

**THE THIRTIETH LEGISLATURE
APPLICATION FOR GRANTS
CHAPTER 42F, HAWAII REVISED STATUTES**

Type of Grant Request:

Operating Capital

Legal Name of Requesting Organization or Individual: Db:

The Hanalei Initiative

Amount of State Funds Requested: \$ 250,000

Brief Description of Request (Please attach word document to back of page if extra space is needed):

To determine the best approach for wastewater system upgrades for the densified town area of Hanalei, Kauai. The Hanalei Initiative (THI) via experts will develop a comprehensive feasibility and cost-benefit study evaluating a sewer system solution compared with replacing cesspools with various septic system types. It will incorporate climate impacts such as sea level rise and rainfall, health and ecological impacts, cultural impacts due to ground disturbance, regulatory / installation / management considerations, community outreach and dissemination of findings.

Amount of Other Funds Available:

State: \$ 250000

Federal: \$ _____

County: \$ _____

Private/Other: \$ _____

Total amount of State Grants Received in the Past 5

Fiscal Years: \$ 0

Unrestricted Assets: \$ 820,200

New Service (Presently Does Not Exist): Existing Service (Presently in Operation):

Type of Business Entity:

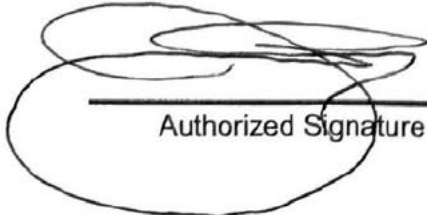
- 501(C)(3) Non Profit Corporation
- Other Non Profit
- Other

Mailing Address:

PO Box 422
City: Hanalei State: HI Zip: 96714

Contact Person for Matters Involving this Application	
Name: Joel Guy	Title: Executive Director
Email: hanaleiinitiative@gmail.com	Phone: 808-635-2074

Federal Tax ID#: [REDACTED]	State Tax ID# [REDACTED]
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Authorized Signature

Joel Guy, Executive Director

Name and Title

01/16/2024

Date Signed



STATE OF HAWAII
STATE PROCUREMENT OFFICE

CERTIFICATE OF VENDOR COMPLIANCE

This document presents the compliance status of the vendor identified below on the issue date with respect to certificates required from the Hawaii Department of Taxation (DOTAX), the Internal Revenue Service, the Hawaii Department of Labor and Industrial Relations (DLIR), and the Hawaii Department of Commerce and Consumer Affairs (DCCA).

Vendor Name: THE HANALEI INITIATIVE

DBA/Trade Name: The Hanalei Initiative

Issue Date: 01/10/2024

Status: Compliant

Hawaii Tax#:

New Hawaii Tax#:

FEIN/SSN#: XX-XXX2601

UI#: No record

DCCA FILE#: 296137

Status of Compliance for this Vendor on issue date:

Form	Department(s)	Status
A-6	Hawaii Department of Taxation	Compliant
8821	Internal Revenue Service	Compliant
COGS	Hawaii Department of Commerce & Consumer Affairs	Compliant
LIR27	Hawaii Department of Labor & Industrial Relations	Compliant

Status Legend:

Status	Description
Exempt	The entity is exempt from this requirement
Compliant	The entity is compliant with this requirement or the entity is in agreement with agency and actively working towards compliance
Pending	A status determination has not yet been made
Submitted	The entity has applied for the certificate but it is awaiting approval
Not Compliant	The entity is not in compliance with the requirement and should contact the issuing agency for more information

§42F-102 Applications for grants. Requests for grants shall be submitted to the appropriate standing committees of the legislature at the start of each regular session of the legislature. Each request shall state:

- (1) The name of the requesting organization or individual;
The Hanalei Initiative
- (2) The public purpose for the grant;
To determine the best approach for wastewater system upgrades for the densified town area of Hanalei, Kauai. This study will incorporate climate impacts such as sea level rise and rainfall, health and ecological impacts, cultural impacts due to ground disturbance, regulatory / installation / management considerations, community outreach and dissemination of findings.
- (3) The services to be supported by the grant;
The Hanalei Initiative via expert services will develop a comprehensive feasibility and cost-benefit study evaluating a sewer system solution compared with replacing cesspools with various septic system types.
- (4) The target group; and
The residents and visitors to Hanalei town and bay, including the surrounding north shore communities
- (5) The cost of the grant and the budget
\$250,000 for the grant, with a \$250,000 total project budget

Application for Grants

If any item is not applicable to the request, the applicant should enter “not applicable”.

I. Certification – Please attach immediately after cover page

1. Hawaii Compliance Express Certificate (If the Applicant is an Organization)

If the applicant is an organization, the applicant shall submit one (1) copy of a Hawaii Compliance Express Certificate from the Comptroller of the Department of Accounting and General Services that is dated no earlier than December 1, 2023. Attached, dated January 10, 2024.

2. Declaration Statement

The applicant shall submit a declaration statement affirming its compliance with [Section 42F-103, Hawaii Revised Statutes](#). Statement included.

3. Public Purpose

The applicant shall specify whether the grant will be used for a public purpose pursuant to [Section 42F-102, Hawaii Revised Statutes](#). Form included.

II. Background and Summary

This section shall clearly and concisely summarize and highlight the contents of the request in such a way as to provide the State Legislature with a broad understanding of the request. Please include the following:

1. A brief description of the applicant's background;

The Hanalei Initiative (THI) is a Kauai nonprofit whose 501(c)(3) status was approved on October 18, 2018. THI is a group of caring residents working for the betterment of Hanalei and the Kauai north shore in an effort to work together to identify important needs, seek solutions, strategize implementation, and follow projects through to completion. THI embraces the principle and importance of both community engagement and strong governmental relationships working in partnership to achieve common objectives. It has three main areas of focus (1) improve water quality in the Hanalei area; (2) the maintenance and beautification of public areas; and (3) improving transportation systems for Kauai north shore communities.

THI has successfully managed several grants since inception, with the maximum award being \$1,500,000. THI manages the successful Haena State Park Integrated Access

System in concert with a hui of nonprofit partners and State Parks. THI maintains a suite of resources, fiscal and administrative controls that have enabled the organization to execute a project of this scope while properly managing funds. THI uses QuickBooks Online financial software with advanced function add-ons including Dext receipt management software. Office staff split-up regular processing duties such as reimbursement validation, timekeeping and payroll tracking, receipt processing, and check writing to reinforce appropriate checks and balances. THI also receives support and expertise from external contracted organizations including professional licensed day-to-day accounting/CPA support and oversight provided by Chantal Mentzer, Inc. for bookkeeping and tax filings, and Proservice, Inc. for payroll / HR needs; these organizations have been in business many years.

2. The goals and objectives related to the request;

The overall project goal is to develop a feasibility study for sewer system or septic options to support community decision-making with regard to wastewater management and cesspool conversions in the Hanalei town area. We expect that the results will point toward a best go-forward path and help to accelerate implementation of conversions to eliminate all remaining cesspools in this area well ahead of the 2050 State mandate. The results and lessons learned from this project may be transferable in-whole or in-part to other communities in Hawaii seeking to facilitate and operationalize mandated or high-priority / ecologically-sensitive / culturally-sensitive area cesspool conversions by evaluating cost/benefit tradeoffs of different wastewater management scenarios.

Specific objectives of the project are as follows:

- Identify a wastewater management scenarios including sewer and septic options that are feasible and relevant for the study area across multiple dimensions of regulatory, installation, operation, maintenance, and other factors based on existing information and groundwater elevation monitoring, and considering the effects of climate change and cultural impacts.
- Calculate the costs of each scenario as a whole and also average cost per homeowner incorporating equipment, construction, permitting, etc.
- Analyze the environmental/health benefits and impacts for each scenario incorporating sea level rise.
- Report results and provide recommendations regarding environmental benefit, cost, and other stakeholder-defined objectives, including public funding opportunities.
- Conduct outreach to stakeholder groups throughout the project and at its conclusion to communicate the results.

3. The public purpose and need to be served;

Hawaii has the largest number of cesspools per capita in the USA, over 88,000, per the 2022 Cesspool Conversion Working Group Report (<https://health.hawaii.gov/opppd/files/2021/12/Report-to-the-Thirty-First-Legislature-2nd-Interim-Report-for-Cesspool-Conversion-Working-Group-1.pdf>). The island of Kauai has 13,700 cesspools with 29,800 housing units, meaning almost half of the island houses

are on cesspools. The project area on the north shore of Kauai has a relatively low population, however, the majority of dwellings are on cesspools and most others are septic systems which are equally ineffective in these low-lying areas (Figure 1). The state outlawed the installation of cesspools in 2016 (Act 120) and further has passed a mandate in 2017 to upgrade all cesspools by 2050 (Act 125). Despite the creation of a statewide Cesspool Working Group, little guidance has been provided for rural communities except to replace in-kind with approved Individual Wastewater Systems (IWS). However, for numerous coastal communities in Hawaii, these systems are already ineffective, and with sea level rise many more of these systems may become inadequate by 2050 (Figure 2). Local community-level nonprofits are trying to step in to provide guidance and funding to address these issues. The Hanalei Initiative has been committed to water quality in the community since 2018 and has funded research and mapping since 2020.



Figure 1: The Hanalei Initiative web map showing IWS in Hanalei - red dots depict cesspools.

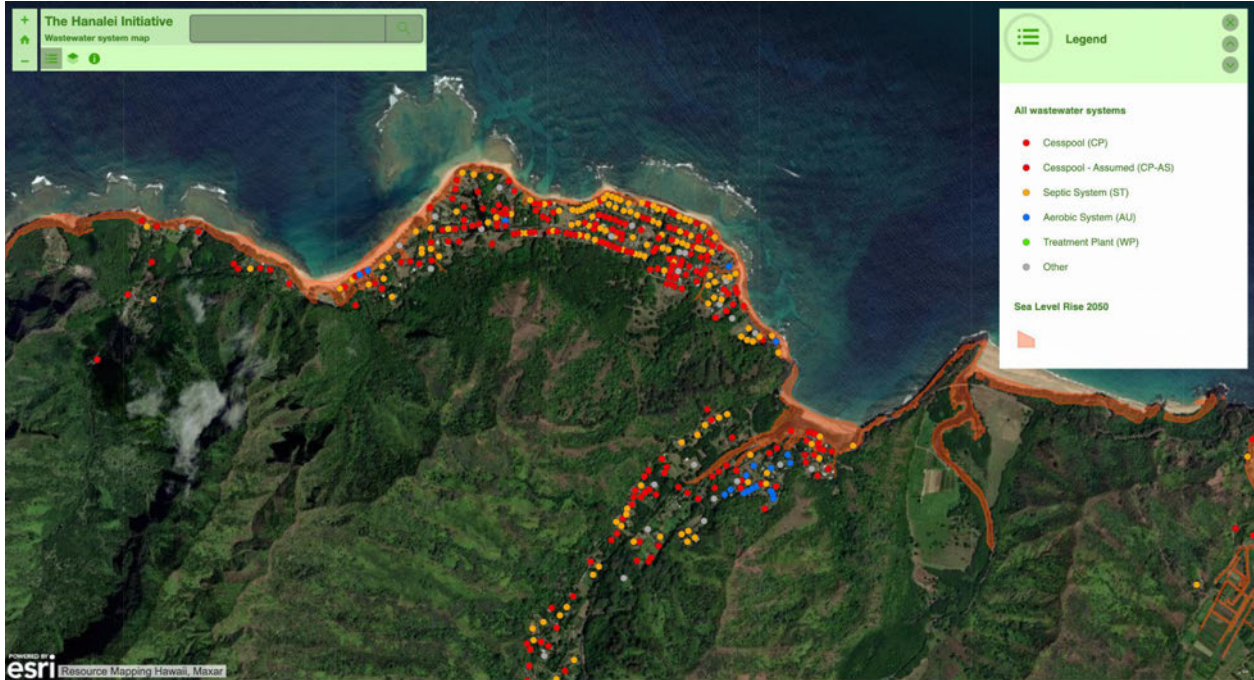


Figure 2: The Hanalei Initiative web map showing the Ha’ena and Wainiha area IWS with year 2100 sea level rise. Numerous IWS could be affected by climate change in these communities.

The area selected for this proposal on the north shore of Kauai is a top priority area (Figure 3) according to the state-funded 2021 Hawai’i Cesspool Hazard Assessment & Prioritization Tool (University of Hawaii, Mezzacapo, Shuler, <https://health.hawaii.gov/wastewater/files/2022/01/prioritizationtoolreport.pdf>). This is due to numerous factors, the top being distance to groundwater, and includes impacts on environmentally-sensitive areas such as coral reefs. Much of the inhabited areas on the north shore of Kauai are sandy, coastal plains where ground elevations are less than 5 feet above sea level. In these areas, all existing cesspools intersect the water table meaning that thousands of gallons of raw sewage are being discharged directly to the groundwater, streams, and ocean every day in the project area, impacting environmental and human health.

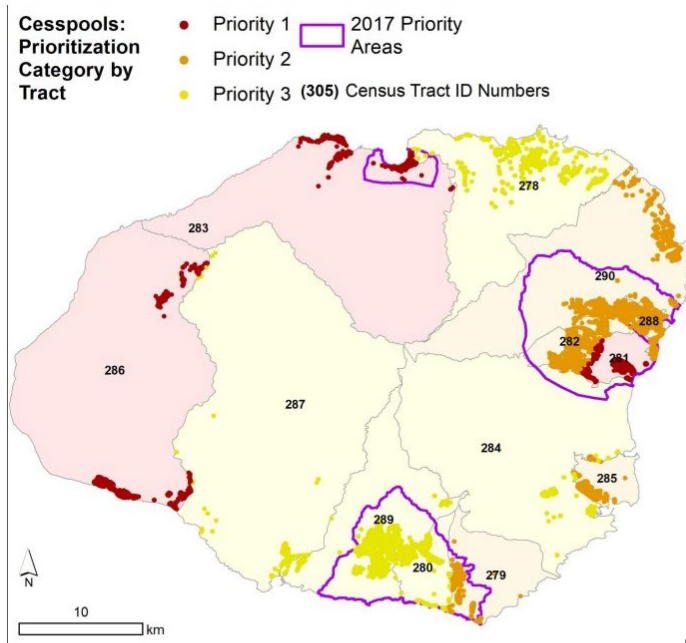


Figure 24: Kaua'i cesspools (dots) colored by prioritization category, arranged by census tracts. Tracts are shown as lightly colored areas where the tract contains greater than 25 cesspools, and are shown as white areas where the tract contains less than 25 cesspools (not assessed by the HCPT). Purple boundary indicates previous 2017 priority upgrade areas.

Figure 3: Cesspool priority areas on Kauai showing the priority 1 project area on the north shore



Figure 4: Aerial map of the Hanalei watershed

Figure 4 illustrates the large watershed that gathers water into the Hanalei river and Hanalei Town when the banks overflow. The pinnacle of this watershed (bottom of Figure 4) encompasses Mt. Waialeale, considered one of the wettest places on earth. These areas have been subjected to and continue to be vulnerable to flooding which will worsen with climate change. The 2018 “rain bomb” that flooded the north shore area left standing water covering the ground for several days. The low-lying areas contain well over 100 cesspools and residents reported smells of wastewater and material from cesspools on the ground after the water receded. The following six pictures (collectively Figure 5) are representative of the conditions and aftermath of this event. Regular groundwater levels very close to the surface can be seen in the last 3 pictures.





Figure 5: 2018 flooding impacts in Hanalei (5 pictures)

Heavy rains can often flood low-lying parts of Hanalei (on average 4+ road closures/year). The heavy rains often lead to high levels of fecal indicator bacteria (e.g. Enterococcus) and the County issues brown water warnings at river mouths and popular beaches.

Report Pollution

MONITORING FREQUENCY _____

Hanalei River at Weke Rd. is sampled monthly from January 1st to December 31st.

SOURCE INFORMATION _____

Surfrider Foundation's Blue Water Task force is a volunteer-run, citizen science initiative and water quality monitoring program. The Kauai Surfrider Chapter samples water quality at 35 locations on a [Read more](#)

WATER QUALITY GRAPH _____

2022

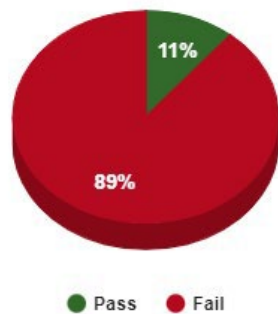


Figure 6: Surfrider Task Force Hanalei Pier Bacteria Levels
Data from Surfrider's blue water task force (<https://www.theswimguide.org/beach/8597>) illustrate that the popular beach where Hanalei river enters the ocean adjacent to the pier has 89% failing water quality tests for the fecal indicator bacteria Enterococcus (Figure 6).

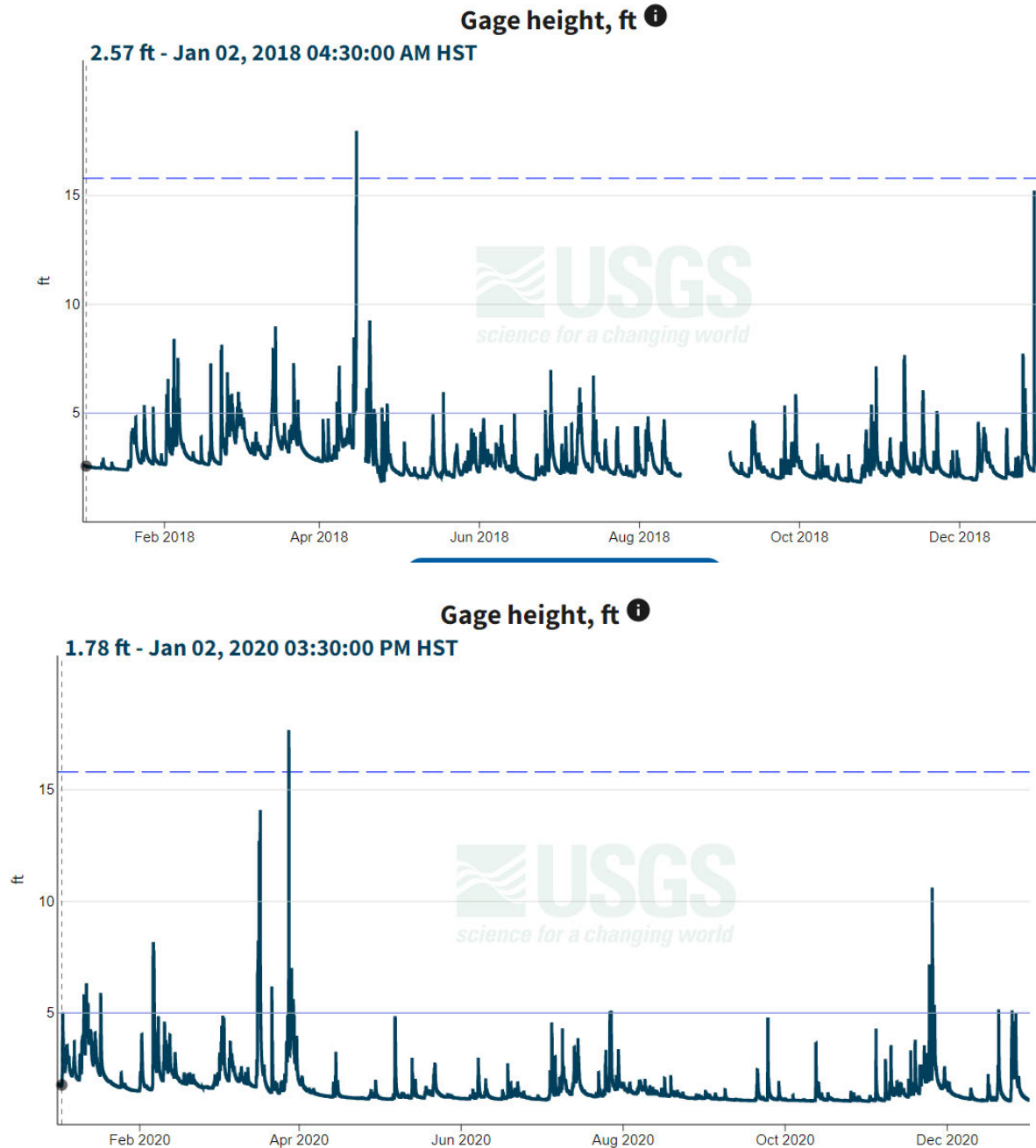


Figure 7: USGS Hanalei River Gauge 2018 & 2020 - Many events over the 5' minor flood level and two events over the 15' major flood level.

Figure 7 shows a continuous record of water level for the Hanalei River during 2018 and 2020. The blank area in the graph is during hurricane Lane when the transmitter was not functioning. During an exceptional storm event in April 2018, 49.76" of rainfall was collected in a 24-hour period near Hanalei which has since been certified as a national record (<https://ams.confex.com/ams/2019Annual/meetingapp.cgi/Paper/356515>). Extreme flooding in the Hanalei River from this storm caused extensive damage to area homes, roads, and other infrastructure, including wastewater treatment systems.

Likewise, in 2020 there were two events of a similar magnitude and one slightly more moderate flood event. These extreme events are set against a background of high rainfall in a place with highly permeable soils that lead to fast groundwater transit times, i.e. what gets flushed down the toilets very quickly ends up in streams and ocean waters impacting both environmental and human health.

Community members and leaders are aware of the problem and are eager for change but there is a lack of information, funding, and consensus on how to move forward. Community surveys conducted by the Hanalei Initiative revealed that the majority of cesspool owners (83%) want to upgrade to a more environmentally friendly system, though most (63%) are unsure of what type of system to convert to (Figure 8). And 90% of respondents indicated that high cost was the primary reason they have not yet upgraded.

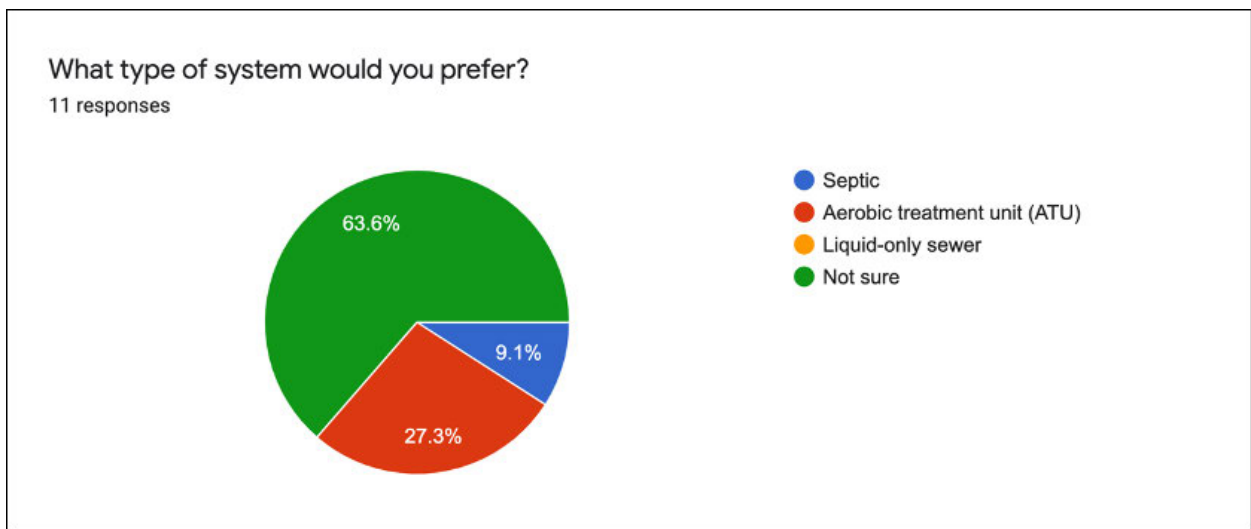


Figure 8: Response summary for question on preferred upgrade system.

The Hanalei Initiative, with the help of its partners, aims to answer the communities' call for guidance and a considered go-forward direction to mitigate these harmful wastewater issues.

4. Describe the target population to be served; and

The target populations to be served includes all resident and visitor users of Hanalei Bay and Hanalei town (which are estimated to be 30K and 600K, respectively annually) and lineal descendants of the area who do not wish to see iwi kupuna disturbed.

5. Describe the geographic coverage.

The primary geographic coverage for this study is the town area of Hanalei in Kauai, HI. This is bordered by Waioli stream to the west and Hanalei river to the east, and would also include a potential pipeline connection route to Princeville wastewater treatment plant.

III. Service Summary and Outcomes

The Service Summary shall include a detailed discussion of the applicant's approach to the request. The applicant shall clearly and concisely specify the results, outcomes, and measures of effectiveness from this request. The applicant shall:

1. Describe the scope of work, tasks and responsibilities;

The Scope of Work Plan is described by major Activity below.

Activity 1: Develop robust and accurate data on the elevation of the area's water table that accounts for seasonality and spatial distribution, and collect baseline groundwater quality data that can be used to document changes as wastewater management improves over time.

- Led by North Shore Hydrological Services (NSHS) (Contracted)
- Identify property owners willing to host monitoring wells during the project period
- Install a network of 4-8 sample wells and collect data to assess water table elevations to inform potential wastewater treatment options
- Collect water quality data through in-situ sampling and lab analyses to generate baseline data on nutrient concentrations and fecal indicator bacteria levels in groundwater for future effectiveness/change monitoring
- The first 2-3 months of data will be used to inform wastewater treatment scenarios and data will be collected throughout the project to assess temporal patterns

Activity 2A: Identify a range of spatially-explicit wastewater management scenarios that are technically feasible and relevant for the study area considering the effects of climate change.

- Led by Seascope Solutions LLC (SeaSol) (Contracted)
- Obtain expert and stakeholder feedback and compile team-member input regarding potential wastewater treatment technologies to be evaluated as well as spatial, logistical, economic, and social barriers to implementation of specific system types
- Gather and organize existing spatial datasets relevant to wastewater system planning and evaluation
- Synthesize information and data to develop a portfolio of spatial (mapped) wastewater treatment scenarios with a focus on DOH-approved technologies, screening options based on specific site conditions
- Refine wastewater treatment scenarios through an iterative stakeholder feedback process
- Wastewater treatment technologies to consider (others may also be evaluated)
 - Septic Tank with traditional leach field (on-site)
 - ATU - NSF 40 with traditional leach field (on-site)

- ATU - NSF 245 with traditional leach field (on-site)
- Pressure Sewer (prelows vs grinder) to existing Princeville WWTP

Activity 2B: Calculate the costs in current US dollars of each scenario as a whole and per homeowner for installation and annual maintenance over a standardized time frame

- Led by The Hanalei Initiative (THI) (Employee), with substantial input from NSHS in an expert advisory role and from SeaSol through provision of spatial data
- Costs for the following categories will be estimated based on the most current available local and regional information and through consultation with relevant professionals
 - Equipment purchase
 - Land survey/s including archaeological and cultural surveys
 - Permitting
 - Engineering costs
 - Construction
 - Archaeological monitoring
 - Operation & Maintenance
- Incorporate spatial information relevant to construction/implementation costs such as groundwater elevation, lot size and slope, and soil type
- Gather community feedback to identify potential social and/or cultural costs or impacts and quantify them to the extent possible

Activity 2C: Analyze the environmental/health benefits and impacts for each wastewater treatment scenario

- Led by SeaSol (Contracted)
- Estimate export of several key wastewater pollutants affecting human and ecosystem health
 - Fecal Indicator Bacteria (FIBs) - Enterococcus, Clostridium perfringens
 - Nutrients - Nitrogen (nitrate, ammonia)
- Apply findings from the scientific literature and inputs from subject matter experts to estimate treatment efficacy of different wastewater systems in terms of the above indicators
- Apply spatial data on number of bedrooms per household (as a proxy for wastewater volume), measured depth to groundwater from monitoring wells, soil-type and filtering capacity, proximity to natural water bodies, and other relevant datasets to develop spatial estimates of key wastewater pollutants for each wastewater treatment scenario

Activity 3: Develop all required reporting deliverables and outreach materials

- Led by THI (Employee), with support from all on the team
- Develop outreach and educational content, surveys, and presentation materials for stakeholder meetings
- Create a comprehensive multi-factor cost/benefit matrix for each scenario evaluated and describe the significance of each, while addressing the potential for secondary impacts

- Describe specific and unique challenges to wastewater management in the project area (e.g. Native Hawaiian burial sites, flood zones, water table, history of natural disasters)
- Draft final report and supporting presentation summary materials
- Create any other required regular project reporting as needed or requested

Activity 4: Conduct outreach and education for stakeholder groups

- Led by THI (Employee), with technical expertise for training sessions provided by NSHS
- Conduct outreach, education and stakeholder information sharing meetings for homeowners, businesses, governmental entities and waste / wastewater entities

2. Provide a projected annual timeline for accomplishing the results or outcomes of the service;

Month 1:

- Project Kickoff
- Procure groundwater monitoring well equipment & supplies
- Materials, permits, permissions (create access agreements)
- Identify 6 homeowner/public well locations
- Compile spatial datasets to inform wastewater treatment scenarios
- Community outreach - Homeowners survey to better understand objectives as well as objections / issues to conversions
- Archeological considerations and protocols documentation & cost implications
- Influence of community desires on alternatives development
- Uncertainty over future requirements / alternatives

Month 2:

- Install and begin collecting groundwater elevation data
- Review alternative sewer scenarios, pressure sewer (grinders vs STEP).
- Investigate connecting to neighboring Princeville WWTP
- Begin mapping wastewater treatment scenarios
- Begin collecting information on wastewater treatment equipment and installation costs
- Develop & distribute homeowner wastewater survey
- Connect with local WWTP and government wastewater / health organizations (Princeville Utilities Corp, County of Kauai, State of Hawaii)

Month 3:

- Collect, compile and analyze groundwater monitoring data / lab samples
- Incorporate groundwater monitoring results and other physical/spatial constraints to screen wastewater treatment technologies for each scenario by property
- Contact contractors and other professionals to estimate construction costs for different systems
- Compile results of homeowner survey, WWTP outreach

Month 4:

- Continue collecting groundwater elevation and water quality data
- Refine and finalize wastewater treatment scenarios with stakeholder feedback
- Review alternative sewer scenarios, pressure sewer (grinders vs STEP)
- Gather data on extreme weather, flooding, winds, landslides, and power outages

Month 5:

- Continue collecting groundwater elevation and water quality data
- Compile and analyze preliminary results
- Develop preliminary costs for alternative sewer scenarios, pressure sewer (grinders vs STEP)
- Gather findings from the scientific literature and inputs from subject matter experts to inform calculation and modeling of wastewater pollutants

Month 6:

- Continue collecting groundwater elevation and water quality data
- Compile and analyze preliminary results
- Report on sewer alternatives and connecting to neighboring WWTP
- Use mapped scenarios to calculate total N export by watershed
- Finalize data needed to model FIB exports

Month 7 (Apr 2025):

- Continue collecting groundwater elevation and water quality data
- Compile and analyze preliminary results
- Compile all cost information
- Extrapolate costs based on spatial constraints: distance to GW, lot size, soil permeability, slope
- Apply spatial models to estimate FIB export by scenario and watershed
- Connect with community on burials and excavation concerns
- Review zoning regulations and compile to address concerns of sewer increasing development in the community

Month 8:

- Continue collecting groundwater elevation and water quality data
- Refine and finalize cost information
- Refine spatial models and estimates of Nitrogen and FIB export for each scenario with feedback from technical advisors (subject matter experts)
- Develop a cost/benefit matrix for each scenario evaluated and describe the significance of each

Month 9:

- Continue collecting groundwater elevation and water quality data
- Report and cost estimates for potential OSDS options
- Finalize spatial models and estimates of Nitrogen and FIB export for each scenario

- Describe specific and unique challenges to wastewater management in the project area

Month 10:

- Continue collecting groundwater elevation and water quality data
- Final groundwater data findings review and passed along for consideration of planning
- Compared to interim data from month 6 to see if any changes to recommendations should be made.
- Generate cost summary tables
- Calculate environmental benefits of each scenario by comparing estimated reductions to current export levels of wastewater pollutants
- Compile recommendations and draft preliminary report outline
- Research additional funding options for communities, outreach to USDA, EPA, State/CWSRF, County, and private landowners.

Month 11:

- Continue collecting groundwater elevation and water quality data
- Generate environmental impact (wastewater pollutant) summary tables and maps
- Create final reports and stakeholder communication materials
- Prepare & invite stakeholders for final report presentation workshops

Month 12:

- Remove monitoring wells where required
- Finalize reports and materials
- Conduct stakeholder results and recommendations workshops

3. Describe its quality assurance and evaluation plans for the request. Specify how the applicant plans to monitor, evaluate, and improve their results; and

4. List the measure(s) of effectiveness that will be reported to the State agency through which grant funds are appropriated (the expending agency). The measure(s) will provide a standard and objective way for the State to assess the program's achievement or accomplishment. Please note that if the level of appropriation differs from the amount included in this application that the measure(s) of effectiveness will need to be updated and transmitted to the expending agency.

Measures of Effectiveness by major Activity are as follows:

Activity 1: Monitoring & Testing

- 4-8 groundwater sample wells installed and operational

- Mean sea level (MSL) elevations established for all sample well sites via level surveys, all water table elevations tied to MSL datum
- Continuous hourly groundwater elevation readings at each station/well during each month of the project after well installation in Month 2
- Graphical and spatial data displaying groundwater level readings and patterns, along with other variables including rainfall, tides, and ocean swell heights
- Interpolated maps of groundwater levels across study/service area
- Monthly groundwater samples collected from each well for water chemistry testing at an analytical lab facility (minimum 10 samples analyzed for each well)
- Bi-weekly water quality and Fecal Indicator Bacteria testing at each monitoring well (minimum 20 samples analyzed for each well)

Activity 2: Scenario Development & Cost/Benefit Analysis

- 2-5 mapped wastewater treatment scenarios
- Maps of N export by watershed for each scenario
- Maps of FIB export for each scenario
- Summary tables of implementation and maintenance cost by treatment system and community
- Summary tables of environmental benefits by treatment system and community in terms of reduced N and FIB levels compared to present conditions
- Matrix compiling all cost-benefit information by scenario

Activity 3: Reporting & Deliverables

- Report comparing options for cesspool replacements. Including costs, nutrient removal, and soil distribution estimations for traditional septic vs. pressure sewer
- Homeowner survey results
- Educational materials
- Summary and final reports
- Spatial data served on web portal
- Table of funding options for future project continuation
- Outline list of processes in consideration of forming a special improvements district or community facilities district if community sewer is one of the preferred options.

Activity 4: Stakeholder Outreach & Education

- 1-3 community outreach meetings, with one homeowner survey
- 1-3 governmental stakeholder meetings

IV. Financial

Budget

1. The applicant shall submit a budget utilizing the enclosed budget forms as applicable, to detail the cost of the request.
 - a. Budget request by source of funds ([Link](#))
 - b. Personnel salaries and wages ([Link](#))

- c. Equipment and motor vehicles ([Link](#))
- d. Capital project details ([Link](#))
- e. Government contracts, grants, and grants in aid ([Link](#))

2. The applicant shall provide its anticipated quarterly funding requests for the fiscal year 2025.

Quarter 1	Quarter 2	Quarter 3	Quarter 4	Total Grant
\$70,000	\$60,000	\$50,000	\$70,000	\$250,000

3. The applicant shall provide a listing of all other sources of funding that they are seeking for fiscal year 2025.

The Hanalei Initiative (THI) is also seeking a USDA Technical Assistance & Training grant in the amount of \$298,985 targeted at roughly the same scope of work as this proposal. THI applied for that grant last year and was not awarded – these are highly competitive federal grants and so the likelihood of award is low.

4. The applicant shall provide a listing of all state and federal tax credits it has been granted within the prior three years. Additionally, the applicant shall provide a listing of all state and federal tax credits they have applied for or anticipate applying for pertaining to any capital project, if applicable.

N/A.

5. The applicant shall provide a listing of all federal, state, and county government contracts, grants, and grants in aid it has been granted within the prior three years and will be receiving for fiscal year 2025 for program funding.

Attached Page 10 form.

6. The applicant shall provide the balance of its unrestricted current assets as of December 31, 2023.

Listed on Cover Page.

V. Experience and Capability

1. Necessary Skills and Experience

The applicant shall demonstrate that it has the necessary skills, abilities, knowledge of, and experience relating to the request. State your experience and appropriateness for providing the service proposed in this application. The applicant shall also provide a listing of verifiable experience of related projects or contracts for the most recent three years that are pertinent to the request.

The Hanalei Initiative (THI) is a Kauai nonprofit whose 501(c)(3) status was approved on October 18, 2018. THI is a group of caring residents working for the betterment of Hanalei and the Kauai north shore in an effort to work together to identify important needs, seek solutions, strategize implementation, and follow projects through to completion. THI embraces the principle and importance of both community engagement and strong governmental relationships working in partnership to achieve common objectives. It has three main areas of focus (1) improve water quality in the Hanalei area; (2) the maintenance and beautification of public areas; and (3) improving transportation systems for Kauai north shore communities.

THI has successfully managed several grants since inception, with the maximum award being \$1,500,000. THI's annual revenue of approximately \$6,000,000 with approximately 24 total employees demonstrates that a project in the proposed range is well within our capacity to manage. Key personnel resumes are included as appendix material at the end of this application.

2. Facilities

The applicant shall provide a description of its facilities and demonstrate its adequacy in relation to the request. If facilities are not presently available, describe plans to secure facilities.

THI maintains office space in the Hanalei Center which it has operated from since 2020. This is complete full-service space with private meeting rooms, office machines, video and conferencing capability, and storage. THI maintains a suite of resources, fiscal and administrative controls that have enabled the organization to execute a project of this scope while properly managing funds. THI uses QuickBooks Online financial software with advanced function add-ons including Dext receipt management software. Office staff split-up regular processing duties such as reimbursement validation, timekeeping and payroll tracking, receipt processing, and check writing to reinforce appropriate checks and balances. THI also receives support and expertise from external contracted organizations including professional licensed day-to-day accounting/CPA support and oversight provided by Chantal Mentzer, Inc. for bookkeeping and tax filings, and Proservice, Inc. for payroll / HR needs; these organizations have been in business many years.

VI. Personnel: Project Organization and Staffing

1. Proposed Staffing, Staff Qualifications, Supervision and Training

The applicant shall describe the proposed staffing pattern and proposed service capacity appropriate for the viability of the request. The applicant shall provide the qualifications and experience of personnel for the request and shall describe its ability to supervise, train and provide administrative direction relative to the request.

Joel Guy has been the Executive Director of The Hanalei Initiative since its inception in 2018. As a lifelong resident of Hanalei, he has seen firsthand the transformations that have occurred on the north shore over the past 40 years and the new challenges that have arisen as a result. Most recently, Joel has led the Hanalei Initiative through the development and operation of the Haena State Park Access Management System and the Kauai North Shore Shuttle in close partnership with the County of Kauai and the State of Hawaii. These experiences and the relationships built through these years-long efforts have positioned The Hanalei Initiative to be successful in developing a wastewater technical assistance and training program involving all the necessary local entities and community resources.

Jonathan Champlin is an 18-year owner/operator of a company providing sales and service of equipment for municipal wastewater and water systems. He represented several national companies providing solutions for municipal and community needs. He provided hands-on sales, installation and servicing support from initial consultations to ensuring equipment is installed properly with onsite services to verify operation and provide training to operators. He provided extensive engineering support and training to consulting engineers on project design and specifications of the equipment. Since 2020 he has been assisting The Hanalei Initiative to review wastewater options for the community, and has also worked for Water Alternatives and Innovations doing community outreach to bring awareness and solutions to Hawaii's 88,000 cesspools.

Jeremy Burns joined The Hanalei Initiative as Project Manager in 2019. He helped structure the Haena State Park Access Management System and Kauai North Shore Shuttle financial, technical and operational systems. Jeremy leverages a 20-year career as a Strategic Planner and Program Manager for Fortune 100 corporations in the transportation, building efficiency and healthcare fields to support the north shore community. He has served as Treasurer and as Chairman of the IT and Finance Committees for four years on the Board of Directors of South Shore Yacht Club, and currently serves as Vice Chair for the Kauai Sailing Association and as a Director for Nawiliwili Yacht Club. Jeremy holds a Bachelor of Science in Computer Engineering and a Master of Business Administration, both from the University of Michigan – Ann Arbor.

Johanna Ventura joined The Hanalei Initiative in 2021 and serves as the Director of Engagement. She brings with her over twenty years of experience with community-driven projects on Kauai's north shore, centered mostly around group process, community engagement, project/grant management and the development of internal planning, systems and practices to support nonprofit mission efficacy and organizational growth/resiliency. She holds a BA in Applied Social Sciences from UH West-Oahu and is a former participant in both island and state-wide leadership/peer cohorts, advisory groups, and other partnerships that have helped her to better understand many of the shared and unique challenges facing communities across Hawaii today. She has lived in Wainiha Valley on the north shore of Kauai for almost 30 years.

Contracted organizations and personnel who will be supporting this project are:

Seascope Solutions LLC (SeaSol), led by Kostantinos Stamoulis, is an environmental planning and consulting company based in Mililani, Hawaii and Papeete, French Polynesia. Kostantinos is an environmental and spatial scientist with over fifteen years of research experience spanning land to sea in Hawaii, the Pacific region, and beyond. He holds a PhD in environmental science from Curtin University in Perth, Australia, an MA in Geography from the University of Hawaii at Manoa, and a BA in Marine Science from the University of Hawaii at Hilo. SeaSol personnel have led or co-authored several scientific studies evaluating environmental impacts from wastewater management scenarios. SeaSol has previously gathered and created spatial data and published an online mapping portal (<https://www.arcgis.com/apps/View/index.html?appid=269f5640c8eb4cd692eaf4562f866201>) for The Hanalei Initiative that contains maps of all the current wastewater systems in the service area along with a preliminary assessment of potential environmental risk. In addition, in partnership with The Hanalei Initiative, Seasol has led community outreach efforts including community surveys and an educational event and, as a result, has compiled a contact list of engaged homeowners in the service area that will be used to obtain community feedback for the proposed project. SeaSol will apply its extensive experience in mapping and spatial analysis to lead the development and refinement of wastewater treatment scenarios in the study area, contribute spatial metrics to help estimate costs, analyze the environmental/health benefits and impacts for each wastewater treatment scenario, and assist with synthesis of results and reporting.

North Shore Hydrological Services (NSHS), led by Matt Rosener, is a hydrologic and water resource engineering consulting company based in Hanalei. They have been managing grant- funded stream restoration and watershed best practices projects for the nearby Waipa Foundation for over 10 years. This has included facilitating many cesspool conversions to alternative on-site treatment systems designed by an NSHS licensed civil engineer. Through this experience, NSHS has gained knowledge of the factors that often complicate effective and sustainable wastewater management in this environment, and they have developed appropriate solutions accordingly. NSHS staff also have extensive experience in the field of hydrologic monitoring, having developed and overseen operations of several water monitoring programs in the project area over the past 15 years. This combination of experience makes NSHS uniquely positioned to perform effective outreach to the wastewater community on Kauai, including designers, installers, utility operators, and regulators.

Dr. Alexandria Boehm is a Professor of Civil and Environmental Engineering and Senior Fellow at the Woods Institute for the Environment. Her primary research area is coastal water quality, and recently she has expanded her research to include activities on sanitation more broadly. The work on coastal water quality is focused on understanding the sources, transformation, transport, and ecology of biocolloids - specifically fecal indicator organisms, pathogens, and phytoplankton, as well as sources and fate of nitrogen and phosphorus. This knowledge is crucial to directing new policies, and management and engineering practices that protect human and ecosystem health along

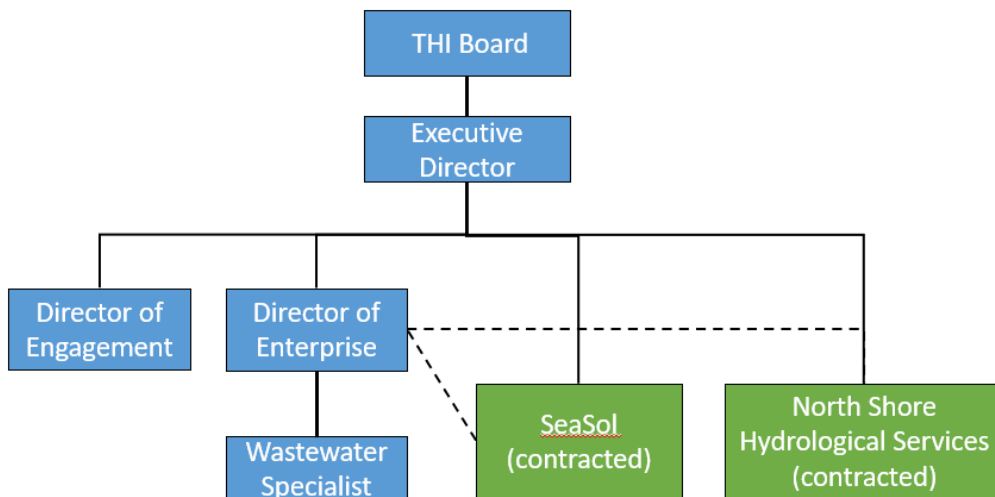
the coastal margin. The work on sanitation aims to develop microbial risk assessment models to gain a better understanding of how pathogens are transmitted to humans through their contact with water, feces, and contaminated surfaces. Research is focused on key problems in developed and developing countries. The goal is to design and test effective interventions and technologies for reducing the burden of infectious disease.

Dr. Christopher Shuler is a hydrologist with nearly a decade of experience studying the hydrogeology of volcanic islands in the Pacific. He holds a PhD in Geology and Geophysics specializing in hydrogeology from University of Hawaii at Manoa, and a B.S. in Environmental Science from the University of Oregon. He has an extensive background in examining the water quality and nutrient transport effects of on-site wastewater systems on coastal environments and drinking water quality. Christopher's current research includes themes of ground and surface water resources in Hawaii and the American Samoa, numerical groundwater modeling, geochemical and isotopic aqueous chemistry, environmental water quality, and water sustainability studies. Dr. Shuler works closely with the Hawaii Department of Health to assist in cesspool upgrade prioritization and scientific outreach centered around the environmental and health benefits of conversion of cesspools to more effective forms of wastewater treatment.

2. Organization Chart

The applicant shall illustrate the position of each staff and line of responsibility/supervision. If the request is part of a large, multi-purpose organization, include an organization chart that illustrates the placement of this request.

THI Org Chart – FY25 State GIA Proposal



3. Compensation

The applicant shall provide an annual salary range paid by the applicant to the three highest paid officers, directors, or employees of the organization by position title, not employee name.

Executive Director: \$90,000 annual unburdened salary
HSP Operations Manager: \$78,000 annual unburdened salary (not part of this proposal)
Director of Enterprise: \$60,000 annual unburdened salary
Director of Engagement: \$52,000 annual unburdened salary

VII. Other

1. Litigation

The applicant shall disclose any pending litigation to which they are a party, including the disclosure of any outstanding judgement. If applicable, please explain.

N/A.

2. Licensure or Accreditation

The applicant shall specify any special qualifications, including but not limited to licensure or accreditation that the applicant possesses relevant to this request.

North Shore Hydrological Services is a registered Professional Engineer in the State of Hawaii. Please see attached resumes for other potentially relevant specialized qualifications of contactors and THI employees supporting this proposal.

3. Private Educational Institutions

The applicant shall specify whether the grant will be used to support or benefit a sectarian or non-sectarian private educational institution. Please see [Article X, Section 1, of the State Constitution](#) for the relevance of this question.

N/A.

4. Future Sustainability Plan

The applicant shall provide a plan for sustaining after fiscal year 2024-25 the activity funded by the grant if the grant of this application is:

- (a) Received by the applicant for fiscal year 2024-25, but
- (b) Not received by the applicant thereafter.

The Hanalei Initiative is currently investigating several funding avenues including State and County resources to continue to sustain its wastewater programs and drive implementation after this study project is completed.

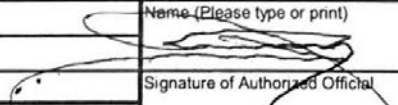
If community-based options are recommended, we will pursue the SEARCH and Water & Waste Disposal Pre-development Planning Grants. If the OSDS option will serve the community best, we would pursue a revolving loan fund. In both cases, THI has connections with County of Kauai and State of Hawaii to work towards obtaining CWSRF funding, as well as applying to the USDA Water & Waste Disposal Loan & Grant program if qualified.

Lastly within the community engagement portion of this plan THI will leverage its existing local connections (which it has done successfully for several projects already, ranging into the millions of dollars) to solicit private donations, and will engage and expand its partnerships with local non-profit funding sources such as the Hawaii Community Foundation which manages \$860M in assets and distributed \$86M statewide in 2022.

BUDGET REQUEST BY SOURCE OF FUNDS

Period: July 1, 2024 to June 30, 2025

Applicant: The Hanalei Initiative _____

BUDGET CATEGORIES	Total State Funds Requested (a)	Total Federal Funds Requested (b)	Total County Funds Requested (c)	Total Private/Other Funds Requested (d)
A. PERSONNEL COST				
1. Salaries	79,000			
2. Payroll Taxes & Assessments	17,000			
3. Fringe Benefits	5,500			
TOTAL PERSONNEL COST	101,500			
B. OTHER CURRENT EXPENSES				
1. Airfare, Inter-Island	1,500			
2. Insurance				
3. Lease/Rental of Equipment				
4. Lease/Rental of Space				
5. Staff Training				
6. Supplies	2,000			
7. Telecommunication				
8. Utilities				
9. Contracted Professional Services	130,000			
10. Cultural Archeological Consulting	5,000			
11. Administrative Fee	10,000			
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
TOTAL OTHER CURRENT EXPENSES	148,500			
C. EQUIPMENT PURCHASES				
D. MOTOR VEHICLE PURCHASES				
E. CAPITAL				
TOTAL (A+B+C+D+E)	250,000			
SOURCES OF FUNDING		Budget Prepared By:		
(a) Total State Funds Requested	250,000	Jeremy Burns 734-657-2493		
(b) Total Federal Funds Requested		Name (Please type or print) Phone		
(c) Total County Funds Requested				
(d) Total Private/Other Funds Requested		Date 11/19/2024		
TOTAL BUDGET	250,000	Joel Guy, Executive Director		
		Name and Title (Please type or print)		

BUDGET JUSTIFICATION - EQUIPMENT AND MOTOR VEHICLES

Period: July 1, 2024 to June 30, 2025

Applicant: The Hanalei Initiative

DESCRIPTION EQUIPMENT	NO. OF ITEMS	COST PER ITEM	TOTAL COST	TOTAL BUDGETED
N/A	0.00	\$0.00	\$ -	
			\$ -	
			\$ -	
			\$ -	
			\$ -	
TOTAL:				
JUSTIFICATION/COMMENTS:				

DESCRIPTION OF MOTOR VEHICLE	NO. OF VEHICLES	COST PER VEHICLE	TOTAL COST	TOTAL BUDGETED
N/A	0.00	\$0.00	\$ -	
			\$ -	
			\$ -	
			\$ -	
			\$ -	
TOTAL:				
JUSTIFICATION/COMMENTS: No capital equipment or vehicles needed for this project.				

BUDGET JUSTIFICATION - CAPITAL PROJECT DETAILS

Period: July 1, 2024 to June 30, 2025

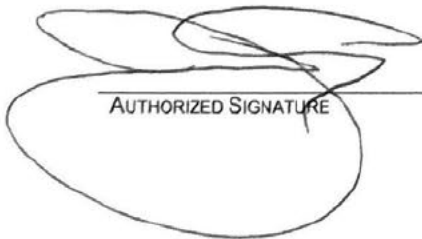
Applicant: The Hanalei Initiative _____

FUNDING AMOUNT REQUESTED						
TOTAL PROJECT COST	ALL SOURCES OF FUNDS RECEIVED IN PRIOR YEARS		STATE FUNDS REQUESTED	OTHER SOURCES OF FUNDS REQUESTED	FUNDING REQUIRED IN SUCCEEDING YEARS	
	FY: 2022-2023	FY: 2023-2024	FY:2024-2025	FY:2024-2025	FY:2025-2026	FY:2026-2027
PLANS	0	0	0	0	0	0
LAND ACQUISITION	0	0	0	0	0	0
DESIGN	0	0	0	0	0	0
CONSTRUCTION	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
TOTAL:						
JUSTIFICATION/COMMENTS: No capital needed or anticipated for this project. Future capital likely to depend on study outcomes and next steps.						

Application Submittal Checklist

The following items are required for submittal of the grant application. Please verify and check off that the items have been included in the application packet.

- 1) Hawaii Compliance Express Certificate (If the Applicant is an Organization)
- 2) Declaration Statement
- 3) Verify that grant shall be used for a public purpose
- 4) Background and Summary
- 5) Service Summary and Outcomes
- 6) Budget
 - a) Budget request by source of funds ([Link](#))
 - b) Personnel salaries and wages ([Link](#))
 - c) Equipment and motor vehicles ([Link](#))
 - d) Capital project details ([Link](#))
 - e) Government contracts, grants, and grants in aid ([Link](#))
- 7) Experience and Capability
- 8) Personnel: Project Organization and Staffing



JOEL GUY, EXECUTIVE DIRECTOR

01/16/2024

AUTHORIZED SIGNATURE

PRINT NAME AND TITLE

DATE

Jeremy E. Burns

4670 Pelehu Rd. Unit B, Kapaa, HI 96746
linkedin.com/in/jeremyedwardburns

jeburns@umich.edu
cell: 734.657.2493

Summary Administrator and project management professional with an information technology and finance foundation, Top-10 program formal public education credentials and 20 years of experience. Successful track record developing and managing nonprofit programs and financials. Committed to building positive relationships and delivering excellent outcomes.

Professional Experience **AINA HOOKUPU O KILAUEA Kilauea, HI** **2019-Present**
Administrative Director

Manages all aspects of office-related activities including administrative functions with direct reports, grant writing, federal contracting, and process improvements. Reports to CEO.

- Wrote and awarded the US Dept. of Agriculture Farmers To Families Food Box Program federal contract worth \$1.4M in sales. Implemented key processes and procedures.
- Wrote and awarded a CARES Act grant worth \$660K for agricultural production expansion

THE HANAIEI INITIATIVE Hanalei, HI **2019-Present**

Project Manager

Provides project management, financial analysis, grant writing, and internal consulting services. Reports to Executive Director.

- Backed by a \$1.5M County of Kauai grant, was responsible for suggesting and instituting the online reservation component of the system and managed the operations of the Kauai North Shore Shuttle, a new service supporting the north shore community
- Successfully wrote and awarded a CARES Act grant of \$58K for a shared work center

MALAMA NA 'APAPA Anahola, HI **2019-2021**

Project Manager

Provides grant writing, project management, and SCUBA diving support for debris cleanup and coral reef monitoring to improve the health of the ocean. Reported to Executive Director.

- Wrote and awarded a CARES Act grant of \$200K to employ well-qualified and economically-challenged (due to COVID-19) SCUBA divers to conduct marine conservation activities
- Wrote and awarded a \$50K National Fish and Wildlife Foundation grant to conduct marine debris cleanup, coral reef monitoring and corresponding educational outreach for students

HALE HALAWAI 'OHANA O HANAIEI Hanalei, HI **2018-2021**

Project Manager

Provided volunteer data collection and management support for the community in the aftermath of the April 2018 flood; transitioned into managing funded environmental cleanup and case management activities. Reported to Executive Director.

- Developed and administered new processes to track and report activities and outcomes for Environmental Cleanup team and Case Management team while building local relationships
- Compiled final reports and presentations for donor sponsor; performed ad hoc data analyses for governmental organizations and NGOs to aid disaster response efforts

Professional Experience **AURORA HEALTH CARE Milwaukee, WI** **2015-2018**

Strategy and Operations Project Management
Led and supported system-wide clinical and operational strategic planning and complex program management for the \$5B largest integrated healthcare system in Wisconsin. Reported to Director of Strategy and Operations Project Management.

- Led a project to standardize and expand a new state-sponsored Well Woman program from 50 to 140+ clinics in order to preserve over \$10M in prescription drug cost benefits
- Managed the Cardiovascular Heart Failure Optimization Program at Aurora's flagship hospital, the St. Luke's Medical Center
 - Led a 30+ person cross-functional team to develop and garner support to implement a new patient placement methodology that was forecasted to improve specialty placement rates from 24% to 70%+ and concurrently reduce length of stay significantly (10%+)

JOHNSON CONTROLS INC. Building Efficiency Milwaukee, WI **2010-2015**

Strategy & Strategic Program Management Manager – Unitary Products
Head of Strategy for the \$1B Unitary Products business unit. Led development of the annual strategic plan and governance management, strategic initiative budgeting and capital planning, and represented the business internally and externally. Reported to VP/GM, Unitary Products.

- Served on the Senior Leadership Team and developed the 5-year strategic plan for the Unitary Products line of business with the VP/GM and fellow leadership team members
- Secured the largest organic capital investment (\$100M+) in the Building Efficiency division
- Executive sponsor for a Unitary Products Leadership Academy team of high-potential employees engaged in a professional development assignment
- Championed the creation of and founded the Synergy Impact Program, an early-career leadership curriculum to increase employee engagement & reduce turnover

GENERAL DYNAMICS INC. Advanced Information Systems Ypsilanti, MI **2001-2009**

Senior Electrical Engineer
Initiated and participated in RFP proposal development and provided hardware, software, and systems engineering support for a variety of transportation, military and information technology research projects. Reported to Director of Transportation.

Board Service

KAUAI SAILING ASSOCIATION Director Lihue, HI **2021-Present**

KILAUEA NEIGHBORHOOD ASSOCIATION Secretary Kilauea, HI **2019-Present**

SOUTH SHORE YACHT CLUB Treasurer Milwaukee, WI **2013-2017**
Fiduciary responsibility and signatory authority for \$1.8M not-for-profit club with over 800 members. Member of Finance Committee in charge of budget development processes. Provided financial oversight, analyses and recommendations to the Board and Members.

IT Committee Chair
Led a 20-member committee to identify, budget, prioritize, select and implement IT projects. Represented the IT Committee at Board of Directors and General Membership meetings.

- Made the recommendation to institute the first official IT Committee; appointed Chairman
- Successfully lobbied for increased budget to fund necessary deferred IT capital needs

Education **UNIVERSITY OF MICHIGAN Ann Arbor, MI**

Stephen M. Ross School of Business 2009 **College of Engineering 2002**
Master of Business Administration **Bachelor of Science in Engineering**

- Emphases in Strategy and Finance
- Computer Engineering

Matt Rosener, MS, PE
PO Box 1061, Hanalei, HI 96714
(808) 639 2640
laminarmatt@gmail.com

Work Experience: Water Resource Engineer (Owner) August 2006 – present
North Shore Hydrological Services Hanalei, Hawai'i

Currently leading a watershed conservation program for the Waipā Foundation that includes replacement of all remaining cesspools in the Waipā and Waikoko Stream watersheds with suitable on-site Individual Wastewater Systems (IWS). This work involves survey, design, permitting, contracting, and project management to ensure that new IWS are constructed and cesspools are abandoned according to state and county rules. Also supervising several monitoring programs to assess the effectiveness of watershed Best Management Practices (BMPs), including regular monitoring of surface water quality, as well as aquatic habitat and use by native aquatic species in the Waipā Stream Restoration Project area. Monitoring results have shown improved water quality and increased populations of native aquatic species during the project period.

Hydrologist Mar. 2005 – Mar. 2010
Hanalei Watershed Hui (NGO) Hanalei, Hawai'i

Secured funding for and facilitated replacement of several cesspools along the Hanalei River with alternative treatment systems, working with private landowners, partner community organizations, and state & federal resource management agencies. Designed monitoring programs and analyzed hydrologic data in support of water quality and ecosystem restoration efforts, implemented water quality improvement projects within the local community, and worked as a member of a multi-agency, interdisciplinary team investigating erosion and sedimentation processes in the Hanalei River basin and Hanalei Bay.

Hydrologist Nov. 2006 – June 2011
US Geological Survey Hanalei, Hawai'i

Served as the hydrologist on a research team performing scientific studies on sediment dynamics in tropical island watersheds. Responsible for installing, operating, and maintaining specialized equipment used to collect rainfall, runoff, and erosion data at Ridge-to-Reef research project sites at Hanalei, Kaua'i and Kawela, Moloka'i. Responsible for analyzing hydrologic data and providing support for the preparation of technical papers and scientific journal articles. This appointment was with the Pacific Islands Water Science Center in Honolulu, HI and the Western Earth Surface Processes Team in Menlo Park, CA.

Project Engineer Apr. 2010 – Aug. 2011
Cardno ENTRIX Seattle, Washington

Led hydrology and assisted with hydraulics components of a large stream restoration and flood mitigation project at Punalu'u, O'ahu (Hawai'i), for Kamehameha Schools.

Assisted in geomorphic assessment of Punalu'u Stream basin, field surveys, monitored stream levels, and made stream discharge and bedload measurements. Instructor for Pacific Islands Stream Restoration course in Hawai'i.

Field Hydrologist/Researcher
Research Corporation of the University of Hawai'i

May 2006 – Dec. 2013
Hanalei, Hawai'i

Performed field research in the Waipā Stream and Hanalei River watersheds through an appointment with the Department of Natural Resources and Environmental Management at the University of Hawai'i at Mānoa. This National Weather Service-funded project focused on rainfall-runoff interactions, to evaluate suitability and potential of various hydrologic models for flash flood forecasting in Hawai'i. Worked as part of a research team including hydrologists and meteorologists from the National Weather Service, the University of Hawai'i at Mānoa, and the University of Hawai'i at Hilo. Operated and maintained a network of rain gages, weather stations, and throughfall monitoring sites in the Hanalei River basin.

Design Engineer
Wesley R. Segawa & Associates

Jan. 2002 – Dec. 2003
Hilo, Hawai'i

Performed hydrologic and hydraulic analyses and design for bridge replacements and renovations, flood control measures, and other stormwater management projects. Typically worked as part of an interdisciplinary team with other engineers, planners, geologists, and environmental scientists.

Civil Engineer
USDA Natural Resources Conservation Service

Oct. 1999 – Oct. 2001
Astoria, Oregon

Provided the full range of engineering services for several river-related conservation projects including flood and erosion control measures, culvert replacements, and fish habitat enhancements. Worked closely with state and federal fisheries agencies to achieve multiple project objectives. Duties included surveying & mapping, geotechnical investigations, analysis & design, drafting, permitting, cost-estimating, construction inspection, and project management.

Education:	Oregon State University M.S. achieved December 1999 Major: Civil Engineering – Hydrology Minor: Water Resources Planning & Management	University of Minnesota B.S. achieved June 1996 Major: Civil Engineering Emphasis in Water Resources
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Certificates: Registered Professional Engineer (Civil), State of Hawai'i, 2003 (current)
Registered Professional Engineer (Civil), State of Washington, 2014 (current)

Skills: Proficiency with database programs, ArcGIS, and AutoCAD; topographic surveying & mapping, wastewater treatment design & planning, hydraulic analysis & modeling, stormwater design, flood hazard analysis, public speaking, community engagement.

Kostantinos (Kosta) A. Stamoulis
kosta@seascape.solutions, Phone: +1 808 756-3947
<https://www.seascape.solutions>
[Hanalei Initiative wastewater system webmap](#)

Education

- PhD** **2014 - 2018**
Department of Environment and Agriculture, Curtin University, Perth, Australia
Spatial predictive modeling of targeted reef fish distributions incorporating habitat utilization and behavior in the context of marine protection
- MA** **2009 - 2012**
Department of Geography, University of Hawai‘i at Mānoa, Honolulu, USA
Targeted reef fish spillover across a marine protected area boundary in Hawai‘i
- BA** **2001 - 2004**
Department of Marine Science, University of Hawai‘i at Hilo, Hilo, USA
Temporal variation of juvenile fish populations at Wai Opae tidepools on the island of Hawai‘i

Professional Experience

- Director/ Environmental Scientist** **May 2018 – Present**
Seascape Solutions, Honolulu, HI
- Applied land-sea research
 - Proposal development and project management
 - Business and funding administration
 - Community and partner outreach and education
 - Technical reports and peer reviewed publications
- Director of Research and Conservation** **Dec 2019 – Present**
Shoreline Science Initiative, Hale‘iwa, HI
- Project development and management
 - Data analysis, synthesis, and visualization
 - Collaboration and outreach
 - Technical reports and outreach products
- Research Associate** **Aug 2012 – Dec 2016**
Fisheries Ecology Research Lab, Biology Dept., University of Hawai‘i at Mānoa
- Reef fisheries research and project development
 - Grant and project management, coordination with NGO and government partners
 - Supervise lab technicians and mentor and support undergraduate and master’s students
 - Train students in marine ecological field methods
 - Spatial analysis and marine habitat mapping, database design and maintenance
 - Technical reports and peer reviewed publications
 - Presentations to policy makers
- Graduate Research Assistant** **Sep 2011 – Aug 2012**
Hawai‘i Institute of Marine Biology, University of Hawai‘i at Mānoa
- Design and lead field work to evaluate the role of marine protected areas in controlling alien invasive algae species

- Data management, geodatabase development and maintenance
- Data analysis, project reports and peer reviewed publications

Field Instructor: Field experiments in marine biology **Jul 2011**

Marine Biology Dept., University of Hawai‘i at Mānoa

- Teach marine ecological survey techniques
- Organize and lead field activities
- Undergraduate course level

GIS Instructor: Field experiments in marine biology **Jul 2010**

Marine Biology Dept., University of Hawai‘i at Mānoa

- GPS data collection methods
- GIS integration of spatial data
- GIS mapping and spatial analysis
- Undergraduate course level

Graduate Research Assistant **Sep 2009 – Aug 2011**

Hawai‘i Cooperative Fishery Research Unit, Zoology Dept., University of Hawai‘i at Mānoa

- Statistical and geospatial analysis of data sets from Hawai‘i and the Caribbean
- Design and lead field work for various projects
- Write and produce maps and figures for technical reports and peer reviewed papers

Education Program Assistant **Aug 2009 – Feb 2010**

Hanauma Bay, Sea Grant, Honolulu, HI

- Design educational materials
- Educate visitors about reef ecosystems and how to minimize human impacts

Coastal Resources Survey Technician **Mar 2009 - Jul 2009**

Pacific Cooperative Studies Unit, University of Hawai‘i at Mānoa

- Conduct shore-based intertidal habitat characterization by surveying substrate geomorphology, dominant coastal-marine organisms, and other shoreline features
- Develop and implement geographic information systems per US National Park Service standards for all National Park coastlines in the Hawaiian Islands
- Use ArcGIS software to create maps for planning purposes and as final deliverables
- Plan and coordinate field efforts; arrange for equipment, supplies, travel, and any required permits
- Manage, process, and analyze survey data

Assistant Volunteer Coordinator **May 2008 – Jul 2008**

ReefTeach Program, Kohala Center, Kona, HI

- Coordinate volunteers
- Outreach and education of visitors to Kahalu‘u beach park
- Design and implement monitoring of human uses and impacts on coral reefs

Coral Reef Monitoring Program Technician/GIS analyst **Feb 2005 – Feb 2009**

Hawai‘i Division of Aquatic Resources, Kona, HI

- Underwater surveys of coral reef fish and selected invertebrates
- Boat handling and logistics for marine surveys
- Input, manage, and query data using an MS Access database
- GIS support for all monitoring activities and special projects
- Analyses integrating quantitative and spatial data

- Support and facilitate public meetings

Skills

Project Management and Communication

- Budget and contract management
- Activity tracking and progress measurement
- Online collaborative tools including Google Docs/Sheets, Trello, Mural, Slack
- Workshop organization and facilitation (virtual and in-person)
- Partner communication and outreach, networking

Analysis and Software

- Spatial data analysis and mapping using ArcGIS and QGIS
- Habitat mapping from satellite and aerial imagery using ENVI, ArcGIS and QGIS
- Data management and analysis using MS Access, MS Excel, R, and Primer
- Programming using R, Python, and SQL
- Conservation planning and decision support tools
- Stereo-video system calibration and data analysis using CAL and EventMeasure
- Data-limited fisheries methods

Fieldwork

- NOAA Scientific diver, Nitrox, Rebreather, CPR, First Aid, & O2 certified
- Experience at sea aboard large research vessels (4 NOAA RAMP cruises, 2 NOAA fish cruises)
- Extensive underwater reef fish survey experience in Hawai'i, Samoa, and the Caribbean
- Comprehensive knowledge of reef fish species of the Pacific Ocean
- Benthic survey experience

Fishing effort surveys

Selected Publications (lead author)

- Delevaux, J. M. S. & **K. A. Stamoulis** (co-primary), R. Whittier, S. D. Jupiter, L. L. Bremer, A. Friedlander, N. Kurashima, J. Giddens, K. B. Winter, M. Blauch-Vaughan, K. M. Burnett, C. Geslani, and T. Ticktin. 2019. Place-based management can reduce human impacts on coral reefs in a changing climate. *Ecological Applications* 29:e01891.
- Stamoulis, K.A.**, Delevaux, J.M.S., Williams, I.D., Poti, M., Lecky, J., Costa, B., Kendall, M.S., Pittman, S.J., Donovan, M.K., Wedding, L.M., Friedlander, A.M., 2018. Seascape models reveal places to focus coastal fisheries management. *Ecological Applications* 28, 910–925.
- Stamoulis, K.A.**, Friedlander, A.M., Meyer, C.G., Fernandez-Silva, I., Toonen, R.J., 2017. Coral reef grazer-benthos dynamics complicated by invasive algae in a small marine reserve. *Scientific Reports* 7, 43819.
- Stamoulis, K.A.**, Delevaux, J.M.S., 2015. Data requirements and tools to operationalize marine spatial planning in the United States. *Ocean & Coastal Management* 116, 214–223.
- Stamoulis, K.A.**, Friedlander, A.M., 2013. A seascape approach to investigating fish spillover across a marine protected area boundary in Hawai'i. *Fisheries Research* 144, 2–14.

Selected Publications (co-author)

- Pittman, S.J., **Stamoulis, K.A.**, Antonopoulou, M., Das, H.S., Shahid, M., Delevaux, J.M.S., Wedding, L.M., Mateos-Molina, D., 2022. Rapid Site Selection to Prioritize Coastal Seascapes for Nature-Based Solutions With Multiple Benefits. *Frontiers in Marine Science* 9.
- Delevaux, J.M.S., **Stamoulis, K.A.**, 2022. Prioritizing forest management actions to benefit marine habitats in data-poor regions. *Conservation Biology* 36, e13792.
- Delevaux, J.M.S., Whittier, R., **Stamoulis, K.A.**, Bremer, L.L., Jupiter, S., Friedlander, A.M., Poti, M., Guannel, G., Kurashima, N., Winter, K.B., Toonen, R., Conklin, E., Wiggins, C., Knudby, A., Goodell, W., Burnett, K., Yee, S., Htun, H., Oleson, K.L.L., Wiegner, T., Ticktin, T., 2018. A linked land-sea modeling framework to inform ridge-to-reef management in high oceanic islands. *PLOS ONE* 13, e0193230.

- Delevaux, J.M.S., Winter, K.B., Jupiter, S.D., Blaich-Vaughan, M., **Stamoulis, K.A.**, Bremer, L.L., Burnett, K., Garrod, P., Troller, J.L., Ticktin, T., 2018. Linking Land and Sea through Collaborative Research to Inform Contemporary applications of Traditional Resource Management in Hawai'i. *Sustainability* 10, 3147.
- Delevaux, J.M.S., Jupiter, S.D., **Stamoulis, K.A.**, Bremer, L.L., Wenger, A.S., Dacks, R., Garrod, P., Falinski, K.A., Ticktin, T., 2018. Scenario planning with linked land-sea models inform where forest conservation actions will promote coral reef resilience. *Scientific Reports* 8, 12465.

Technical reports

- Stamoulis K.A.** and Pittman S.J. 2022. Ecosystem Services Assessment: Framework and methods. Prepared for Emirates Nature-World Wide Fund for Nature. February 2022
- Stamoulis, K.A.**, Walker, R., Caster, T., Duncan, B., Boguszewski, V. 2021. Assessing Health Vulnerability to Climate Change in the Florida Keys. Shoreline Conservation Initiative, Haleiwa, HI
- Delevaux, J. & **Stamoulis, K.**, 2020. Assessment of ridge-to-reef management actions in Tagabe watershed and Mele Bay, Vanuatu. The Pacific Community Ridge-to-reef Programme. Suva, Fiji.
- Delevaux, J. & **Stamoulis, K.**, 2019. Identification of priority sites for future upscaling R2R investments. The Pacific Community Ridge-to-reef Programme. Suva, Fiji.

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SUMMARY OF QUALIFICATIONS

Unique experience of skills and knowledge from successfully owning and selling a small business. Engineering insight from hands on in the field troubleshooting of mechanical and electrical equipment. Team work skills from working on large and small projects with multiple sub-contractors. Business acumen from negotiating contracts with customers and vendors.

EDUCATION & HONORS

BS Electrical Engineering	University of Vermont	Burlington, VT	09/1995 – 5/1999
■ Tau Beta Pi	Engineering honor society		
■ Junior Award			

WORK EXPERIENCE

Shop Manager	Common Ground Kauai	Kilauea, HI	3/2021-Present
■ Mange online and pop-up retail shop of Hawaii made products. Maintained inventory, vetted new vendors, managed consultants, coordinated marketing materials (photos, videos, and writing), oversee advertising spending budget.			
Outreach Coordinator	Water Alternatives & Innovations	Honolulu, HI	10/2020-12/2021
■ Worked on Kauai through the CARES Act to highlight and provide solutions to numerous cesspools on the Island. Met with engineers, community associations, County Council members, and State Representatives.			
Consultant	Crawford Champlin, Inc	Essex Jct, VT	4/2016 – 08/2018
■ Worked to transition the Champlin Associates business to new ownership. Successfully trained new owner on operations, business, and transitioned customer base. Trained new employees as hired.			
President/Owner	Champlin Associates, Inc	Colchester, VT	1/2001 – 1/2016
■ Company provides sales and service of equipment for municipal wastewater and water systems in northern New England. Operated all aspects of business from marketing, sales, service, and bookkeeping /invoicing for a company with up to 1.2 Million in sales. Worked on government funded bid based projects down to small negotiated contracts. Contracting directly for customers (cities, towns, resorts, communities) or with general contractors, coordinating with sub-contractors. Followed sales from initial consultations to making sure equipment installed properly with onsite services to verify operation, provide training to operators.			
Engineer	IBM	Essex Jct, VT	06/1998 – 1/2001
■ Test equipment engineering, focusing on power requirements of testing microprocessors.			

SKILLS

Microsoft Word, Excel	Reading blueprints, electrical schematics
Quickbooks	

REFERENCES

Available upon request

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I'm a hydrologist trained at the University of Hawai'i at Mānoa with a strong background in water resources modeling, aqueous geochemistry, and in supporting local agencies and utilities with sustainable management of water and wastewater management in volcanic islands.

a. Professional Preparation

University of Hawai'i at Mānoa	Earth Sciences	Ph.D., 2019
University of Hawai'i at Mānoa	Geology and Geophysics	M.S., 2016
University of Oregon	Environmental Science	B.S., 2007

b. Appointments

2017 - present, Principal Hydrologist, Shuler Hydrologic LLC
2020 - present, Hydrogeologic Researcher, University of Hawai'i at Mānoa
2019 - 2020, Postdoctoral Researcher, University of Hawai'i at Mānoa
2013 – 2019, Graduate Research Assistant University of Hawai'i at Mānoa
2010-2011, Naturalist Wolf Ridge Environmental Learning Center, Duluth, Minnesota
2004-2005, Research Assistant Laboratory of Tree Ring Research, University of Arizona

c. Selected Publications

Shuler, C. K., Brewington, L., & El-Kadi, A. I. (2021). A participatory approach to assessing groundwater recharge under future climate and land-cover scenarios, Tutuila, American Samoa. *Journal of Hydrology: Regional Studies*, 34, 100785.

Comeros-Raynal, M. T., Brodie, J., Bainbridge, Z., Choat, J. H., Curtis, M., Lewis, S., **Shuler, C ...** & Hoey, A. S. (2021). Catchment to sea connection: Impacts of terrestrial run-off on benthic ecosystems in American Samoa. *Marine Pollution Bulletin*, 169, 112530.

Attias, E., Constable, S., Sherman, D., Ismail, K., **Shuler, C.**, & Dulai, H. (2021). Marine electromagnetic imaging and volumetric estimation of freshwater plumes offshore Hawai'i. *Geophysical Research Letters*, 48(7), e2020GL091249.

Shuler, C. K., Mariner, M. (2020) Collaborative Groundwater Modeling: OpenSource, Cloud-Based, Applied Science at a Small-Island Water Utility Scale. *Environmental Modeling and Software*. 127(1), doi.org/10.1016/j.envsoft.2020.104693

Shuler, C.K., & Comeros-Raynal, M. (2020) Ridge to Reef Management Implications for the Development of an Open-Source Dissolved Inorganic Nitrogen Loading Model in American Samoa. *Environmental management*, 66(3), 498- 515. doi.org/10.1007/s00267-020-01314-4

Shuler, C. K., Dulai, H., Leta, O.T., Fackrell, J., Welch, E., & El-Kadi, A.I. (2019) Understanding Surface Water - Groundwater Interaction, Submarine Groundwater Discharge, and Associated Nutrient Loading in a Small Tropical Island Watershed. *Journal of Hydrology*. 585(2020) doi.org/10.1016/j.jhydrol.2019.124342

Shuler, C. K., Amato, D. W., Veronica Gibson, V., Baker, L., Olguin, A. N., Dulai, H., ... & Alegado, R. A. (2019). Assessment of Terrigenous Nutrient Loading to Coastal Ecosystems along a Human Land-Use Gradient, Tutuila, American Samoa. *Hydrology*, 6(1), 18.

Shuler, C. K., Dulai, H., DeWees, R., Kirs, M., Glenn, C. R., & El- Kadi, A. I. (2018) Isotopes, Microbes, and Turbidity: A Multi - Tracer Approach to Understanding Recharge Dynamics and Groundwater Contamination in a Basaltic Island Aquifer. *Groundwater Monitoring & Remediation* 39 (1), 20-35

Shuler, C.K., El-Kadi, A.I., Dulai, H., Glenn, C.R. and Fackrell, J., (2017). Source partitioning of anthropogenic groundwater nitrogen in a mixed-use landscape, Tutuila, American Samoa. *Hydrogeology Journal*, 25(8)

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d. Current Projects

- **Principal Investigator:** Developing the Hawai'i Cesspool Prioritization Tool to assist HI DoH in converting HI's 88,000 cesspools to improve water quality and human and environmental health.
- **Coordinator, Maui County:** Hawaii Mesonet. Installing 35 state of the art climate monitoring stations across Maui County to better understand weather, climate, and water resources availability.
- **Modeling Lead:** Flood modeling in Hawaiian Homestead community of Waiehu Kou 3 to improve climate adaptation strategies
- **Chapter Author:** National Climate Assessment 5: Chapter 31 Hawaii and the US Affiliated Pacific Islands
- **Principal Investigator:** Developing the American Samoa Climate Data Portal
- **Principal Investigator:** Improving Water Use Data in American Samoa
- **Co-Investigator:** The Pacific RISA Phase IV: Building Equitable and Just Climate Solutions for Pacific Island Resilience to Compound Disasters and Extreme Events

e. Academic Prizes and Awards

2020 Development of a Pilot Scale WRRRC Products Data Portal Grant (\$29,000)
May, 2018 Scholar of the Year Award, ARCS Foundation
March, 2018 Toby Lee award in Geology and Geophysics, ARCS Foundation
May, 2017 Office of Graduate Education Achievement Award
2016 - 2017 Water Resources Research Institutes Program Grant (\$42,000)
2016 US Environmental Protection Agency Making a Visible Difference Grant (\$102,000)

f. Research Impacts

- Mentoring and supervising 100% FTE hydrologic technician in American Samoa focused on maintaining weather and stream gauging network
- Mentoring 3 UH Manoa Earth Sciences Graduate Students working on numerical flood modeling, groundwater resource assessment, and data portal development
- Mentored 7 UH Manoa Undergraduate Students on projects ranging across developing data portals, web-applications, cesspool impact assessments, and geospatial viewers.
- Instigated collaborative modeling program with stakeholders and water resource managers in American Samoa, thereby assisting water managers in water resources decision making.
- Developed an open-source, cloud-based, numerical water budget and groundwater modeling framework, with consideration of present and future projected climates
- Applied participatory approach with stakeholders to develop future land-use and climate scenarios of future water availability

g. Outreach Products

Web-based products & management summaries of technical-reports intended to increase accessibility of project results for end-users, managers, or the interested public

- Hawai'i Cesspool Prioritization Tool - developed for HI Department of Health
<http://hawaiiicesspooltool.org/>
- GitHub Repository hosting Integrated Modeling Framework:
https://github.com/cshuler/ASPA-UH_Integrated_Modeling_Framework, DOI: 10.5281/zenodo.3460214
<https://integratedmodelingframework.weebly.com/>
- GitHub Repository hosting Island-Wide Nitrogen Loading Model,
https://github.com/cshuler/R2R_DIN>Loading_Model, DOI: 10.5281/zenodo.3462869
- GitHub Repository hosting Participatory Future Water-Budget Modeling Project
https://github.com/cshuler/SWB2-Participatory_Scenarios,
- Management summaries, and full-length reports, as noted in section above
http://www.shulerhydrologic.com/Publications_and_Reports

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(a) Profession Preparation

California Institute of Technology, Pasadena, CA Engineering & Applied Science with Honors B.S. 1996
University of California, Irvine, CA Environmental Engineering M.S. 1997
University of California, Irvine, CA Environmental Engineering Ph.D. 2000

(b) Appointments

2022-present	Professor, Oceans, Stanford University
2015-present	Professor, Civil and Environmental Engineering, Stanford University
2009- 2015	Associate Professor, Civil and Environmental Engineering, Stanford University
2002 – 2009	Assistant Professor, Civil and Environmental Engineering, Stanford University
2000-2002	Faculty Fellow, Chemical & Biochemical Engineering & Material Sci., UCI

(c, i) Five publications (of over 200) related to proposed project

1. K. M. Yamahara, D. P. Keymer, S. P. Walters, B. A. Layton, R. S. Thompson, M. Rosener, **A. B. Boehm**. 2020. Application of molecular source tracking and mass balance approach to identify sources of fecal indicator bacteria in a tropical river. *PLOS ONE* 15(4): e02320542.
2. **A. B. Boehm**, K. M. Yamahara, S. P. Walters, B. A. Layton, D. P. Keymer, R. S. Thompson, K. L. Knee, and M. Rosener. 2011. Dissolved inorganic nitrogen, soluble reactive phosphorous, and microbial pollutant loading from tropical rural watersheds in Hawai'i to the coastal ocean during non-storm conditions. *Estuaries and Coasts*, 34 (5): 925-936.
3. E. J. Viau, K. Goodwin, K. M. Yamahara, L. M. Sassoubre, B. A. Layton, S. Burns, H-I Tong, S. H. C. Wong, Y. Lu, **A. B. Boehm**. 2011. Bacterial pathogens in Hawaiian coastal stream - associations with fecal indicators, land cover, and water quality. *Water Research*, 45, 3279-3290.
4. Ryan Searcy and **A. B. Boehm**. 2023. Know before you go: Data-driven beach water quality forecasting. Accepted at *Environmental Science & Technology*.
5. F. Feddersen, **A. B. Boehm**, S. N. Giddings, X. Wu, D. Liden. 2021. Modeling Untreated Wastewater Evolution and Swimmer Illness for Four Wastewater Infrastructure Scenarios in the San Diego-Tijuana (US/MX) Border Region. *Geohealth*, 5(11), e2021GH000490. DOI: 10.1029/2021GH000490.

(c, ii) Five other significant publications (of over 200)

1. M.C. Mattioli, L. M. Sassoubre, T. L. Russell, **A. B. Boehm**. 2017. Decay of sewage-sourced microbial source tracking markers and fecal indicator bacteria in marine waters. *Water Res.*, 108, 106-114.
2. P. A. Maraccini, J. H. Wenk, **A. B. Boehm**. 2016. Photoinactivation of eight health-relevant bacterial species: determining the importance of the exogenous indirect mechanism. *ES&T*, 50, 5050-5059.
3. N. R. De Sienes, T. L. Russell, K. I Brown, S. Mohanty, **A. B. Boehm**. 2016. Transport of enterococci and F+ coliphage through the saturated zone of the beach aquifer. *J. Water and Health*, 14, 26-38.
4. V. J. Harwood, **A. B. Boehm**, L. M. Sassoubre, V. Kannappan, J. R. Stewart, T.-T. Fong, M.-P. Caprais, R. R. Converse, D. Diston, J. Ebdon, J. A. Fuhrman, M. Gourmelon, J. Gentry-Shields, J. F. Griffith, D. Kashian, R. T. Noble, H. Taylor, and M. Wicki. 2013. Performance of viruses and bacteriophages for fecal source determination in a multi-laboratory, comparative study. *Water Res*, 47, 6929-6943.
5. K. E. Graham, C. E. Anderson, **A. B. Boehm**. 2021. Viral pathogens in urban stormwater runoff: Occurrence and removal via vegetated biochar-amended biofilters. *Water Research*, 207, 117829. DOI: 10.1016/j.watres.2021.117829.