E Aloha, E Mālama, E Kiaʻi ʻĀina

Native Hawaiian Natural Resource Management
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I Ka Wa Ma
Mua,
I Ka Wa Ma
Hope
Key Points

• ‘Ohana CONNECTED
  People = Resources

• DIVERSE
  In Depth Knowledge of Place (Names)

• INTEGRATED
  Ma uka - ma kai
  Ecological and Social

• ADAPTIVE Best Practices
  Trial and Error over Time
How are Hawaiʻi Communities Integrating Traditional “Best Practices” of Hawaiian Resource Management in Contemporary Times?
Nā Pali Coast 'Ohana
Model Systems

Dry Land Agricultural Systems

Fish Ponds – Loko I‘a

Community Based Fisheries

LEARNING THROUGH RESTORATION
Consider This...

• Maintaining Natural Balance (Low Impact)

Vs.

• Cultivating Abundance (Engineering)
Cultivation of Abundance

Today’s Population

Taro Lo‘i

Hanalei River valley & irrigated taro wetland system
Irrigation as main source of nutrients

Palmer et al. 2009
Leeward Kohala dryland agricultural system. Field walls run parallel to contours over an area of 60 km$^2$. (Vitousek et al. 2004)
• How did dry land (rain fed) agricultural systems work with resource limitations and challenging climatic conditions to cultivate abundance?
  – What were limiting conditions
  – How were they addressed
Rainfed And Dryland agricultural systems across the Hawaiian archipelago.

(Vitousek et al. 2004)
Loko Iʻa Fishponds
Restoration (ʻĀina and People)
• **Loko kuapā**: seashore ponds with stone walls built on reef
Fishpond at Kaloko-Honokōhau National Historic Park, Hawaiʻi.
Types of Fishponds

FIGURE 4: Six main types of Hawaiian Fishponds. (Apple and Kikuchi 1975)
Fishpond Permit Requirements

- Federal permits
  - Department of Army
  - Clean Water Act—404
  - Historic Site Review—Sec. 106
  - U.S. Fish and Wildlife Service (Review)
  - National Marine Fisheries Service (R)
  - Coastal Zone Management (CZM)
  - Consistency Statement
Fishpond Permit Requirements

- County permits
  - County
    - Shoreline Management Area (SMA) Permit
      - Shoreline Setback Variance (Survey)
        - Grading, Grubbing, and Stockpiling Permit
Fishpond Permit Requirements

State permits

Department of Land and Natural Resources

Conservation District Use Permits

Environmental Impact Statement (343 HRS)
or Environmental Assessment

Coastal Zone Management Program

Dept. of Health 401 WQ Certification

State Historic Preservation Office
(four conditional requirements)
new statewide efforts to streamline fishpond permitting
Community Based Subsistence Fishing Areas (CBSFAs)

1994: For “protecting fishing practices customarily exercised for purposes of Native Hawaiian subsistence, culture and religion” (HRS 188, Act 271, 1994).

2006: Hāʻena residents to work with State to develop and enforce traditional regulations for the coast of Hāʻena. (S.B. 2501, 23rd Leg., Reg. Sess. (HI 2006).
What is the contemporary significance of subsistence catch and sharing?

Ongoing Community of Harvest

New Geographic Scale
Cultural Perpetuation - SHARING
SELF RELIANCE → Community Resilience

SUBSISTENCE ↔ ABUNDANCE
Reciprocal Exchange→

Shared Abundance

Photo credits, left to right: Michael Holden, dominiq18, joyosity
What Are Some Traditional Hawaiian Fisheries Management Practices?
Harvest according to reproductive cycles
In February,

- ‘Ama’ama peak spawning begins in December and ends in February. Harvesting is kapu.
- Aholehole males mature. Peak spawning begins in February and lasts several months.
- Kumu peak spawning begins in February and lasts several months.

Harvest other species with care.
Harvest according to moon cycles
Protection of Key Spawning and Feeding Areas
Take Only What You Need

- No Spear Guns
- No Lay Net
- Harvest He‘e (Octopus) by Stick not Spear
Limiting Access / RESPONSIBILITY

Reserve Easy Areas for Elders and Keiki

Take Care Before You Take

(Launch Boats from the Area)
• Rotating Harvests (Resting Areas)
• Feeding Ko‘a
• Take only what you need
Easily Integrated into State Law
• Take only what you need
• Harvest according to reproductive cycles
• Protect key spawning and reproductive areas

Need Changes in State System
• Mountain to Sea Management (erosion, fresh water)
• Rest and Rotation
Outside of Law / Rules

• Respect Fish
• Give back before you take
• Reserve easy areas for elders and keiki
• Share your catch and feed others
MAHALO EVALUATION