# A) Cover Letter

Cal Poly Humboldt
Schatz Energy Research Center

**May 7, 2026**

**Suzanne Lippre**
**Administrative Analyst**
**Planning & Building Department**
**County of Humboldt**
**3105 H Street, Eureka, CA 95501**

***RE: Response to RFP PLN2026-01***

Dear Colleagues,

We are pleased to submit our proposal in response to the County of Humboldt's Department of Planning and Building - Long Range Planning Division's RFP PLN2026-01 for a Humboldt Natural and Working Lands Carbon Stock and Management Study.

After carefully reviewing the requirements outlined in the RFP, we are confident that we can successfully deliver the services requested. Our proposed approach integrates geospatial analysis, best-available carbon accounting methodologies, ongoing engagement with our community, and scenario analysis to develop a scientifically robust, policy-relevant, and publicly accessible assessment of natural and working lands carbon stocks and sequestration opportunities across Humboldt County. It will provide the empirical basis and community engagement necessary to create and implement a plan aligned with State climate goals and local priorities.

Our team has extensive experience in carrying out policy-engaged research at the interface of climate and land management. Our recent work on carbon accounting for forest and agricultural land management decisions has been supported by grant funding from agencies including the CA Governor's Office of Land Use and Climate Innovation, the CA Energy Commission, the CA Air Resources Board, CALFIRE, and the US Department of Energy. This broad support is a testament to the efficacy of our team and the quality of our research products. As principal investigator (PI) of this project, I would play a key role in every stage of the research, bringing to this work my extensive experience providing technical support services in close collaboration with policymakers, community partners, and the private sector.

As long-time residents of Humboldt County, our team possesses the local knowledge and community network necessary to ensure the development and implementation of a successful plan. We would be eager to discuss this proposed work with members of your team and hope to collaborate with you on this exciting project.

Yours sincerely,

Kevin Fingerman
Professor of Energy and Climate
Department of Environmental Science & Management
Cal Poly Humboldt

## B) Authorized Signature

| SIGNATURE AFFIDAVIT | |
|---|---|
| **NAME OF FIRM:** | Cal Poly Humboldt Sponsored Programs Foundation |
| **STREET ADDRESS:** | Cal Poly Humboldt, 1 Harpst Street, SBS 427 |
| **CITY, STATE, ZIP** | Arcata, CA 95521 |
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Government Code Section 6250 *et.seq*., the "Public Records Act", define a public record as any writing containing information relating to the conduct of public business. The Public Records Act provides that public records shall be disclosed upon written request, and that any citizen has a right to inspect any public record, unless the document is exempted from disclosure.

In signing this proposal, I certify that this firm has not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a proposal; that this proposal has been independently arrived at without collusion with any other proposer, competitor or potential competitor; that this proposal has not been knowingly disclosed prior to the opening of proposals to any other proposer or competitor; that the above statement is accurate under penalty of perjury.

The undersigned is an authorized representative of the above named firm and hereby agrees to all the terms, conditions, and specifications required by the County in this Invitation to Bid and declares that the attached proposal and pricing are in conformity therewith.

DocuSigned by:
Kacie Flynn
778F1A3FF8A405...

**Signature**

Executive Director

**Title**

Kacie Flynn

**Name (type or print)**

05/12/2026

**Date**

This firm herby acknowledges receipt / review of the following addendum(s) (If any)
Addendum # Addendum # Addendum # Addendum #

# Project Narrative for Humboldt Natural and Working Lands Carbon Stock Proposal

## Table of Contents

# Project Understanding and Approach

This project will develop a scientifically robust, policy-relevant, and publicly accessible assessment of natural and working lands (NWL) carbon stocks and sequestration opportunities across Humboldt County. Our approach integrates geospatial analysis, remote sensing data, best-available carbon accounting methodologies, community partner engagement, and scenario-based analysis to support informed decision-making aligned with State climate goals and local priorities.

A central pillar of our approach is alignment with the California Air Resources Board (CARB) 2025 Natural and Working Lands Carbon Inventory, including its methods, accounting framework, and core data inputs. We will use and extend upon CARB's model structure to estimate the location, magnitude and type of carbon storage across Humboldt's natural and working landscapes, as well as historical carbon stocks and rates of accumulation. This ensures that project outputs and findings are directly compatible with State climate planning frameworks and defensible under CEQA and related policy contexts.

To enhance the accuracy and local relevance of this framework, particularly in forested systems, we will integrate updated forest state modeling developed by our team[1,2]. This includes high resolution (30m) forest composition and structure derived from TREEMAP[3], with modeled disturbances (including timber harvests, wildfire and mortality) and growth to current conditions using the Forest Vegetation Simulator (FVS). FVS will further be utilized to estimate the impacts of forest growth on carbon stocks.

The combination of CARB's statewide carbon accounting framework with our forest modeling will allow us to produce a more accurate and current estimate of carbon stocks and dynamics that either approach alone. This hybrid framework is particularly important in Humboldt County, where forests dominate the landscape and drive the majority of carbon storage and year-over-year change. Our team has spent most of the past decade developing expertise in this type of geospatial forest carbon modeling. The methods and datasets we're able to bring to this project are state-of-the-art and will vastly improve the estimates and scenario analysis that are otherwise available.

We will implement a phased methodology corresponding to Tasks 1–3, beginning with development of a clear analysis and planning framework (Task 1), followed by construction of a countywide carbon inventory (Task 2), and culminating in a feasibility study identifying actionable strategies to enhance carbon sequestration while maintaining long-term ecosystem stability (Task 3). Our team is particularly well-positioned to tackle this work because we have deep local knowledge, established community relationships, and nearly a decade of experience modeling carbon flows under different management strategies on forested landscapes and evaluating farming practice impacts on soil organic carbon dynamics.

The project will produce a suite of internal deliverables intended to facilitate collaboration among the project team, County staff, and technical advisory committee members as well as public-facing

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[1] Fingerman et al. (2023). Climate and air pollution impacts of generating biopower from forest management residues in California. Environmental Research Letters, 18(3), 034038

[2] Buccholtz et al (2024). Biomass Estimation Methods for C-BREC and Related Projects. Spatial Informatics Group and Schatz Energy Research Center

[3] Houtman, Rachel M.; Leatherman, Lila S. T.; Zimmer, Scott N.; Housman, Ian W.; Shrestha, Abhinav; Shaw, John D.; Riley, Karin L. 2025. TreeMap 2022 CONUS: A tree-level model of the forests of the conterminous United States circa 2022. Fort Collins, CO: Forest Service Research Data Archive. https://doi.org/10.2737/RDS-2025-0032.

deliverables designed for community engagement and both near- and long-term implementation. These include:

**Key Project Deliverables**

1. Kick-off meeting notes and formal responses to questions from the Kick-off meeting
2. Finalized Project Scope and General Approach Table
3. Meeting agendas and notes from at least three Technical Advisory Committee meetings and one public meeting
4. Library of Resource Materials (Excel) and Literature and Data Review Summary document
5. Commented model scripts and data layers making the carbon inventory reproducible
6. Draft Humboldt Countywide Natural and Working Lands Carbon Stock Inventory Summary Report
7. Draft Carbon Sequestration Feasibility Study Report
8. (Draft) Humboldt Natural and Working Lands Carbon Stock and Management Study Report
9. (Final) Humboldt Natural and Working Lands Carbon Stock and Management Study Report

# Task 1: Project Planning Framework

The initial Project Planning Framework will start with a meeting between the County and our team to establish roles and desired outcomes of the project. We will also begin to compile relevant data, and to review plans, studies, reports, policies, laws and regulations during this period. Following this initial information gathering and coordination with project partners, we will refine the scope of work and adapt the guiding questions to ensure that the analysis and resulting deliverables are technically robust, policy-relevant, and responsive to County planning needs and community priorities.

Throughout the project, we will engage with local landowners, land managers, and community members to incorporate local knowledge, gather input on current and potential management practices, and ensure that the analysis remains grounded in community context and priorities.

## 1.1 Kick-Off and Project Alignment

The Project Planning Framework will begin with a structured Kick-Off Meeting between the County and our team, designed to align expectations, confirm roles, and establish a shared understanding of project objectives, data needs, and deliverables. Our team will facilitate the 2-hour Kick-Off meeting, with in-person and online options as necessary. We expect to continue collaboration between our team and the County staff throughout the project through regular, scheduled updates as well as informal exchanges on an as-needed basis.

This initial alignment and ongoing collaboration will ensure that all subsequent work is grounded in a clear, mutually agreed-upon framework. Though the scope and methodology for Tasks 2 and 3 will be finalized in collaboration with partners, below is our general approach for developing a county-wide carbon accounting framework and answering the guiding questions.

Task Deliverables:

- Kickoff meeting notes provided after the meeting
- Formal responses to questions from the Kickoff

## 1.2 Refinement of Guiding Questions and Analytical Framework

After aligning our understanding of project goals, objectives and useful deliverable elements, through the kick-off meeting and consultation with the County, we will refine and finalize the scope of work and solidify guiding questions and useful deliverable formats. Below are the County's guiding questions along with our reflections on the approach to be pursued:

1. What is the existing landscape aboveground, root carbon, and soil organic carbon stock and sequestration rate (per year)? How does this vary across land uses, land cover types, public vs private, and within County-owned land?
    - We will use most recent remote sensing data and literature-derived values to estimate current carbon stock. This will be aligned with CARB's NWL carbon accounting framework, updated with our forest state modeling. We will correlate the carbon stock and sequestration with existing data layers including land use, vegetation type and landownership. This analysis will help determine important land management activities to be included in the feasibility study.
2. How have carbon stocks changed over the past 10 years?
    - CARB's NWL Inventory shows trends over two decades prior to 2022. Their data show positive carbon sequestration rates over much of Humboldt County during the decade prior to 2022, though there are areas of negligible or even carbon losses (likely associated with timber harvests and wildfires). We will build on this analysis with more current stock estimates. Additionally, we will incorporate updated releases of remote sensing data and integrate intermediate datasets and disturbance records to increase temporal resolution rather than a static 10-year sequestration rate (to reduce sensitivity to the landscape status at the beginning and end of this period).
3. Where have carbon stocks increased? What land use/land cover and land management changes have contributed to this increase, and to what extent?
    - We will produce figures, maps and GIS layers to show locations where carbon stocks have increased over the past 10 years, disaggregated by landowner type, land cover and land use.
4. Where have carbon stocks decreased? What land use/land cover and land management changes have contributed to this decrease, and to what extent?
    - We will produce figures, maps and GIS layers to show locations where carbon stocks have decreased over the past 10 years, disaggregated by landowner type, land cover and land use. We will compare losses on forested landscapes to estimates of harvested wood products.
5. How stable are the existing carbon stocks against localized impacts such as wildfires and other climate hazards? What factors, both human-driven and not, influence this stability?
    - We will use wildfire probability and sea level rise projection geospatial data to evaluate locations where sequestered carbon is at risk. We will maintain carbon pool disaggregation to inform stability of carbon storage. For example, forest biomass will be disaggregated into size class, which has variable carbon stability when decomposing or during exposure to wildfire.
6. Where and through what active restoration, land use, and/or land management activities is there the greatest opportunity to optimize the carbon sequestration potential of the landscape while maintaining long-term stability of such stocks? Examples may include an assessment of forest management practices, agricultural practices, wetland restoration, native grassland restoration,

and reforestation, and analyses should include feasibility considerations such as cost or other likely barriers to implementation.

- We will evaluate carbon sequestration potential and stability of various land and resource management options, described in Task 3.

In addition to the questions identified by county staff in the RFP, we anticipate development of additional guiding questions through the community partner engagement process described in section 1.3 below. Some initial guiding questions we might seek to investigate include the following:

7. Over what timeframe do the proposed management activities produce carbon sequestration benefits? Many management practices may not show carbon benefit until decades in the future, though these benefits may be large and stable once they occur. How does the choice of carbon sequestration timeframe impact which solutions are understood to perform best?
8. Which identified management interventions offer the “low-hanging fruit” based on their economic characteristics? How might relative cost/profit impact prioritization of management interventions?
9. Which of the identified NWL carbon sequestration strategies can county and municipal-level agencies meaningfully impact?
10. Which land management impacts (beyond carbon sequestration) would be key to understand/quantify in order to build a more comprehensive decision matrix to guide real land management decisions?

Following the Kick-Off Meeting, we will refine and operationalize the guiding questions into a structured analytical framework that directly links data inputs to required outputs. For each guiding question, this will include identification of proposed deliverables that will help answer the question, methods and data sources to produce the deliverable and assumptions or constraints associated with the approach.

Task Deliverables [within 30 days of Kick-Off meeting]:

- Finalized Project Scope
- Finalized General Approach Table

## 1.3 Community Partner Engagement

Partner engagement will be conducted early in the process to incorporate local knowledge, share relevant resources, and ensure that proposed strategies are grounded in real-world land management practices. We will leverage the County’s and our own networks to outreach to key groups involved in land stewardship and resource management (landowners, managers, practitioners, agencies, tribal governments, and NGOs). We will facilitate a public meeting early in the process to keep interested parties apprised of project goals and methods, and to receive information on existing land management practices and interest in alternative opportunities for carbon sequestration. We will integrate findings from outreach and engagement into a final list of strategies to include in the Feasibility Study analysis. This engagement will strengthen the relevance, feasibility, and community acceptance of project outcomes.

With consultation from the County and community partners, we will also form a technical advisory committee (TAC) to help guide model boundaries, methodology development, and to ensure our results are effective in helping to answer guiding questions. Our team will facilitate at least 3 TAC meetings throughout the project timeline, to update the TAC on progress and to solicit input from TAC members. Our team is well-networked to form a diverse TAC involving government agencies, academic researchers, tribal governments, and both private and public land managers. Through the TAC and

public consultation processes, we would remain aware and respectful of any concerns that may emerge surrounding tribal data sovereignty or other landowner confidential land-use data and would seek to anonymize or if necessary to exclude any such sensitive information.

Task Deliverables:

- Meeting agendas and notes from at least three Technical Advisory Committee meetings
- Meeting agenda and notes from public meeting

## 1.4 Literature and Data Review

A literature review will establish the scientific and regulatory foundation for the project and ensure alignment with State and international carbon accounting standards. Additionally, a thorough data review will be conducted to determine sources for the most comprehensive, scientifically robust, and publicly accepted data products needed for analysis. This will include building on the County's pre-compiled datasets, adding datasets that our team works with frequently (such as TREEMAP, LANDFIRE and reported forest management treatment data). Where possible, we will use data inputs which align with the existing carbon inventory framework developed through the State's Carbon Inventory on Natural and Working Lands.

We plan to review a broad array of studies, reports, and strategic plans and to align our analysis with policies relevant to the analysis including:

- 2025 Humboldt County RCAP
- CARB Natural and Working Lands Inventory (2025 update)
- IPCC Guidelines
- 2017 Carbon Inventory Estimates from North Coast Resource Partnership
- CA 30 by 30 initiative to protect 30% of CA landscapes by 2030
- "Million Acre Strategy" to thin one million acres annually for wildfire risk mitigation
- AB 32 - CA Global Warming Solutions Act of 2006
- SB 32 - CA Global Warming Solutions Act of 2016
- AB 1757 - Climate Goal: Natural and Working Lands

A wide range of datasets are expected to inform this work, including remotely sensed data products, empirical plot-level measurements, disturbance and treatment records, and process-based model outputs. We've outlined some of the datasets we have already identified as potentially useful for this project.

Because climate—particularly moisture availability—is a major driver of vegetation productivity, wildfire behavior, and soil carbon dynamics, we anticipate incorporating climate datasets such as gridMET and CAL-Adapt. Terrain also strongly influences moisture balance, vegetation distribution, and disturbance patterns, making elevation-derived datasets important to the analysis. We expect to utilize USGS digital elevation models and associated terrain derivatives, including slope, aspect, and topographic wetness indices.

For soil carbon estimation, we will review and incorporate datasets that directly characterize soil properties and carbon content, including SSURGO, gNATSGO, SoilGrids (ISRIC), the FAO Global Soil Organic Carbon (GSOC) dataset, and CARB's NWL Inventory soil carbon model products. These datasets may also inform process-based soil carbon modeling approaches.

Quantification of aboveground biomass carbon requires detailed characterization of vegetation composition and structure. For forested systems, we plan to utilize our existing forest inventory framework, which is fundamentally based on Forest Inventory and Analysis (FIA) plot data spatially extrapolated across California via TREEMAP and subsequently grown forward in time using Forest Vegetation Simulator (FVS). We also plan to review and compare other vegetation and land cover datasets, including available TREEMAP vintages (2014, 2020, and 2022), LANDFIRE, CALVeg, the Land Use and Cover Inventory Database (LUCID), and satellite-derived MODIS products.

Because disturbance history is critically important for understanding carbon dynamics, we will compile datasets representing forest management activities and wildfire impacts. Forest treatment and harvest datasets may include CAL FIRE reporting, federal FACTS reporting, and the California Wildfire and Landscape Interagency Treatment Tracking System. Wildfire disturbance data will primarily be derived from CAL FIRE's Historical Wildland Fire Perimeters dataset and related severity products where available.

We will also review a range of existing modeling frameworks relevant to carbon stock estimation and sequestration analysis. Some of the relevant models that are used for process-based forest modeling such as Forest Vegetation Simulator (FVS) and our own California Biomass Residue Emission Characterization (C-BREC). Forest growth and disturbance dynamics models, including Forest Vegetation Simulator (FVS) and our California Biomass Residue Emissions Characterization (C-BREC) framework will be reviewed. Soil carbon and ecosystem process models of interest include DayCent, RothC, and CWEM-PEPRMT, as well as CARB's spatially explicit soil organic carbon modeling framework used in the California NWL Inventory. We also plan to evaluate COMET-Planner for estimating greenhouse gas impacts associated with conservation and land management practices.

This list will be further refined and expanded if awarded. We will also continue to review emerging datasets, modeling approaches, and scientific literature throughout the project to ensure that the analysis reflects current best practices and evolving methodologies.

Task Deliverables:

- Library of Resource Materials (Excel)
- Literature and Data Review Summary (Word)

These materials will directly inform methodological choices and ensure transparency and reproducibility.

# Task 2: Countywide Carbon Stock Inventory

## 2.1 Methodology Selection

Building on Task 1, we will develop a scientifically robust and policy-aligned methodology for estimating carbon stock and sequestration rate across Humboldt County's natural and working lands. Our approach will be anchored in the CARB Natural and Working Lands carbon accounting framework, with targeted enhancements to improve representation of forest systems and county-specific conditions.

We will apply and, where appropriate, refine CARB's established methodology for:

- Land classification and mapping: land cover will be classified into primary categories (forest land, shrubland, grassland/rangeland, wetlands, cropland, developed land, and other) using annual National Land Cover Database (NLCD) and LANDFIRE data layers: Existing vegetation

type (EVT), existing vegetation cover (EVC), and existing vegetation height (EVH). The 2024 land cover classification using NLCD is shown in Figure 1.

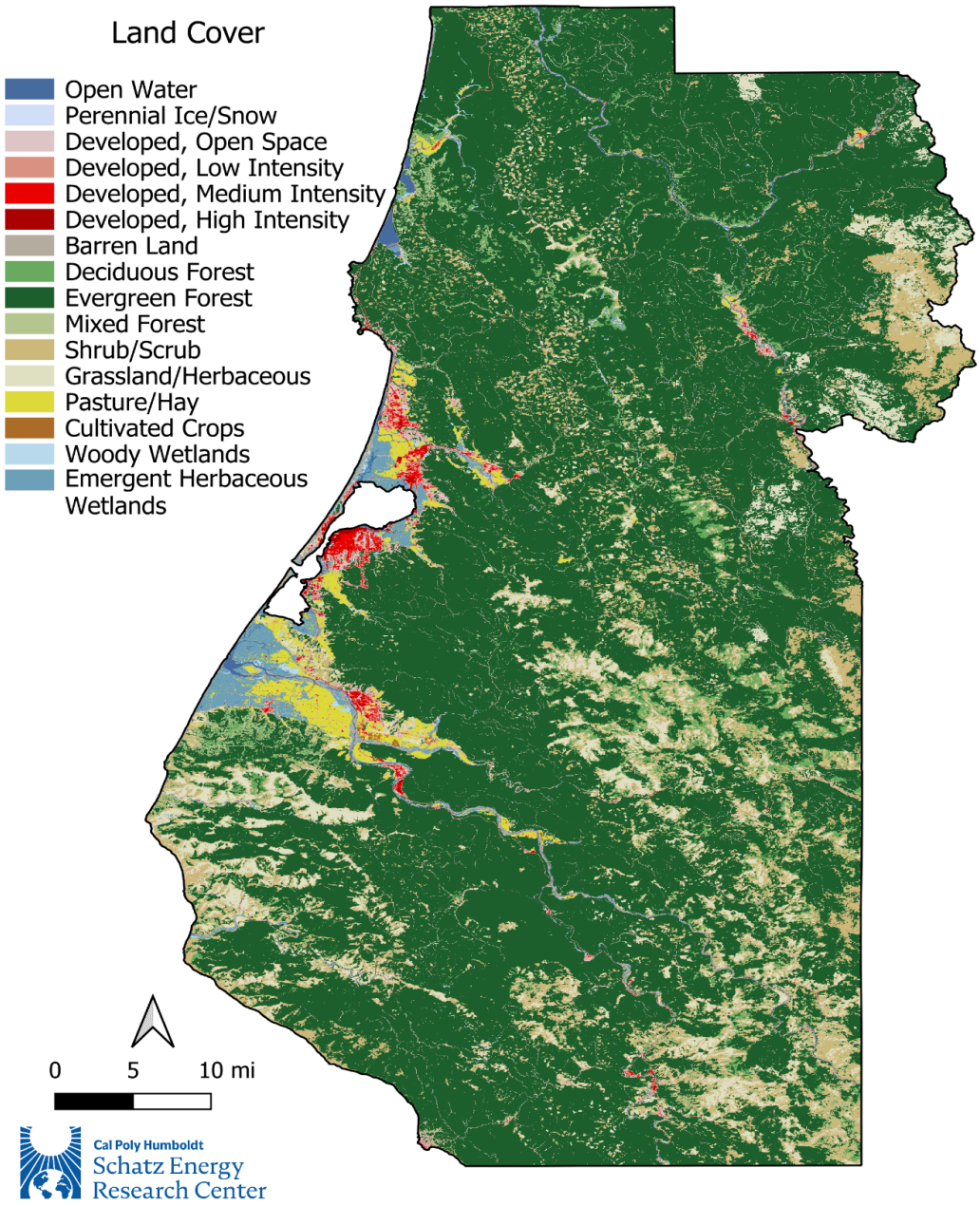



*Figure 1: Land Cover classifications of Humboldt County (2024). Data provided by Multi-Resolution Land Characteristics Consortium's National Land Cover Database (NLCD).*

- Carbon pool definitions: Carbon stocks will be estimated across standard pools consistent with CARB and IPCC guidance (including soil carbon and live aboveground biomass, live belowground biomass, dead wood, and litter)
- Soil carbon estimation: Organic and mineral soil carbon will be estimated based on land cover category. These will be estimated through a combination of developed soil characterization map

products and CARB's machine learning model, trained on thousands of soil samples, paired with environmental data layers.

- Shrubland carbon estimation: shrubland carbon stocks will be estimated based on remote sensed vegetation characteristics, plot-level data (BLM), Rangeland Vegetation Simulator and species-specific allometric equations.
- Grassland carbon stock: grassland carbon stock estimates will be based on remote sensed aboveground biomass herbaceous biomass from Rangeland Analysis Platform (RAP), with ecosystem specific root-to-shoot and carbon ratios.
- Wetland carbon stock: dependent on LANDFIRE-C estimates
- Temporal accounting of stock change: Changes in carbon stock will be calculated across available time points and annualized to estimate sequestration rates. Where possible, intermediate datasets and disturbance records will be incorporated to improve temporal resolution and reduce reliance on start-end year comparisons.

To improve spatial specificity, interpretability and applicability to management decisions, we will implement the following enhancements:

1. Further differentiate land cover classifications by ecological modifiers and management categories (i.e. forest species composition group, stocking density, tree size class/age, recently burned, recently harvested, and landowner categories). This refinement will improve our ability to explain where, how, and why carbon stocks and sequestration potentials are distributed across the landscape.
2. Where feasible, carbon pools in forested ecosystems will be maintained in a disaggregated form (e.g., by species, size class, and type). This enables improved estimation of carbon stability (decay rates and degree of combustion if exposed to wildfire), carbon fate under different management scenarios and opportunities for targeted interventions (e.g. biomass utilization)
3. Forest Modeling Enhancements: Because forests dominate Humboldt County's carbon balance, we will significantly enhance CARB's framework using our existing forest state and biomass modeling system. Forest state and inventory information will be derived from TREEMAP, a widely used data product characterizing forestlands at a 30m × 30m grid resolution based on USFS Forest Inventory Analysis and satellite imagery. This dataset will be updated using mapped disturbances (harvest, wildfire, mortality) and grown forward using Forest Vegetation Simulator (FVS). An example of these datasets is visualized in Figure 2, below. This process will produce a current, spatially explicit forest condition dataset, reflecting species composition, tree size distribution, stand density and disturbance history. This workflow enables modeling of potential forest management and disturbance scenarios using FVS, which generates tree-level outputs (species, size, volume removed) as well as stand-level metrics (basal area, density, growth). This will be important in Task 3, quantifying carbon outcomes from various forest management scenarios. To estimate biomass and carbon flows associated with management, residual (non-merchantable) biomass will be quantified using US Forest Service methodologies. This modeling framework will allow us to quantify current carbon stocks on the landscape as well as dynamic carbon fluxes associated with forest growth, harvest, wildfire and various fuel and residue management decisions.

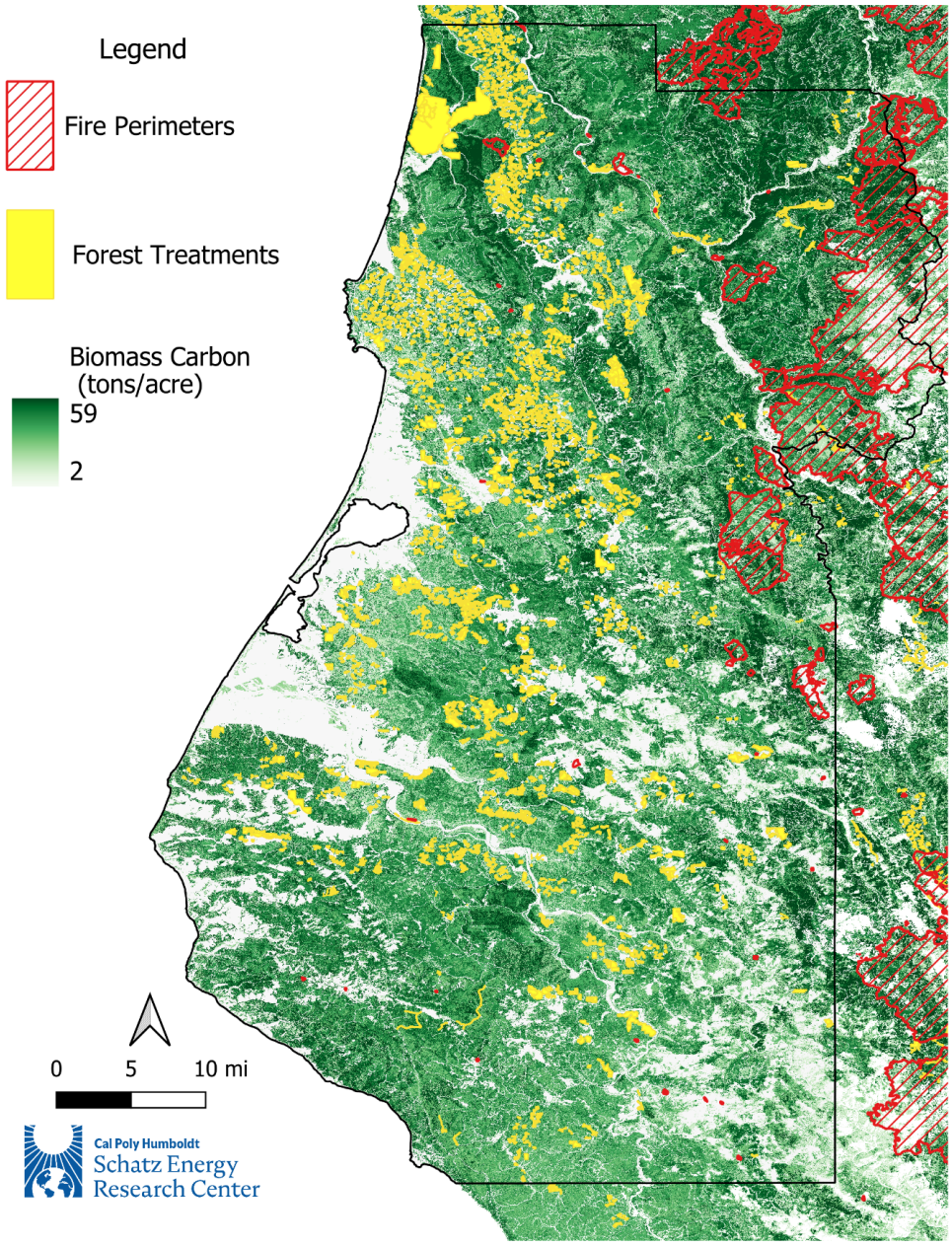



*Figure 2: Biomass carbon estimates across Humboldt County at a single point in time (2022, TREEMAP) with past 10 years of wildfire and forest treatment disturbances.*

## 2.2 Carbon Stock and Sequestration Analysis

Using the selected methodology, we will quantify existing carbon stocks and sequestration rates across the county. Spatially explicit datasets will be retained for land cover, land ownership, and other key land-use characteristics to support analyses addressing Guiding Questions 1-4, including current carbon stocks, 10-year changes, and the drivers of carbon increases and decreases.

We will generate geospatial estimates of carbon stocks across major carbon pools (e.g., aboveground biomass, belowground biomass, dead organic matter, and soil carbon) and produce GIS layers

representing the spatial distribution of these stocks. These outputs will support the development of maps, figures, and summary statistics that identify where carbon stocks are concentrated, where they are changing, and the underlying land-use and disturbance factors driving those patterns. To assess carbon stability, we will integrate spatial datasets representing disturbance risk and environmental stressors (e.g., wildfire probability, sea level rise extent) and evaluate their overlap with existing carbon stocks.

Carbon stock estimation methods will vary by land cover type and carbon pool, following CARB's NWL Inventory structure. Data inputs will rely primarily on remotely sensed datasets (e.g., biomass, vegetation structure, and disturbance history), supplemented with literature-derived conversion factors to translate observed variables into carbon stock estimates (e.g., species-specific biomass-to-carbon relationships). Soil carbon estimates will similarly follow established datasets and modeling approaches consistent with CARB and IPCC guidance.

Carbon stocks will be evaluated over approximately the past decade using all available time points for which consistent datasets exist. Rather than relying solely on start- and end-year comparisons, we will incorporate intermediate datasets where available to better capture temporal trends and reduce sensitivity to anomalies in any single year. Where necessary, we will interpolate between time points, incorporating observed land cover changes and disturbance events (e.g., wildfire, harvest) to adjust carbon stock trajectories. This approach enables a more robust characterization of both spatial and temporal dynamics of carbon storage and sequestration.

Our team has extensive experience modeling dynamic carbon processes in forested landscapes, integrating remotely sensed data, disturbance records, and literature-based parameters to estimate carbon stock changes over time. This experience will support the development of a consistent and defensible temporal framework for analyzing carbon dynamics across the County.

Consistent with the quality assurance and quality control (QA/QC) approach used in CARB's NWL Carbon Inventory, we will conduct intercomparisons between our results and existing carbon inventories to evaluate consistency and potential sources of bias. Given limitations in available sequestration estimates, these comparisons will be conducted at the level of major land cover and carbon pool categories (e.g., forest aboveground biomass, soil carbon, agricultural biomass). This process will help identify any systematic differences in total carbon stock estimates or sequestration trajectories and will inform refinement of assumptions and methods as needed.

## 2.3 Draft Inventory Report

Results will be synthesized into a clear, accessible report that communicates complex scientific findings to both technical and general audiences. This report will include maps, tables and graphics and will report key findings in accessible language. The draft report will be submitted to the County for review and then revised accordingly. The final report will be combined with the Feasibility Study, to form the final Humboldt Natural and Working Lands Carbon Stock and Management Study Report.

Task Deliverables:

- Draft Humboldt Countywide Natural and Working Lands Carbon Stock Inventory (Inventory)

## 2.4 Documentation and Replicability

To support long-term usability and to enable future updates to the inventory, we will provide the following:

1. Resulting GIS layers (carbon stock, 10-year sequestration rate)
2. Data sources and GIS layers used in the analysis
3. Documentation on analytical methods and assumptions
4. Model code including instructions for future use

# Task 3: Carbon Sequestration Feasibility Study

The Carbon Sequestration Feasibility Study will build upon the results of the Countywide Natural and Working Lands Carbon Stock Inventory to evaluate the potential for enhanced carbon sequestration across Humboldt County under a range of land management and restoration strategies. Through this analysis, we will identify best management practices for increasing carbon storage while maintaining practical feasibility across different land use and landowner groups. Findings will be documented in a Carbon Sequestration Feasibility Study report, which will be integrated with the Carbon Stock Inventory to make up the Humboldt Natural and Working Lands Carbon Stock and Management Study Report.

## 3.1 Feasibility Study Development

We will identify, model, and evaluate a suite of land management strategies designed to increase carbon sequestration and to stabilize carbon stocks across natural and working lands. Below is a list of scenarios we would seek to analyze, though it is subject to change pending data availability and input from client and community partner engagement.

Potential active restoration, land use, and/or land management activities for analysis:

1. Forest systems
    a. Thinning for wildfire risk reduction
    b. Application of prescribed fire
    c. Varied forest harvest cycle length
    d. Targeted conservation-oriented forestland acquisition and management
    e. Forest residue (slash pile) comparison of management strategies - burning or leaving on-site versus in-field biochar production
2. Rangeland and agricultural systems
    a. Transition from conventional to rotational grazing
    b. Compost application on cultivated and/or grazed lands
    c. Conversion of pastureland to silvopasture (planting deciduous fruit/nut/fodder trees in grazed pasture and grasslands)
    d. Biochar application on cultivated and/or grazed lands
3. Restoration Activities
    a. Wetland restoration, including floodplain reconnection, restoration of channel complexity/shape, beaver dam analogs in upriver creeks, restoration of saltwater marshes
    b. Native grass restoration - replacing shallow-rooted non-native annuals with deep-rooted native grass and forb species

c. Restoration of former cannabis cultivation sites (e.g. afforestation or production of willow or switchgrass for biochar production)

This list will be refined to ensure that selected scenarios are supported by available data and represent feasible, regionally relevant management pathways.

**Carbon Accounting and Temporal Dynamics**

Each selected scenario will be evaluated to estimate changes in carbon stock (by pool), annual and cumulative sequestration rates, and stability of stored carbon. A key consideration of this analysis is the temporal dynamics. Many land management strategies involve tradeoffs between short-term carbon losses and long-term gains. For example, prescribed burning or thinning forest treatments may result in near-term carbon losses (due to biomass removal or combustion), but may increase long-term carbon stability by reducing the risk of high-severity wildfire. To capture these dynamics, results will be presented across multiple time horizons (e.g., decadal intervals), allowing comparison of near- and long-term impacts.

All scenario analysis will include explicit documentation of key assumptions (e.g., treatment intensity, practice adoption rates), sources of uncertainty and sensitivity of results to major parameters. Where appropriate, we will present ranges or scenario comparisons to illustrate uncertainty and to support transparent interpretation of results.

Land management decisions are inherently multi-objective, often driven by economic, cultural, ecological and risk-reduction priorities in addition to carbon outcomes. For example, stream restoration projects are often implemented for critical habitat improvement, despite having potential carbon benefits. Accordingly, carbon outcomes will be presented within a broader decision-making context, rather than as a standalone metric.

For each scenario, we will assess both carbon performance and practical feasibility, including co-benefits and tradeoffs including:

- Technical feasibility (biophysical suitability, logistical constraints, and implementation requirements)
- Economic considerations (relative costs, funding opportunities, and potential revenue streams)
- Social and cultural considerations
- Ecological outcomes
- Implementation barriers (regulatory, logistical, or social constraints)

Where possible, these factors will be summarized alongside carbon outcomes to highlight synergies and tradeoffs across objectives. This will help the County and the public to more thoroughly evaluate feasibility of high-impact carbon sequestration pathways, through highlighting the nuance associated with any individual practice, laying the groundwork for future analysis of multi-objective management scenarios.

Task Deliverables:

- Draft Carbon Sequestration Feasibility Study Report

## 3.2 Integration with Inventory Report

The draft feasibility study will be submitted to the County for review and will be amended based on comments received. Afterward, the feasibility study will be integrated with the Humboldt Countywide

Natural and Working Lands Carbon Stock Inventory to create a comprehensive Draft Humboldt Natural and Working Lands Carbon Stock and Management Study Report.

## 3.3 Public Review and Finalization

A transparent public review process will ensure that the final report reflects community input and project partner perspectives. The Draft Humboldt Natural and Working Lands Carbon Stock and Management Study Report will be released to the public for a 30-day public review. Comments from reviewers will be reviewed and incorporated into a final report.

Task Deliverables:

- Humboldt Natural and Working Lands Carbon Stock and Management Study Report

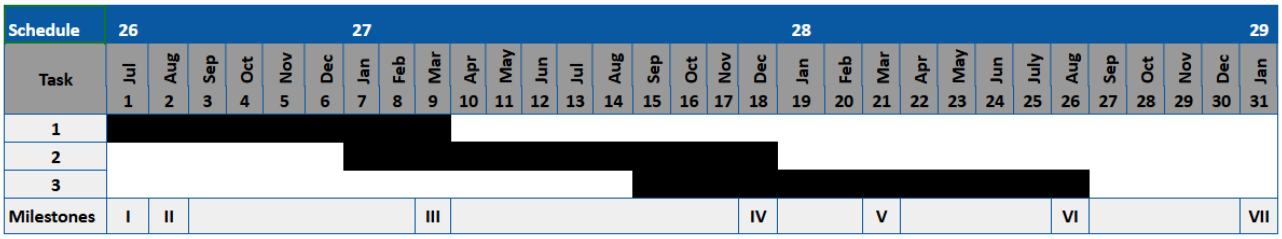
## 3.4 Board of Supervisors Presentation

We will support the County in presenting the final study to the Board of Supervisors in January 2029 by helping develop the presentation, providing technical expertise, and responding to questions as needed.

# Project Management, Budget & Timeline

The project manager (PM) will work closely with the Principal Investigator and other key personnel to ensure deliverables outlined in the project narrative and milestones outlined in the schedule are achieved. Regular coordination meetings and communication will take place among key personnel. Project expenditure reconciliation and variance reporting will occur monthly to ensure project spenddown aligns to project effort and scope. The PM and Schatz Center Operations Director will provide internal award management with oversight provided by Sponsored Programs (SPF). SPF administers Schatz Center grants and contracts and ensures accountability, efficiency, and transparency of its fiscal stewardship through annual audits in compliance with federal requirements. This includes tracking each award with a distinct project number, as well as compiling all required financial and technical reports as applicable, and overseeing compliance with federal, state, and local regulations. SPF currently manages just over $100 million dollars in grants and contracts. The proposed budget, schedule, and milestone roadmap are below:

| Funder Budget | |
|---|---|
| **Task** | **Task Total** |
| 1: Project Planning Framework | $75,940 |
| 2: Carbon Stock Inventory & Summary Report | $100,170 |
| 3: Sequestration Feasibility Study & Final Report | $173,890 |
| **Project Total** | **$350,000** |




| # | Milestones | Due Date |
|---|---|---|
| I | Contract execution | 7/2026 |
| II | Final Project Scope and General Approach | 8/31/2026 |
| III | Literature & Data Review Summary & Library of Resource Materials | 3/31/2027 |
| IV | Draft Carbon Stock Inventory Report | 12/31/2027 |
| V | Draft Carbon Sequestration Feasibility Study | 3/31/2028 |
| VI | Final Humboldt Natural and Working Lands Carbon Stock and Management Study Report | 8/31/2028 |
| VII | Board of Supervisors Presentation & Close Out | 1/31/2029 |

## C) Company Experience

### Project Team Experience

The Climate, Emissions, and Land Systems team at the Schatz Center has extensive experience in carrying out policy-engaged research at the interface of climate and management of natural and working lands. Our recent work on carbon accounting for forest and agricultural land management decisions has been supported by grant funding from agencies including the CA Governor's Office of Land Use and Climate Innovation, the CA Energy Commission, the CA Air Resources Board, CALFIRE, and the US Department of Energy. This broad support is a testament to the efficacy of our team and the quality of our research products.

Much of our recent work has focused on the carbon cycle impact of California's forest and woody biomass management activities. Between commercial harvest on California's working forestlands and the increasing number of acres the state treats each year for fire risk reduction and carbon sequestration, California forests generate tens of millions of tons of woody residues annually that are typically left or burned in the field, with impacts on air quality, climate, wildfire, and forest ecosystems. Developed with the support of a four-year research grant from the California Energy Commission, our California Biomass Residue Emissions Characterization (C-BREC) model is the preeminent tool for characterizing the climate impact of these management activities and of the various options available for making use of the biomass waste streams the create. The C-BREC model, and the underlying datasets we produce, are being used by policymakers at state and federal levels to shape the supports for forest thinning activity and the emerging markets for woody biomass.

Through that work, we have deepened our team's expertise in geospatial modeling of carbon flows on California forestlands and understanding the complex dynamics of forest management, carbon flows, and wildfire risk mitigation. Other recent work has focused on federal-level agricultural land management incentives, using state-of-the-art soil carbon modeling to evaluate the impact of conservation tillage and cover cropping activities on carbon accumulation and retention in agricultural soils.

While this expertise in the technical dimensions of carbon modeling for natural and working lands management is necessary to carry out the work described in your RFP, *it is not sufficient*. We would look forward to pairing those technical skillsets with our team's deep knowledge of Humboldt County land use practices and our ongoing engagement with private and public land managers, community members, and tribal nations.

### Schatz Energy Research Center

Founded in 1989, the Schatz Energy Research Center at California State Polytechnic University, Humboldt advances clean and renewable energy research, technology development, and education. Based in Arcata, California, the Schatz Center works in landscape-level carbon accounting, microgrids, offshore wind, bioenergy, transportation, and off-grid energy, and collaborates with Tribal Nations on technology deployment and other projects supporting Tribal energy sovereignty. We are active participants in the Humboldt Area Foundation's Tribal Climate Resilience Network and CORE Hub, and we seek to collaborate with Tribes, agencies, academic partners, and industry, to develop meaningful, timely research and advance shared understanding.

The Schatz Center team numbers about 50 employees, including students, faculty, and professional staff. Current partners and major funders include the California Energy Commission, California Public Utilities Commission, Humboldt Area Foundation, Humboldt Transit Authority, National Renewable Energy Laboratory, Pacific Gas & Electric, Pacific Northwest National Labs, Redwood Coast Energy

Authority, the World Bank, and others. The Center is a research unit affiliated with Cal Poly Humboldt that operates under the Cal Poly Humboldt Sponsored Programs Foundation (SPF).

**Cal Poly Humboldt Sponsored Programs Foundation (SPF)**

Cal Poly Humboldt Sponsored Programs Foundation (SPF) is an auxiliary organization at Cal Poly Humboldt under the direction and control of a Board of Directors. SPF is a California not-for-profit, public benefit corporation, having been incorporated in 1952. SPF's primary mission is to provide the campus community with professional and accessible Pre- and Post-award grant and contract services. SPF administers virtually all externally-funded grants/contracts, including those at the Schatz Center, and submits proposals to external funding agencies on behalf of Cal Poly Humboldt. SPF ensures accountability, efficiency, and transparency of its fiscal stewardship through annual audits in compliance with federal requirements. This includes tracking each award with a distinct project number, as well as compiling all required financial and technical reports as applicable, and overseeing compliance with federal, state, and local regulations. SPF currently administers over $200 million dollars in grants and contracts.

## D) References

| Entity: | California Air Resources Board |
|---|---|
| Contact: | Marieke Fenton |
| Email: | Marieke.Fenton@arb.ca.gov |
| Mailing Address: | 1001 I St, Sacramento, CA 9581 |
| Phone: | (279) 208-7850 |
| Services: | Characterizing forest management activities across California using a combination of forest modeling, remote sensing, and machine-learning techniques. Developing spatially-discrete supply curves for woody biomass available for different end uses. |

| Entity: | CA Governor's Office of Land Use and Climate Innovation |
|---|---|
| Contact: | Michael Maguire |
| Email: | Michael.Maguire@lci.ca.gov |
| Mailing Address: | 1400 10th Street in Sacramento, CA 95814 |
| Phone: | (916) 990-5523 |
| Services: | Wood waste generation and logistics analysis for in-forest and wildland-urban interface forest management activities in California. Spatial distribution of waste generation to support development of market offtakes necessary for forest management. |

| Entity: | International Council on Clean Transportation |
|---|---|
| Contact: | Nikita Pavlenko |
| Email: | n.pavlenko@theicct.org |
| Mailing Address: | 1750 Harvard St NW, Washington, DC 20009 |
| Phone: | 484-904-5282 |
| Services: | Development of a report analyzing the impact of cultivation practices such as conservation tillage and cover cropping to increase Soil Organic Carbon (SOC) accumulation. Modeling and meta-analysis of published experimental record. |

# KEVIN R FINGERMAN

+1 (510) 915-2339 | *kevin.fingerman@humboldt.edu*

## EDUCATION

**University of California, Berkeley**
Ph.D. Energy & Resources, 2012
M.S. Energy & Resources, 2007

**Wesleyan University – Middletown, CT**
B.A. (with honors) Earth & Environmental Sciences, 2002

## RESEARCH AND PROFESSIONAL EXPERIENCE

**Professor –** *Cal Poly Humboldt, Arcata, California* ***2024-present***

**Associate Professor –** *Humboldt State University, Arcata, California* ***2019-2024***

**Assistant Professor –** *Humboldt State University, Arcata, California* ***2013-2019***

Research focus on renewable energy, land systems and climate, life cycle assessment (LCA), biomass energy systems, and transportation fuel policy. Teaching responsibilities in the Departments of Environmental Science & Management and Environmental Resources Engineering. Coordinator of the Energy & Climate undergraduate major and Environmental Systems graduate program.

**Consultant Expert –** *Isometric, inc, London, UK* ***2023-2024***

Protocol development for life cycle GHG accounting for Biomass-based with Carbon Dioxide Removal (CDR) pathways.

**Sustainability Advisory Board member –** *SkyNRG* ***2021-present***

Advisory position with a leading provider of sustainable aviation fuel (SAF) globally. Member of an independent advisory board charged with providing feedback to C-suite decision makers on environmental and climate performance of fuel pathways and investments.

**Visiting Professor –** *Utrecht University, Netherlands* ***2020***

Visiting faculty in the Copernicus Institute of Sustainable Development at Utrecht University in the Netherlands. Developed collaborations, presented in research colloquia, and advised two Ph.D. candidates.

**Research Fellow –** *International Institute for Sustainability Analysis and Strategy* ***2013-2019***

Biomass energy impacts and policy research, funded by EU Directorate General for Energy. Led research team investigating greenhouse gas and biodiversity impacts of EU biomass pellet import from the Southeastern U.S. and developing sustainable biomass cost curves in support of EU policy formulation.

**Board of Directors member –** *Roundtable on Sustainable Biomaterials - Geneva, Switzerland* ***2013-2018***

Participated/led the development of the globally leading standard for evaluating and certifying the environmental and social performance of bioenergy and biomaterial supply chains. Assisted in management of a $1.5 million annual budget, fiscal planning, grant writing, and staffing.

**Lead Technical Officer –** *UN Food and Agriculture Organization - Rome, Italy* ***2012-2013***

Managed projects with the Global Bioenergy Partnership, including responsibility for $900,000 annual budget. Planned, managed, and chaired international meetings, bringing in experts and government officials from over 20 countries. Represented FAO at meetings in Sweden, Thailand, Indonesia, and Colombia.

**Natural Resource Specialist –** *European Commission/Winrock International* ***2011-2012***

Managed an international team in assessing the impact of Europe's renewable energy policy framework on climate, soil, air, and water resources in 19 countries globally. Prepared analysis and documentation for the Commission's mandated reporting to the European Parliament.

**Graduate Student Researcher –** *UC, Berkeley/California Air Resources Board* ***2006-2012***

Developed greenhouse gas and water life cycle assessment (LCA) methodologies for bioenergy systems and policies. Analyzed governance models and policy drivers for improving environmental performance of bioenergy systems. Generated policy recommendations for state and federal agencies.

## SYNERGISTIC ACTIVITIES

US Department of Energy DOE Inflation Reduction Act tax credits section 45Y & 48E technical review committee **2024/2025**

California Public Utilities Commission BioMAT Feed-in Tariff invited member -Technical Working Group **2021**

US Department of Energy Bioenergy Technologies Office triennial peer review *chair* **2021**

California Council on Science and Technology – expert panel member – beneficial uses of biomass from wildfire mitigation efforts **2019**

International Institute for Sustainability Analysis and Strategy – Research Fellow **2012-2019**

Roundtable on Sustainable Biomaterials – Board of Directors Member **2011-2018**

## SELECTED PUBLICATIONS

**Fingerman, K.,** Geronimo, C., Read, E., Wakeman, D., & Martin, J. I. (2025). Risks of crediting carbon offsets in low carbon fuel standards: lessons learned from dairy biomethane. *Energy Policy*, 206, 114738

**Fingerman, K. R.**, Qiriazi, J., Barrientos, C. L., Blasdel, M., Comnick, J. M., Harris, A. R., ... & Wright, M. C. (2023). Climate and air pollution impacts of generating biopower from forest management residues in California. *Environmental Research Letters*, *18*(3), 034038.

Younes, A., **Fingerman, K.**, Barrientos, C., Carman, J., Johnson, K., and Wallach, E. (2022). How the Renewable Fuel Standard can use garbage to pay for electric vehicles. *Energy Policy*. Vol. 166. *https://doi.org/10.1016/j.enpol.2022.112916.*

Geronimo, C., Vergara, S. E., Chamberlin, C., & **Fingerman, K.** (2022). Overlooked emissions: Influence of environmental variables on greenhouse gas generation from woody biomass storage. *Fuel*, *319*, 123839.

**Fingerman, K.** and Carman, J. (2021). California Biopower Impacts Project: Climate and Air Pollution Impacts of Generating Biopower from Forest Residues in California. California Energy Commission. Publication Number: CEC-500-2021-053

Sanchez, D. L., **Fingerman, K.,** Herbert, C., & Uden, S. (2021). Policy Options for Deep Decarbonization and Wood Utilization in California's Low Carbon Fuel Standard. *Frontiers in Climate*, *3*, 40.

**Fingerman, K**, L Iriarte, U Fritsche, GJ Nabuurs, I Staritsky, T Mai-Moulin, L Visser, and M Junginger. (2017) "Opportunities and risks for sustainable biomass export from the US Southeast to Europe." *Biofuels, Bioproducts, and Biorefining*. doi:10.1002/bbb.1845

T Mai-Moulin, L Visser, **K Fingerman**, W Elbersen, B Elbersen, G Nabuurs, *et al.* (2017) Sourcing overseas biomass for EU ambitions: Assessing net sustainable export potential from various sourcing countries. *Biofuels, Bioproducts, and Biorefining*. 10.1002/bbb.1853

McKone T, W Nazaroff W, P Berck, M Auffhammer, T Lipman, MS Torn, E Masanet, U Mishra, A Barrett, M Bomberg, **K Fingerman**, C Scown, B Strogen, and A Horvath. (2011). Grand Challenges for Life-Cycle Assessment of Biofuels. *Environmental Science & Technology* **45**(5): 1751–1756.

# Ryley Burton-Tauzer

Schatz Energy Research Center
California State Polytechnic University, Humboldt
1 Harpst St, Arcata, CA 95521

Cell: (707)599-2683
Office: (707) 826-4366
Ryley.Burton-Tauzer@humboldt.edu

## EDUCATION

**Humboldt State University** - Arcata, CA — 8/2021 – 7/2023
*Master of Science in Environmental Systems: Energy Technology and Policy*

**University of California, Berkeley**- Berkeley, CA — 8/2012 - 5/2016
*Bachelor of Science in Environmental Engineering Science*
*Minor in Forestry and Natural Resources*

## PROFESSIONAL EXPERIENCE

**Schatz Energy Research Center** - Arcata, CA — 8/2023 – Present
*Research Engineer (full-time)*
- Modeling timber residue generation and emissions profiles of various management options (in Python)
- Soil carbon accumulation modeling using DayCent Ecosystem Model

**Schatz Energy Research Center** - Arcata, CA — 11/2022 – 7/2023
*Graduate Student Researcher (part-time; ~20 hrs/week)*
- Conducted an experiment on the greenhouse gas emissions from food waste storage.
- Modeled spatially resolute GHG emissions associated with biochar production from timber residue using R and QGIS including both LCA emissions from biochar production and counterfactual emissions.

**Humboldt State University** - Arcata, CA — 8/2021 – 6/2023
*Teaching Associate (part-time; ~6 hrs/week)*
- Taught lab section of Undergraduate course on Environmental Science Methods

**Michael Love and Associates** - Arcata, CA — 9/2019 – 7/2021
*Associate Engineer (full-time)*
- Modeled hydraulics of channels, culverts, tide gates, and complex stream networks and floodplains using HEC-RAS
- Modeled watershed hydrology using TR-55 and HEC-HMS to inform design decisions
- Used equations developed by current research to analyze hydraulic structures, stable slough channel sizes, large wood stability and strength
- Drafted restoration design plans using AutoCAD Civil 3D

**Stillwater Sciences** - Arcata, CA — 6/2017 – 9/2019
*Geomorphologist/Engineer-in-Training (full-time)*
- 1D and 2D hydraulic modeling of river systems using HEC-RAS
- Engineering design plans using AutoCAD Civil 3D
- Analyzing hydrologic data, flow measurements
- Surveyed topography using Robotic Total Station and RTK, often in remote terrain
- Basis of Design technical writing

**Manhard Consulting**- Eureka, CA — 6/2016 – 5/2017
*Staff Engineer (full-time)*
- Analyzed hydrologic data and used ArcGIS tools to quantify impacts caused by water diversions
- Communicated with permitting agencies including Humboldt County, DFW, SWRCB, CALFIRE, NCRWQCB
- Calculated project stormwater runoff effects, designed rain-catchment infrastructure
- Site visits in rural Northern California; advised landowners on stormwater drainage improvements

**UC Berkeley Power Lab: Watershed Food Web Research** - Berkeley, CA — 9/2015 – 5/2016

*Research Assistant Research Assistant (part-time; ~8 hrs/week)*

- Practiced various laboratory procedures to study cyanobacteria in the Eel River watershed
- Used dichotomous key for identifying aquatic invertebrate phyla
- In-stream data collection

**Indian Health Service: Office of Environmental Health & Engineering** - Arcata, CA 6/2015 – 8/2015

*Engineering Technician (full-time)*

- Assisted with the design of community and individual water and wastewater systems
- Surveyed ground features and existing facilities, communicated with tribal members and officials
- Prepared preliminary engineering reports, assisted with construction plans, drafted specifications

**North Coast Laboratories**- Arcata, CA 6/2014 – 8/2014

*Assistant (full-time)*

- Took preliminary sample observations and preserved water samples
- Communicated water quality concerns and testing capabilities with clients

**Sponsored Projects for Undergraduate Research**- UC Berkeley 6/2013 – 8/2013

*Research Assistant (part-time; ~5 hrs/week)*

- Conducted independent fieldwork identifying seedling species and survival, organized presentable data

PUBLICATIONS ·

- Burton-Tauzer, Ryley A., "Food waste storage gaseous emissions detection and quantification using infrared spectroscopy" (2023). Cal Poly Humboldt theses and projects. 679. https://digitalcommons.humboldt.edu/etd/679

CERTIFICATIONS ·

- Engineer-in-Training certification (EIT 164684)
- Swift Water Rescue Certification
- Wildland Firefighter Type 2 (FFT2)

FELLOWSHIPS/AWARDS·

- Agriculture Research Institute (ARI) Science Fellowship (2022)
- Sanctuary Forest Scholarship recipient (2012)
- Trinidad Chamber of Commerce Scholarship recipient (2012)

ACTIVITIES/COMMUNITY INVOLVEMENT

- President of Humboldt Soccer League (nonprofit), HSU Women's Soccer, 2021-22 California Collegiate Athletic Association (CCAA) Academic Team, volunteer assistant coach for High School girls' soccer, involved in Community Futsal Court Project design.
- Participation in family timber ranch, grazing manager, writing California Forest Improvement Plan, planting trees, carbon farm planning
- Member/Volunteer of Humboldt County Prescribed Burn Association

# Eli S. Wallach

*Curriculum Vitae*

Eli.wallach@humboldt.edu | +1 707-382-7904

## EDUCATION

**B.S. | Environmental Resources Engineering –** Humboldt State University **2018**

**A.S. | Welding Technology –** Portland Community College **2013**

## PROFESSIONAL APPOINTMENTS/EMPLOYMENT

**RESEARCH ENGINEER –** *Schatz Energy Research Center* **2019-Present** Humboldt State University (Arcata, CA)
Offshore Wind; Energy Access; Climate Impacts; Data Science; Project Management (2021 to present) Project Manager: Seabird 3D Distribution and Relative Risk from CA Offshore Wind (March 2022 to present)

**ENGINEERING TECHNICIAN –** *Schatz Energy Research Center* **2018-2019** Humboldt State University (Arcata, CA)
Offshore Wind; Energy Access; Climate impacts; Data Science

**UNDERGRADUATE RESEARCH ASSISTANT** – *Schatz Energy Research Center* **2017-2018** Humboldt State University

**FABRICATOR / MECHANICS ASSISTANT** – *Alve's Incorporated* **2015-2016** Fabrication; System Design; Equipment Maintenance

## AWARDS & HONORS

Roscoe-Schenler grant for outstanding potential in Environmental Resources Engineering. **2017**

Homer Arnold Award for outstanding achievement in research for undergraduate work **2018**

Meritorious winners in the 2018 COMAP global math modeling competition **2018**

## PEER-REVIEWED PUBLICATIONS

Wallach, ES, NL Lam, E Nuwagira, D Muyanja, M Tayebwa, L Valeri, AC Tsai, J Vallarino, JG Allen, and PS Lai (In Press). "Effect of a solar lighting intervention on fuel-based lighting use and exposure to household air pollution in rural Uganda: A randomized controlled trial". In: Indoor Air.

Sundararajan, R, H D'Couto, J Mugerwa, M Tayebwa, E Nuwagira, D Muyanja, B Kakuhikire, NL Lam, ES Wallach, M O'Wiens, M Ponticiello, D Stanistreet, AC Tsai, J Vallarino, JG Allen, D Muyanja, MG Shrimer, E Nuwagira, and PS Lai (2022). "Use, cost-effectiveness, and end user perspectives of a home solar lighting intervention in rural Uganda: a mixed methods, randomized controlled trial". In: Environmental Research Letters 7, p. 015002.

## OTHER PUBLICATIONS AND REPORTS

Wallach, Eli, Charles Chamberlin, Arne Jacobson, Stephanie R. Schneider, Sophie B. Bernstein, Sadie Trush, David G. Ainley, Scott B. Terrill, and Sharon H. Kramer. 2025. Seabirds in 3D: A Framework to Evaluate Collision Vulnerability with Future Offshore Wind Developments. Humboldt, CA: Schatz Energy Research Center.

Wallach, Eli., Charles Chamberlin, Stephanie Schneider, Sophie Bernstein, Sadie Trush, Sharon Kramer, Scott Terrill, David Ainley, Arne Jacobson (2025). Seabirds in 3D: A Framework to Evaluate Collision Vulnerability with Future Offshore Wind Developments. Interim Project Report #2: Assessing Tradeoffs between Seabird Density at Collision Risk Height and Wind Facility Performance Humboldt, CA: Schatz Energy Research Center.

Schneider, Stephanie R., Eli Wallach, Charles Chamberlin, Sophie B. Bernstein, Sadie Trush, David G. Ainley, Scott B. Terrill, Sharon H. Kramer, R. Glenn Ford, Janet Casey, Jarrod A. Santora, Lisa Ballance, and Arne Jacobson. 2024. *Seabirds in 3D: A Framework to Evaluate Collision Vulnerability with Future Offshore Wind Developments – Interim Project Report #1: Estimating Collision Vulnerability of the Seabird Community Across a Segment of the California Current System.* Prepared by H. T. Harvey & Associates, the Schatz Energy Research Center, R. G. Ford Consulting Company, NOAA Southwest Fisheries Science Center, and Oregon State University. Prepared for the California Energy Commission and published by the Schatz Energy Research Center: Humboldt, CA. schatzcenter.org/publications.

Ochieng C, Lam NL, Wallach ES. "Characterizing electric cooking appliance users: An analysis of the World Bank Multi-Tier Framework Surveys". World Bank Technical Report

Lam, Nicholas L, Amod K Pokhrel, Omprakesh Kurmi, Maia Cheli, and Eli S Wallach (2021). *Maximizing the benefits of clean household energy in peri-urban Nepal*. Tech. rep. Clean Cooking Alliance.

Lam NL, Wallach ES, Hsu C, Harrison K, Khan S, Sridhar P, Jacobson A. *Use cases and cost breakdowns of off-grid refrigeration systems* (OGReS). 2020. Energy Savings Trust.

Lam NL, Wallach ES, Hsu CW, Purohit P, Klimont Z, Jacobson A, Alstone P. *The dirty footprint of the broken grid: The impacts of fossil fuel backup generators in developing countries*. 2019. International Finance Corporation.

# Kayla Corder

Kayla.Corder@humboldt.edu • (707) 834-5700

## EDUCATION

**Cal Poly Humboldt, Arcata, CA** **May 2013**

*Bachelor of Science, Business Administration*

## PROFESSIONAL EXPERIENCE

**Schatz Energy Research Center, Arcata, CA** **Jan 25 – Present**

*Project Manager in Offshore Wind and Land Use and Emissions*

- Administrative and analytical work in collaboration with the project team leads
- Support project and proposal planning and project execution
- Provide project leadership to the team with a focus on meeting project objectives and deadlines while keeping projects on time and within budget

**Eddy Alexander, Eureka, CA** **Nov 22 – Jun 24**

*Senior Account Manager*

- Developed a deep understanding of clients and their needs, goals, and objectives
- Provided strategic guidance and leadership to clients
- Presented deliverables and performance reports
- Communicated work plans and client requirements to the broader account team
- Managed marketing campaigns and budgets

**Bear River Casino Resort, Loleta, CA** **Mar 20 – Nov 22**

*Director of Marketing*

- Developed and managed a multimillion-dollar annual marketing budget
- Restructured loyalty program driving greater player performance and lower reinvestment rates
- Transitioned low-level loyalty program tiers from direct mail to email, reducing print costs and increasing email marketing database
- Championed and launched a website redesign, increasing visits and sessions
- Oversaw the creation, development, and execution of all casino programs, promotions, and events
- Ideated, proofed, and approved all marketing materials

**Blue Lake Casino Hotel, Blue Lake, CA** **Jun 16 – Feb 20**

*Marketing Supervisor*

- Managed talent booking, budgeting, and marketing for national and local acts
- Generated over $1M in event ticket sales revenue
- Lead special event planning and coordination for all casino entertainment offerings
- Proofed and approved all event marketing materials
- Governed email and digital marketing initiatives
- Hired, trained, and supervised department staff

# E) Staff Experience

PROJECTS & EXTRACURRICULAR

**Changing Tides Board Member** **Jan 23 - Present**

- Provide governance and oversight of the executive director, strategic planning initiatives, financial matters, legal compliance, and board development.
- Participate in fundraising efforts and resource development
- Assist in community engagement and advocacy

**Lost Coast Rotaract Fundraising Chair** **Jun 15 – Jul 16**

- Lead fundraising efforts for the organization
- Provided reports and updates at meetings
- Recruited club members to participate in fundraising events and/or join the fundraising committee

SKILLS

**Certifications:** Foundations of Project Management – Google, The Fundamentals of Digital Marketing – Google, Social Marketing Certification – Hootsuite Academy, Teaching English as a Foreign Language

**Computer software/ frameworks:** Microsoft Suite, Google Workspace, Birdview, Mailchimp, Constant Contact, Asana, Salesforce

# F) Rates

| Loaded Hourly Rate Schedule | |
|---|---|
| **Classification** | **FY26 7/1/26-6/30/27** |
| Faculty Research Associate, Operations Director | $168 |
| Senior Policy Analyst, Senior Research Analyst/Engineer/Scientist, Senior Development Manager | $151 |
| Research Analyst/Engineer/Scientist, Office Manager, Project Manager, Communications Specialist | $137 |
| Research Assistant, Administrative Assistant | $84 |
| Student Assistant | $67 |
| ***Rates increase 5% annually on July 1** | |

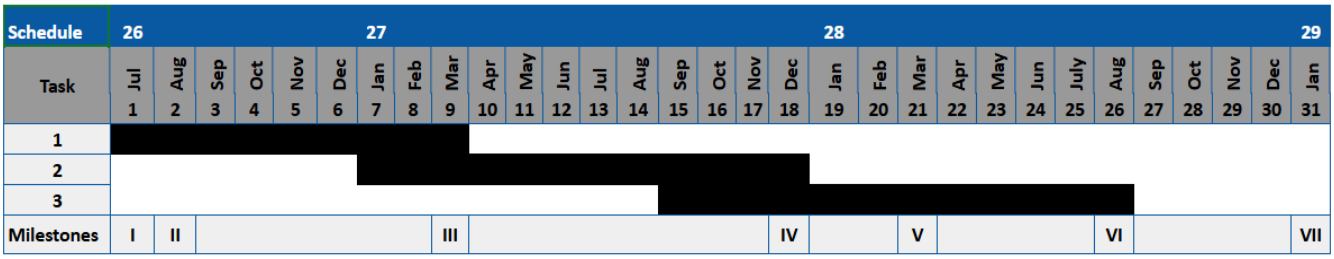
| Proposed Funder Budget | |
|---|---|
| **Task** | **Task Total** |
| 1: Project Planning Framework | $75,940 |
| 2: Carbon Stock Inventory & Summary Report | $100,170 |
| 3: Sequestration Feasibility Study & Final Report | $173,890 |
| **Project Total** | **$350,000** |

| Proposed Payment Schedule | | |
|---|---|---|
| **Milestones** | **Due Date** | **Amount** |
| Upon contract execution | n/a | $35,000 |
| Final Project Scope and General Approach | 8/31/2026 | $16,876 |
| Literature & Data Review Summary & Library of Resource Materials | 3/31/2027 | $59,064 |
| Draft Carbon Stock Inventory Report | 12/31/2027 | $65,170 |
| Draft Carbon Sequestration Feasibility Study | 3/31/2028 | $57,964 |
| Final Humboldt Natural and Working Lands Carbon Stock and Management Study Report | 8/31/2028 | $96,605 |
| Board of Supervisors Presentation & Close Out | 1/31/2029 | $19,321 |
| | **Project Total** | **$350,000** |

## G) Timeline

Our research team is prepared to commence operations on **July 1, 2026**, maintaining the dedicated capacity required to ensure rigorous project execution through its conclusion in **January 2029**. The following **Project Schedule and Milestones** outline our strategic approach; we welcome the opportunity to refine these parameters during the initial kick-off meeting to ensure full alignment with project objectives.

| # | Task Description |
|---|---|
| 1 | Project Planning Framework |
| 2 | Countywide Carbon Stock Inventory |
| 3 | Carbon Sequestration Feasibility Study |




| # | Milestones | Due Date |
|---|---|---|
| I | Contract execution | 7/2026 |
| II | Final Project Scope and General Approach | 8/31/2026 |
| III | Literature & Data Review Summary & Library of Resource Materials | 3/31/2027 |
| IV | Draft Carbon Stock Inventory Report | 12/31/2027 |
| V | Draft Carbon Sequestration Feasibility Study | 3/31/2028 |
| VI | Final Humboldt Natural and Working Lands Carbon Stock and Management Study Report | 8/31/2028 |
| VII | Board of Supervisors Presentation & Close Out | 1/31/2029 |

## H) Proof of Insurance

# CERTIFICATE OF COVERAGE

DATE (MM/DD/YYYY): 6/25/2025

**PRODUCER**

Alliant Insurance Services, Inc.
560 Mission Street, 6th Floor
San Francisco CA 94105

**NAMED COVERED PARTY**

Cal Poly Humboldt Sponsored Programs Foundation
PO Box 1185
Arcata CA 95518-1185

THIS CERTIFICATE IS ISSUED AS A MATTER OF EVIDENCE ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE MEMORANDUM(S) OF COVERAGE BELOW.

THIS CERTIFICATE OF COVERAGE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING COVERAGE PROVIDER, AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: IF THE CERTIFICATE HOLDER IS AN ADDITIONAL COVERED PARTY, THE MEMORANDUM OF COVERAGE MUST BE ENDORSED. A STATEMENT ON THIS CERTIFICATE DOES NOT CONFER RIGHTS TO THE CERTIFICATE HOLDER IN LIEU OF SUCH ENDORSEMENT(S).

IMPORTANT: IF SUBROGATION IS WAIVED, SUBJECT TO THE TERMS AND CONDITIONS OF THE MEMORANDUM(S) OF COVERAGE AN ENDORSEMENT MAY BE REQUIRED. A STATEMENT ON THE CERTIFICATE DOES NOT CONFER RIGHTS TO THE CERTIFICATE HOLDER IN LIEU OF SUCH ENDORSEMENT(S).

**PROGRAM AFFORDING COVERAGE**

**A:** AORMA WC/Safety National Cas.

**B:**

**C:**

**COVERAGES**

THIS IS TO CERTIFY THAT THE COVERAGE IS AFFORDED TO THE ABOVE NAMED MEMBER, AS PROVIDED BY THE MEMORANDUM(S) OF COVERAGE, FOR THE PERIOD SHOWN BELOW, NOT WITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN. THE COVERAGE AFFORDED BY THE PROGRAM DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS, AND CONDITIONS OF SUCH MEMORANDUM(S) OF COVERAGE. THE FOLLOWING COVERAGE IS IN EFFECT.

| JPA LTR | TYPE OF COVERAGE | MEMORANDUM NUMBER | COVERAGE EFFECTIVE DATE (MM/DD/YY) | COVERAGE EXPIRATION DATE (MM/DD/YY) | LIMITS | |
|---|---|---|---|---|---|---|
| A | **GENERAL LIABILITY**<br>[X] COMMERCIAL GENERAL LIABILITY<br>[ ] CLAIMS MADE [X] OCCUR<br>[X] Prof Liability<br>[X] Contractual Liab<br>GEN'L AGGREGATE LIMIT APPLIES PER:<br>[X] MEMORANDUM [ ] PROJECT [ ] LOC | AORMA-2526-01 | 7/1/2025 | 7/1/2026 | EACH OCCURRENCE | $ 5,000,000 |
| | | | | | FIRE DAMAGE (Any one fire) | $ |
| | | | | | MED EXPENSE (Any one person) | $ 5,000 |
| | | | | | PERSONAL & ADV INJURY | $ 5,000,000 |
| | | | | | GENERAL AGGREGATE | $ 5,000,000 |
| | | | | | PRODUCTS-COMP/OP AGG | $ 5,000,000 |
| | | | | | Sexual Abuse | $5,000,000 |
| A | **AUTOMOBILE LIABILITY**<br>[X] ANY AUTO<br>[X] ALL OWNED AUTOS<br>[X] SCHEDULED AUTOS<br>[X] HIRED AUTOS<br>[X] NON-OWNED AUTOS | AORMA-2526-01 | 7/1/2025 | 7/1/2026 | COMBINED SINGLE LIMIT (Ea accident) | $ 5,000,000 |
| | | | | | | $ |
| A | **WORKERS' COMPENSATION AND EMPLOYERS LIABILITY**<br>ANY PROPRIETOR/PARTNER/ EXECUTIVE/OFFICER/MEMBER EXCLUDED?<br>IF YES, DESCRIBED UNDER SPECIAL PROVISION BELOW | AORMA-WC-2526 | 7/1/2025 | 7/1/2026 | [X] WC STATUTORY LIMITS [ ] OTHER | |
| | | | | | E.L. EACH ACCIDENT | $ 5,000,000 |
| | | | | | E.L. DISEASE – EA EMPLOYEE | $ 5,000,000 |
| | | | | | E.L. DISEASE – POLICY LIMIT | $ 5,000,000 |
| | **OTHER** | | | | | |
| | **OTHER** | | | | | |

**DESCRIPTION OF OPERATIONS/LOCATIONS/VEHICLES/EXCLUSIONS ADDED BY ENDORSEMENT/SPECIAL/PROVISIONS**

Note: Workers' Compensation Coverage is provided as evidence only.
Evidence of coverage only.

**CERTIFICATE HOLDER**

Evidence of Coverage

**CANCELLATION**

SHOULD ANY OF THE ABOVE DESCRIBED MEMORANDUM(S) OF COVERAGE BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE MEMORANDUM(S) OF COVERAGE PROVISIONS.

AUTHORIZED REPRESENTATIVE Mima Song