# Phase I: Outdoor Aquaculture Facility

## Part I. General Information

<table>
<thead>
<tr>
<th>Name of requestor:</th>
<th>David Krupp</th>
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<tbody>
<tr>
<td>Unit, Department or Program:</td>
<td>Natural Science</td>
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## Part II. Resource Information

<table>
<thead>
<tr>
<th>Type of request by code and description:</th>
<th>Amount</th>
<th>Tier*</th>
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</thead>
<tbody>
<tr>
<td>OE operating equipment</td>
<td></td>
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<tr>
<td>OO operating other</td>
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<td></td>
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<tr>
<td>PN program change request</td>
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<tr>
<td>PW PCR - workload</td>
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<tr>
<td>PF PCR - new facilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CP CIP - new facility</td>
<td>$50,000</td>
<td>x</td>
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<tr>
<td>CR CIP - Renovation</td>
<td></td>
<td></td>
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<tr>
<td>CM CIP - R&amp;M</td>
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Total $50,000

*(the "Tier", or priority, corresponds to the "rubric column total"); check each item with an "X")

### Summary Alignment Codes

- **Alignment with Strategic Plan**: UH/UHCC Strategic Outcomes 2008-2015: Globally Competitive Workforce
- **Alignment with GE SLOs**: III, IV, VI, VII, X
- **Alignment with AA SLOs**: AA2, AA3, AA4, AA8, AA9, AA10, AA11
- **Alignment with ASC/Cert. SLOs**: ASCBTDM1, ASCBTDM2, ASCBTDM4, ASCBTDM5, ASCBTPB1
- **(align with SLOs or process or action outcomes)**

## Part III. Narrative - Description, Documentation and Rationale (do not exceed the space provided)

**Descriptive Summary of the Request** *(provide a summary of the resource request)*

An outdoor facility will be constructed to support instruction in sustainable food production technologies involving biotechnology, freshwater aquaculture, mariculture, hydroponics and aquaponics (e.g., AQUA 106/106L, Small Scale Aquaculture, AQUA 201/201L, The Hawaiian Fishpond, BIOL 124/124L, Environment and Ecology, and new classes to be developed in the future). This facility will be designed using the latest technologies (e.g., re-circulating systems and renewable energy generation, e.g., solar power) to promote efficiency and sustainability. Land below Uluwehu (this site is identified for these functions in WCC Master Plan) needs to be graded and fenced in. Need water supply provided. Need electricity including solar power generating station with batteries. Need tanks, pumps, plumbing, etc.

Phase I, which will begin in Fall 2012 (or before if funds become available), will involve the initial laying out of the outdoor facility: grading, fencing, electrical supply, and construction of several aquaculture units, including one small upright pond, one lined in-ground pond, three aquaponics/hydroponics systems. Students enrolled in AQUA 106/106L during Fall 2012 will be heavily involved in site development.

Later phases (requests to be made in future years) will involve facility expansion and incorporation of additional sustainable technologies into the facility (solar/wind energy generation, composting, etc.). It is envisioned that one addition will be the re-creation of a traditional Hawaiian loko 'ia kalo.

**Documentation** *(what sources or documents support the request; i.e., Strategic Plan, program review, annual assessment, departmental report, SLO/process outcome assessment/analysis, grant proposal, or other documents or reports)*

- Windward Community College Master Plan Report April 1989
- Windward Community College Action Outcomes November 2008
- Department of Natural Sciences 2010-2011 Annual Report
- Windward Community College Course Catalog 2011-2013
- WCC Master Planning and Space Allocation Committee Minutes (2009-10)
Rationale for Request: (how will the request benefit the unit, department, program or institution; provide an alignment with or connection to an SLO or process outcome, Strategic Plan goal, etc.; include the PBC Rubric, p. 3).

- We have recently started regularly teaching the AQUA 106/106L (Small Scale Aquaculture) AQUA 201/201L (The Hawaiian Fishpond). During Fall 2011, we also offered an agriculture special topics class in the basic design and operation of aquaponics systems. We need a new facility for continued instruction of these courses.

- The College’s original Master Plan intended for the aquaculture ponds to be moved to the area below the location of the current Agriculture greenhouse.

- Use of these facilities for instruction would support implementing a sustainability curriculum involving biotechnology, freshwater aquaculture, mariculture, hydroponics and aquaponics.

- The facility would support the sustainability mission of WCC’s Pacific Center for Environmental Studies (PaCES).

- Use of these facilities for instruction would support WCC’s ASC in Bioresources Development and Management (ASC-BRDM). It would also support a planned certificate program in sustainable agriculture.

- The University of Hawai‘i Foundation recently received a $1.6 million dollar endowment in support of student scholarships for students engaged in sustainability certificate programs (e.g. ASC-BRDM).

- In partnership with the Pacific American Foundation and the Hawai‘i Institute of Marine Biology, WCC recently received a HUD grant for $800,000 to purchase Waikalua loko, a traditional Hawaiian fishpond located at the mouths of Kāne‘ohe and Kawa Streams. We will be building Natural Science curricula around this pond that integrate traditional resource management with modern technology. Our on-campus facility would enhance the work done at Waikalua loko.

- The connections between modern technology and traditional Hawaiian practices will likely attract Native Hawaiian students to the college and enhance their success in STEM and other academic disciplines.

- The WCC Master Planning and Space Allocation Committee (MaPSAC) approved this request in Spring 2010.

- Food Security. The State of Hawai‘i being small in geographic extent and isolated from the U.S. mainland and other areas by thousands of miles currently depends heavily upon importing food and other consumable materials from outside these islands. With growing transportation costs associated with the importation of good there is a need to develop and utilize new sustainable food production technologies within these islands. There is also a need to develop technologies that rely less on fossil fuels for energy generation.