Loko Solutions: Policy Analysis for Carbon Sequestration Potential of Aquaculture in Hawai‘i

Prepared by: Jonathan Fisk, Mia Iwane, Kalani Quiocho, Lesley Davidson, and Alohi Nakachi
The Problem:

- Negative externalities
  - Climate change
  - Endogenous preferences
- Information asymmetry
- Limits to rationality
Aquaculture in Hawai‘i:

- Loko iʻa
Aquaculture in Hawai‘i:

- Algae

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Aquaculture in Hawai‘i:

- Molluscs

Photos: Megan Spelman
Aquaculture in Hawai‘i:

- Integrated Multi-Trophic Aquaculture (IMTA)

Clements and Chopin, 2017
Best Management Practices (BMPs)

- Establish at least 2 trophic levels.
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- Maintain mollusks in shallow stands.
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- Use native seaweeds in loko i’a and IMTA
Best Management Practices (BMPs)

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- Maintain mollusks in shallow stands
- Use native seaweeds in loko i’a and IMTA
- Use renewable energy to meet their energy consumption needs
Policy Alternatives

1. Status Quo
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2. Carbon Offsets
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3. Cap-and-Trade
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4. Demand Side Policies
   a. Demand side tax expenditures and subsidies
   b. Vouchers
   c. Demand-side commodity tax
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6. Best Hits
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   b. Supply-side tax expenditures
   c. Deregulation
• Policy Goals & Impact Categories
  ○ GHG Sequestration
    ○ Rate of sequestration
    ○ Trend over time

Instagram: @paepaeoheia
Policy Goals & Impact Categories

- GHG Sequestration
  - Rate of sequestration
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- Political Feasibility
  - Stakeholder support
  - Funding

Low, Medium, High

Instagram: @paepaeoheeia
- **Policy Goals & Impact Categories**
  - GHG Sequestration
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  - Political Feasibility
    - Stakeholder support
    - Funding
  - Efficiency
    - Sequestration per cost

![Bar chart showing low, medium, and high levels for each category.](https://via.placeholder.com/150)
Policy Goals & Impact Categories

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- Efficiency
  - Sequestration per cost

- Equity
  - Sociocultural benefits
  - Job creation
  - Food security

Instagram: @paepaeoheeria
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Implementation of Best Hits

- Supply-side tax expenditure
- Deregulation
- Carbon offset program
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● Supply-side tax expenditure
  ○ For: BMP-abiding/sequestering aquaculture
  ○ What: Tax breaks for permitting fees and income

● Deregulation

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  - Update 2011 doc - Permits and Reg Requirements for Aquaculture in Hawai‘i
  - For: Loko i‘a
    - Streamline permit app process
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- **Carbon offset program**
  - Compliance program + voluntary program
  - Select third-party standards organization
  - Incorporate value of co-benefits into offset price