

For over a thousand years ancient Hawaiians were completely isolated from the rest of the world.



Currently, over 80% of our food and 90% of our energy is imported

Image IBCAO

Image © 2010 TerraMetrics


Data SIO, NOAA, U.S. Navy, NGA, GEBCO

Image © 2010 DigitalGlobe

28°29'04.70" N 164°27'33.91" W elev 0 ft

©2009

Eye alt



Building  
Communities of  
Practice for  
Resilience  
Since 1993  
Non-profit 501C3



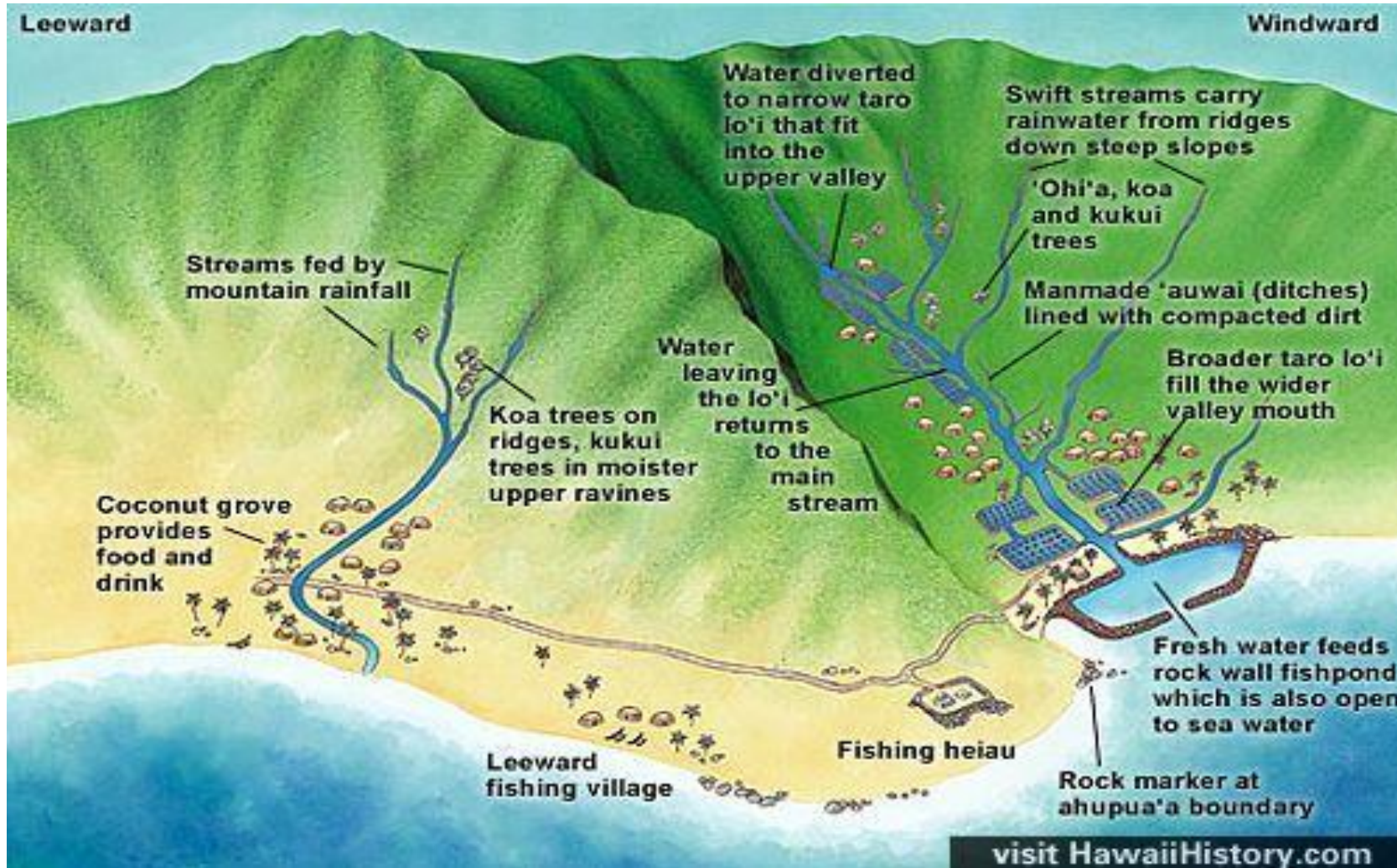
**PACIFIC  
AMERICAN  
FOUNDATION**

Improving the Lives of Pacific Americans

# **NATIONAL ENVIRONMENTAL JUSTICE ADVISORY COUNCIL INDIGENOUS PEOPLES WORK GROUP**

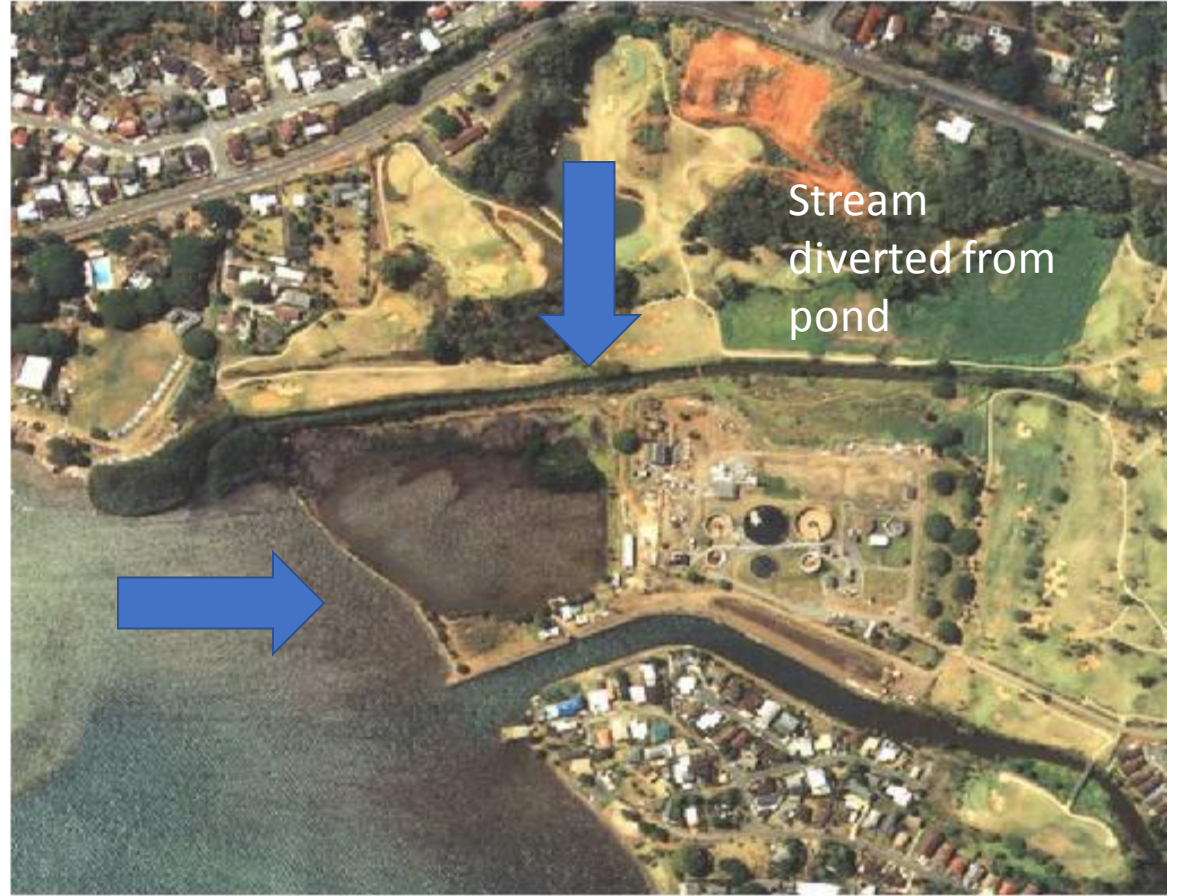
- Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. This goal will be achieved when everyone enjoys:
  - The same degree of protection from environmental and health hazards, and
  - Equal access to the decision-making process to have a healthy environment in which to live, learn, and work.

# Native Hawaiian Land Management System Ahupua'a (Mountain to the Sea)

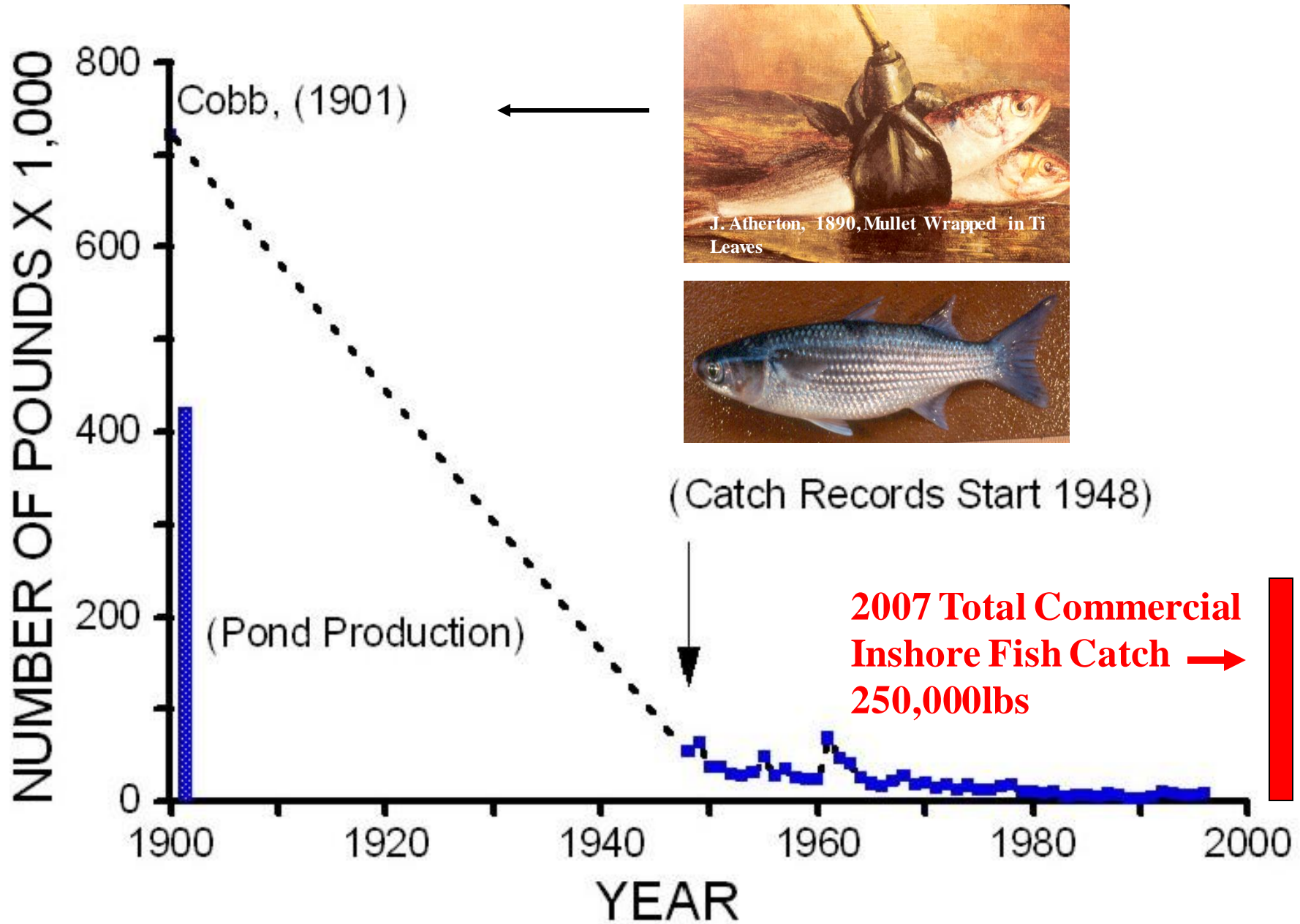





1928

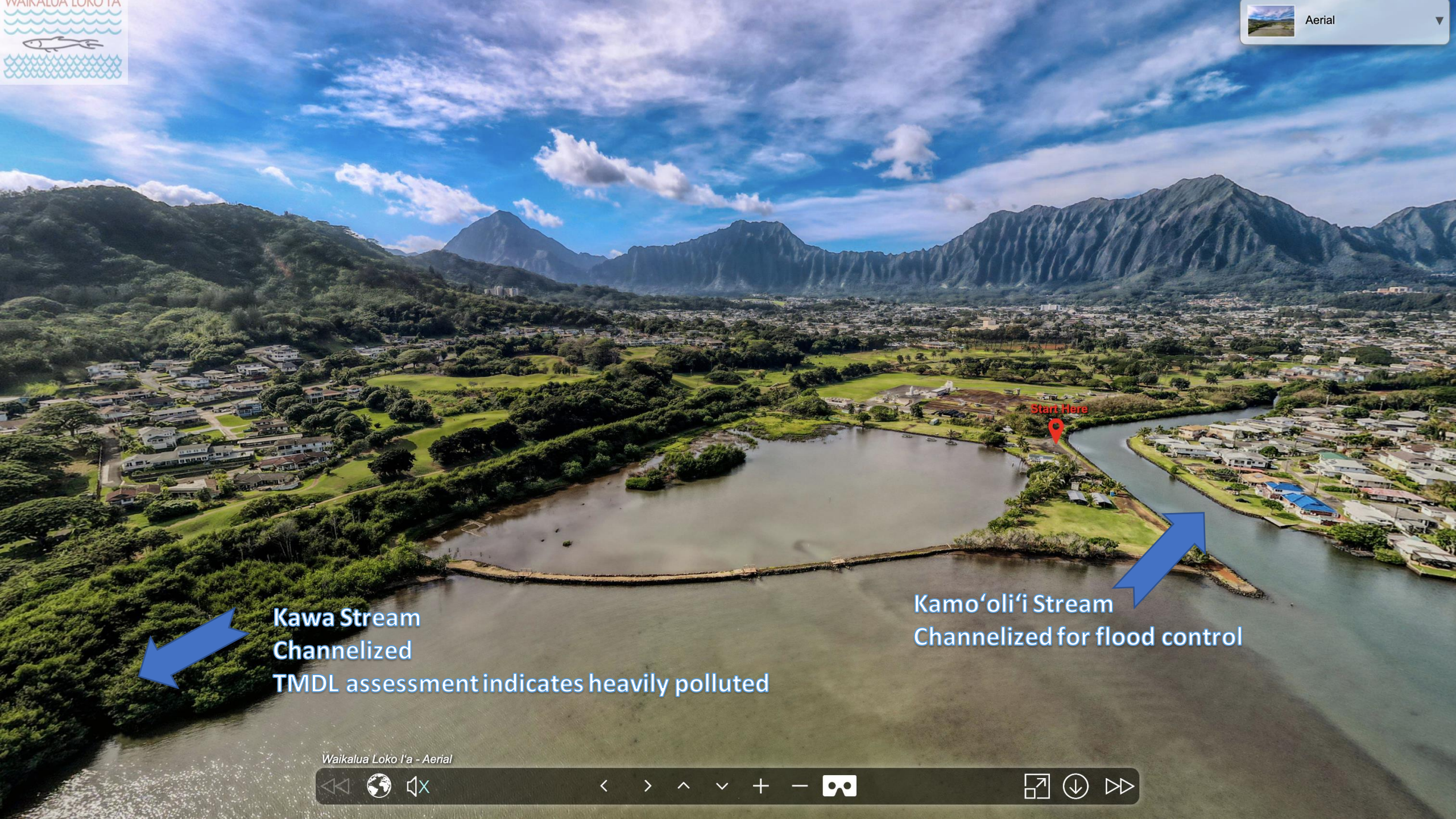


June 13, 2000





A story of place, people and innovation through  
the lens of the Hawaiian Loko i'a...



**Kawa Stream**  
Channelized  
TMDL assessment indicates heavily polluted

**Kamo'oli'i Stream**  
Channelized for flood control



# Issues we are facing

- Eutrophication
- Sedimentation
- Bacteria contamination
- Pesticide and Herbicide contamination
- Invasive plant infestation
- Invasive fish
- Lack of oceanic circulation
- Lack of stream flow- stream is polluted
- Change in landscape management and the removal of transformative wetlands and flood control management practices

# What we are doing

- Biocultural restoration in terms of
  - Culturing and harvesting
    - Algae- Limu Manuea, Limu Kala
    - Ama-ama (Striped Mullet)
    - Endemic Oysters
  - Removal of invasive plants and fish
    - Mangrove
    - Gracilaria Salicornia
    - Tilapia
    - Kanda
    - Predators
  - Improvement of water quality
    - Increasing circulation
    - Removal of WWTF

- Biocultural restoration metrics
  - Nutrients- presently above DOH standards
    - Nitrate + Nitrite
    - Total Nitrogen
    - Total Phosphorous
  - Bacteria- presently below DOH standards
    - Fecal coliform
    - E. coli
    - Enterococci
  - Sucralose- an artificial sweetener found in waste-water- Not Present
  - Turbidity
  - Dissolved Oxygen
  - Salinity
  - Temperature
  - pH



Waikalua Loko I'a (fishpond) 2019

# *Hawai'i's Most Endangered Historic Sites*

## Waikalua Loko Fishpond

is one of the few remaining intact ancient Hawaiian fishponds in the state. Located in Kāneʻohe Bay, the approximately 400-year-old fishpond exemplifies the ancient Hawaiians' skillful management of natural resources. The Waikalua Loko Fishpond Preservation Society, a nonprofit organization, has managed the pond since 1995, working to eradicate invasive mangrove and maintain the pond's kuapā (wall) and mākāhā (gates), work done strictly by volunteers. "Since we began,"

says Herb Lee, Executive Director of the Pacific American Foundation and one of the founders of the preservation society, "we've had tens of thousands of people come down to help."

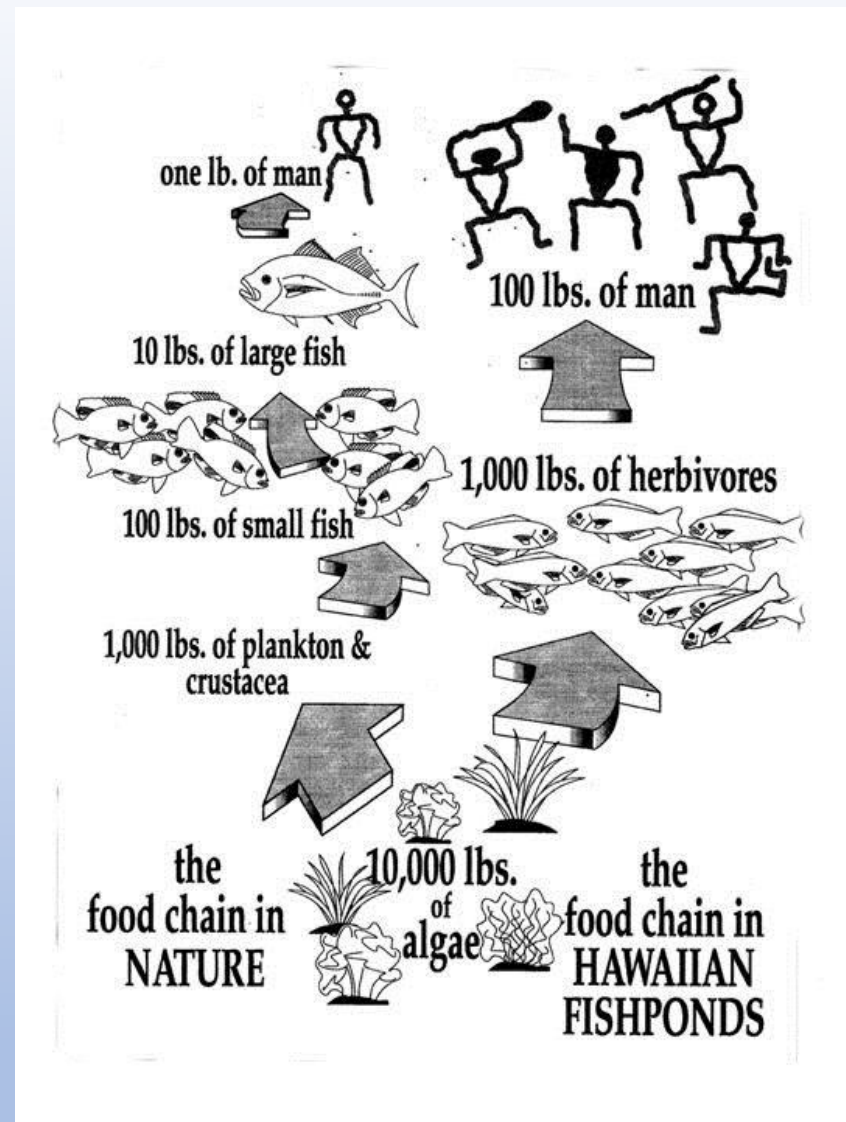
From Honolulu Magazine, November, 2010  
By Jenny Quill for Historic Hawai'i Foundation  
Photo by Rae Huo



**Ama ama, mullet, *Mugil cephalus*  
430,115 lbs produced in 1901**

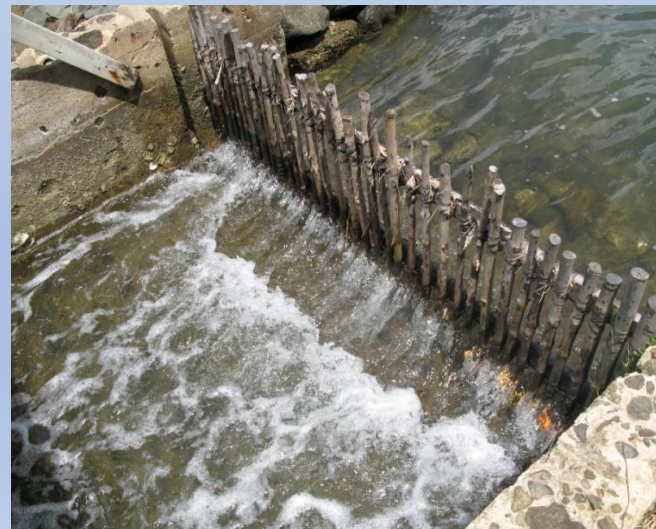


**Awa, milkfish, *Chanos chanos*  
224, 321 lbs produced in 1901**



**Hiatt, Robert W. 1944. Food Chains and the Food Cycle in Hawaiian Fish Ponds. Transactions of the American Fisheries Society, 74 (1944): 250-280**

# Waikalua Loko I'a: "Piko"



# Re-Imagining Education and Teaching in the 21<sup>st</sup> Century



**2019: Over 6,000 teachers trained/110,000 students since 1995/ PAF acquires Waikalua Loko I'a 2019/first ancient Hawaiian fishpond to return to community since 1848.**





# FUTURE OF HAWAIIAN FISHPONDS

- Provides ways where students can reconnect with natural processes
- May prove to be more important than all of the fish produced from these ancient structures



*Aloha Ke Akua, Aloha I loko, Aloha Kekahi I Kekahi*

*... Aloha 'Āina*

