculture techniques; and

WHEREAS, Loko i`a is involved in numerous outreach projects to teach others about the importance of these fishponds; and

WHEREAS, the Federal and State government, and the Moloka`i community have contributed funding and donations of labor to Loko i`a; and

Resolution No. 00-155

WHEREAS, Loko i`a is in the process of restoring Kahina-pohaku fishpond and growing fish in netpens in `Uala-pu`e fishpond; now, therefore,

BE IT RESOLVED by the Council of the County of Maui:

1. That it hereby supports the efforts of Loko i`a to restore Moloka`i fishponds; and
2. That it urges the Administration to provide its support to the organization, Loko i`a; and
3. That certified copies be sent to the Honorable James "Kimo" Apana, Mayor of the County of Maui, Loko i`a Co-Coordinator Walter Ritte, Jr. and Buddy Keala, and Mr. Jan Dill of Pacific American Foundation.

A BILL FOR AN ACT

Making an appropriation for expansion of the Oceanic institute's aquaculture and marine biotechnology research facilities.

To develop sustainable technologies to increase aquatic food production, while promoting the responsible use of ocean resources.

By providing support for the fisheries and aquaculture industry in Hawaii, and by exporting such technical knowledge, the Oceanic Institute adds to the economic vitality of the State and supports the public goal of a diversified economy.

The CAAMB will serve as the cooperative hub of partnerships among the Oceanic Institute, universities and research institutions, governmental agencies, and the commercial aquaculture industry.

These new facilities will boost the local economy, increase interest and competence in science among Hawaii's youth, and create a global center for Hawaii to develop, attract, and retain world-class scientific and technical talent.

Molokai hatchery \$810,000

Molokai: Marine finfish hatchery. This project offers a unique opportunity for the Oceanic Institute to work jointly with local residents to establish a working hatchery that will serve as the economic impetus for the development of an aquaculture industry on Molokai and as a driving force in the restoration of the island's native Hawaiian fishponds;

(1) Information technology

and training facility \$310,000

(2) Integrated management facility \$2,439,000

(3) Molokai hatchery \$810,000

(4) Kona research facility \$2,360,000

(5) Hilo feed mill \$4,081,000

This Act shall take effect on July 1, 2003.

There is still interest in establishing a commercial hatchery for milkfish on the island of Molokai although economics of this lower value species has slowed its commercial development in Hawaii.

http://www.ctsa.org/files/projects/2002_Termination_Report_Marine_Food_Fish_Yrs_1_to_3632446752364874706.pdf

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTEILHO
Deputy Director



COUNTY OF MAUI
DEPARTMENT OF PLANNING

March 16, 2004

Mr. Peter T. Young, Chairperson
State of Hawaii
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Young:

RE: Conservation District Use Application (CDUA) File No. MA-3153 for the Fish Pond Management Plan for the Restoration of Koeie Fishpond at Kaonoulu Ahupuaa, Kula District, North Kihei, Island of Maui

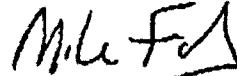
Thank you for the opportunity to comment on the Koeie Fishpond Restoration Project. The Maui Planning Department (Department) applauds the effort to restore the traditional functioning of the Koeie Fishpond and the management of the fishpond for cultural, historic preservation, and interpretive purposes and for the non-commercial activities that currently take place at the site (swimming, wading, snorkeling, subsistence fishing, limu gathering, small boat launching, walking). Because all proposed restoration activities are to take place within the Special Management Area (SMA), they are subject to SMA permit procedures; however because the project involves aquaculture- and mariculture-related activities, it is not considered to be a "development" and is exempt from SMA permit procedures. Therefore, an SMA permit is not required for the proposed activities.

Shoreline setback approval by the Department is required, however, for all work to be performed within the shoreline setback area mauka of the certified shoreline. Plans should be submitted to the Department detailing the nature and location of any activities to be performed within the shoreline setback area.

Mr. Peter T. Young
March 16, 2004
Page 2

If additional clarification is required, please contact Mr. Clayton Yoshida, Planning Program Administrator, of this office at 270-7735.

Sincerely,



MICHAEL W. FOLEY
Planning Director

MWF:CIY:lar

c: Wayne Botelho, Deputy Planning Director
Clayton Yoshida, AICP, Planning Program Administrator
Aaron Shinmoto, PE, Planning Program Administrator (2)
Joe Farber, Farber and Associates
Deidre Mamiya, DLNR
Dawn Hegger, DLNR
CZM File
Project File
General File
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