Appendix C

Stakeholder Engagement

Stakeholder Working Group Meeting 1

ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

MAY 3, 2023

Using Zoom Meeting

- **A** **Mute / Unmute:** Mutes and unmutes your microphone. Please stay on mute unless you are invited to speak.
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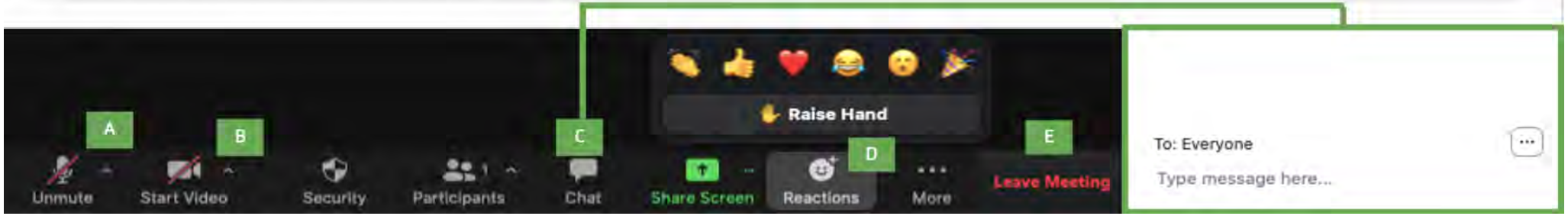

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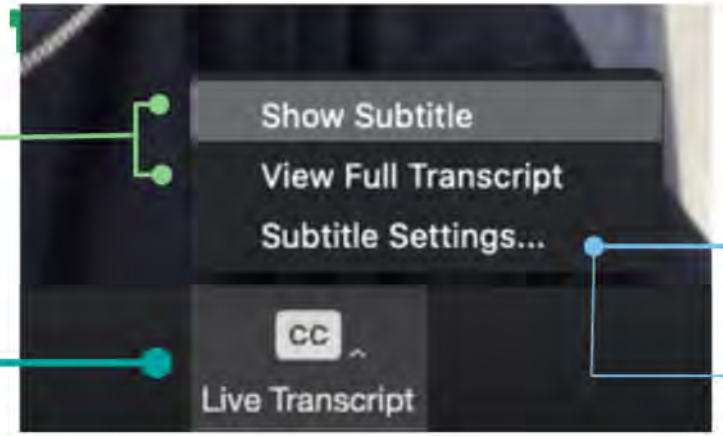
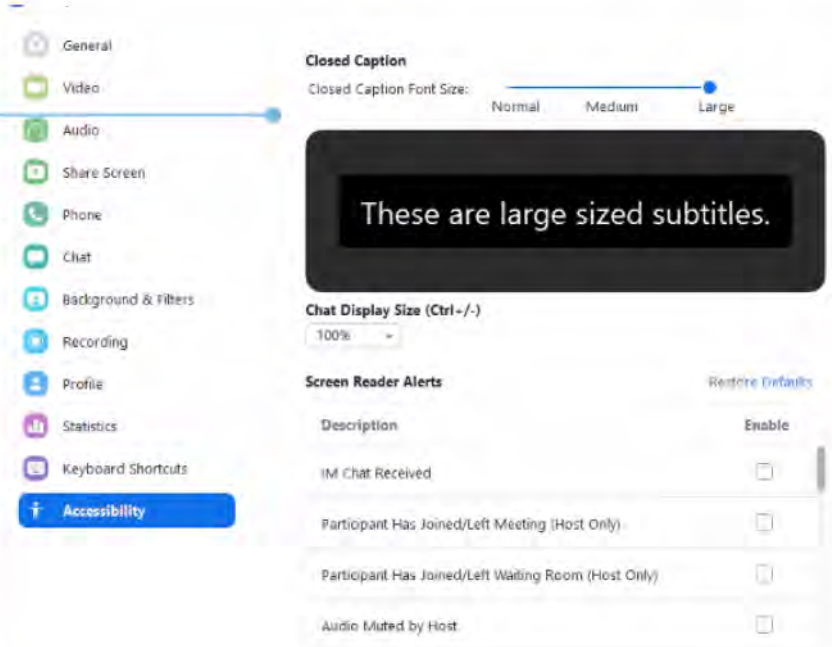




Agenda

- Project Overview
- Benefits to Stakeholders
- State of Sequestration in California
- Methodology Overview
- Preliminary Carbon Stock Results
- Questions and Discussion
- Wrap Up and Next Steps

Project Overview

Project Team

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

- Amaury Berteaud, Sustainability Program Manager
- Gina Schmidt, GIS Coordinator
- Will Condon, Associate Planner

ASCENT

- Poonam Boparai, Principal-in-Charge
- Hannah Kornfeld, Project Manager
- Fred Hochberg, Senior Climate Change Specialist
- Liz Luck, Climate Change Analyst

MANHAN

City Explained, Inc.

What is the Natural and Working Lands Climate Mitigation and Resiliency Study?

- Funded by a CA Dept of Conservation Sustainable Agricultural Lands Conservation (SALC) grant
- Create a geospatial carbon model that calculates the carbon stored in natural and working lands of the Monterey Bay Area (i.e., Monterey, San Benito, Santa Cruz Counties)
- Engage member jurisdictions and partner agencies/organizations
- Identify strategies to enhance climate resilience and carbon sequestration potential

Benefits to Stakeholders

Benefits to Stakeholders

- Member Jurisdictions
  - Climate action plan support
  - Data to inform land use decisions
  - Data to inform specific plans and general plan updates
  - Data to inform regional modeling
- Agricultural Stakeholders
  - Opportunities to share best practices
  - Opportunities to collaborate with local governments
  - Future funding opportunities
- RCDs & Conservation Groups
  - Opportunities to collaborate with local governments
  - Data to inform future policies and plans
  - Future funding opportunities
- Equity Stakeholders
  - Opportunities to voice equity considerations
  - Opportunities to connect with stakeholders
  - Future funding opportunities

State of Sequestration in California

History of Carbon Sequestration Quantification Efforts in California

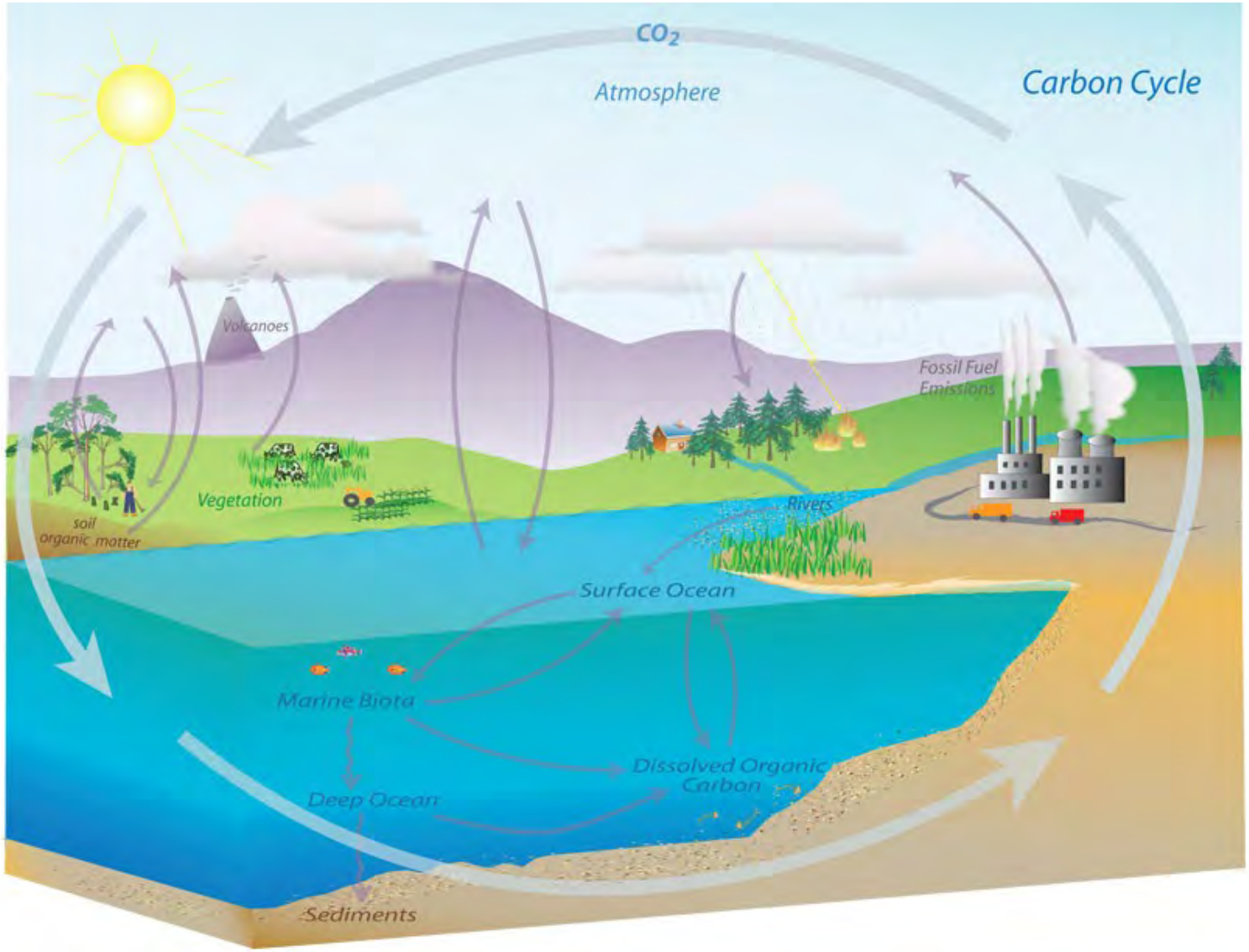
- 2007: CARB's GHG inventory included an estimate of carbon sequestration in forests and rangelands
- 2016: CARB published the Forestry & Other Natural Lands Inventory (2001-2010)
- 2018: CARB published the Inventory of Ecosystem Carbon in California's Natural and Working Lands (NWL)
- 2019: Merced County was the first county to release a spatially based carbon stock inventory using TerraCount
- 2020: CARB refined the 2018 NWL inventory
- 2022: CARB published new NWL inventory and projections

Carbon Sequestration as a Climate Solution

- Natural and Working Lands
  - California 2030 Natural and Working Lands Climate Change Implementation Plan
  - EO N-82-20: Conserve 30% of state's land by 2030
  - CNRA 2022: Natural and Working Lands Climate Smart Strategy
  - One Million Acre Strategy
- Carbon Neutrality
  - AB 1279 (2022): statewide carbon neutrality by 2045
  - 2022 Scoping Plan to Achieve Carbon Neutrality
  - AB 1757 (2022): natural carbon sequestration targets and standard quantification methods
  - Opportunities for local offset market

Carbon Stock Methodology

Carbon Reservoirs and Flow

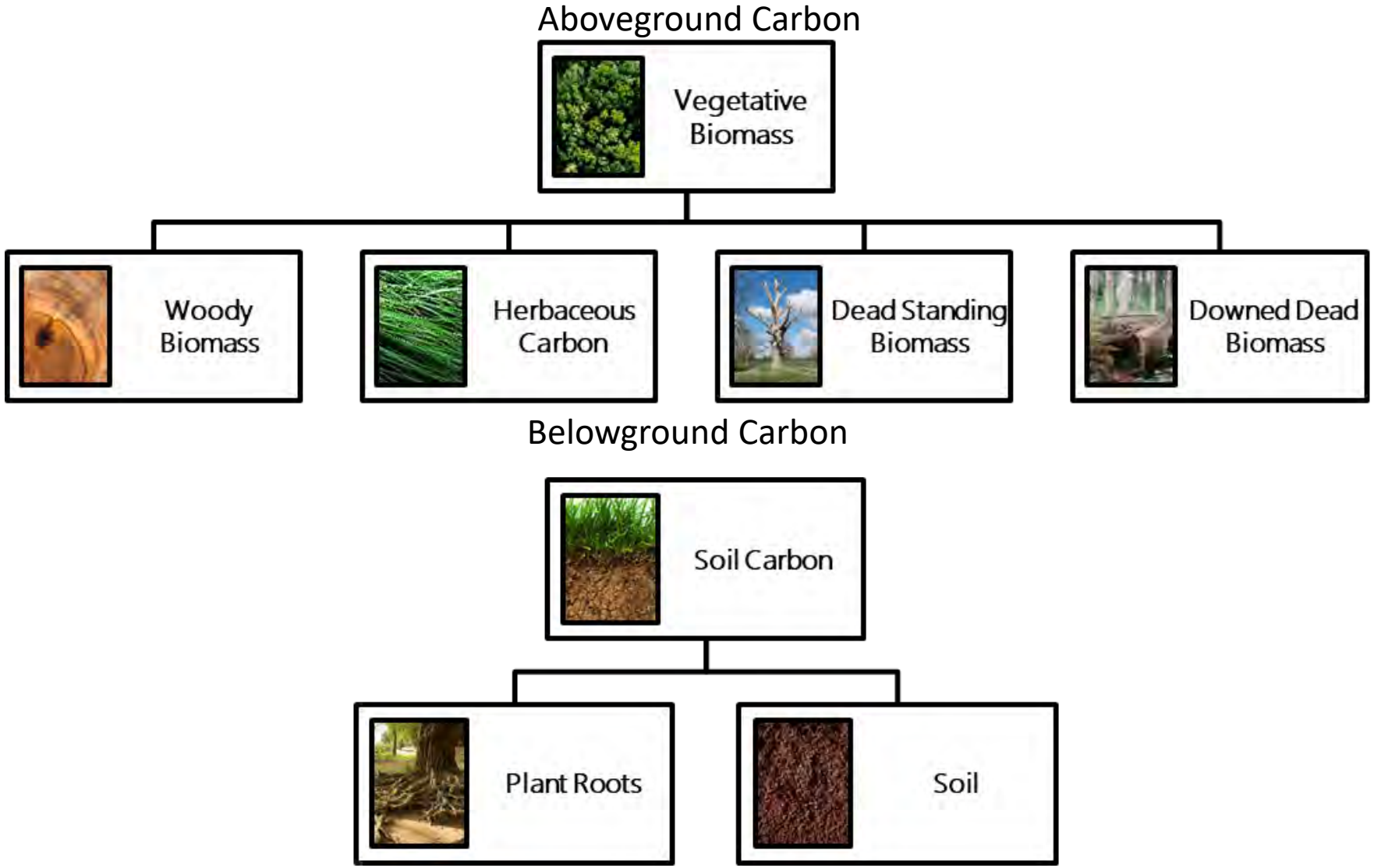


Source: NOAA 2019

Key Terms

- Carbon pool = a system which has the capacity to accumulate or release carbon, considered to be a reservoir
- Carbon sequestration = the process of increasing the content of a carbon pool other than the atmosphere
- Carbon stock = the absolute quantity of carbon held within a pool at a specified time
- Natural Lands = lands consisting of forests, grasslands, deserts, freshwater and riparian systems, wetlands, coastal and estuarine areas, watersheds, wildlands, wildlife habitat, land uses for recreational purposes (e.g., city parks, urban forests)
- Working Lands = lands used for farming, grazing, or the production of forest products

Carbon Stock Inventory Anatomy



Data Sources: Spatial Data (Aboveground)

- Grasslands, Forests, Barren, Shrublands, Urban
  - CAL FIRE Fire and Resource Assessment Program (FRAP) (2015)
    - Coordination with the CDFW VegCamp program and USDA Forest Service Region 5 Remote Sensing Laboratory data
- Agriculture
  - Department of Water Resources' Statewide Cropping (2016)
    - Based on aerial photography, remote sensing multi-spectral imagery, agronomic analysis and ground verification
- Wetlands
  - National Wetland's Inventory (2016)
    - Created by USFW, provides special characteristics such as montane riparian, freshwater emergent, etc.
- Ownership
  - California Conservation Easement Database (2015)
    - Created and updated by the GreenInfo Network funded by CNRA and DWR
    - Depicts lands that are protected under conservation easements and deed restrictions on private land

Data Sources: Spatial Data (Belowground)

- All soil types
  - NRCS's Soil Survey Geographic Database (2022)
    - Soil dataset that is updated and maintained through USDA
    - Data compiled by county through land surveying and soil sampling

**Analysis in process with proxy data for preliminary estimates*

Carbon Stock Values: Vegetation

- Statewide values for carbon stock used for vegetation types and crops
- Forests (live and dead biomass)
  - California Forest Carbon Plan (Forest Climate Action Team 2018, CAL FIRE, CNRA, Cal EPA)
    - Species-specific, includes Coast Live Oak, Douglas Fir, Ponderosa Pine, etc.
  - Oaks in California (Gaman 2008, California Oaks Foundation)
    - Species-specific by region (e.g., Central Coast) for oak woodlands
- Agriculture
  - California Air Resources Board Technical GHG appendices (Saah 2016, CARB)
    - California-specific carbon stock values for certain crops
- Urban Forests
  - California Air Resources Board Technical GHG appendices (Saah 2016, CARB)
    - County-specific carbon stock values for urban forests

Carbon Stock Values: Soil

- Soil organic carbon stock available from USDA NRCS's Soil Survey Geographic Database (SSURGO)
- SSURGO data was downloaded for the Monterey Bay Area
  - Most detailed level of soil geographic data developed by National Cooperative Soil Survey
  - Soil attributes derives from properties/characteristics in National Soil Information System
  - Includes weighted average soil organic carbon
  - Data was intersected with land cover, jurisdiction, etc. for spatially specific soil estimates

Data Gaps/Challenges

- Agriculture
  - Crop carbon stock rates are limited in available scientific literature
  - Discrepancies between the data layers from different agencies (CAL FIRE FRAP vs. DWR Statewide Cropping)
- Lack of Specificity
  - Some carbon values could not be matched to the level of specificity of data layers
  - Carbon stock values often do not reflect current management practices
  - Carbon stock values represent averages and do not include the spatial variability that is representative of carbon stocks in natural areas
- Rapidly Evolving Field of Study
  - New tools being developed by federal and state agencies (e.g., LUCAS from USGS)
  - More specific carbon factors are being published in new scientific literature

Preliminary Estimates

Carbon Stock in the Monterey Bay Area

Carbon Stock Results: Monterey Bay Area

Land Cover Type	Acres	MT C / Acre	MT C
Forest	317,413	89	28,318,179
Shrubland	803,175	19	15,429,225
Woodland	563,969	20	11,069,281
Grassland	1,037,778	10	10,111,003
Cropland	264,661	9	2,420,457
Orchards/Vineyards	70,439	14	1,016,813
Fresh Marsh	55,535	28	1,580,620
Urban	119,433	9	1,059,142
Total	**3,232,404**	**22**	**71,004,720**

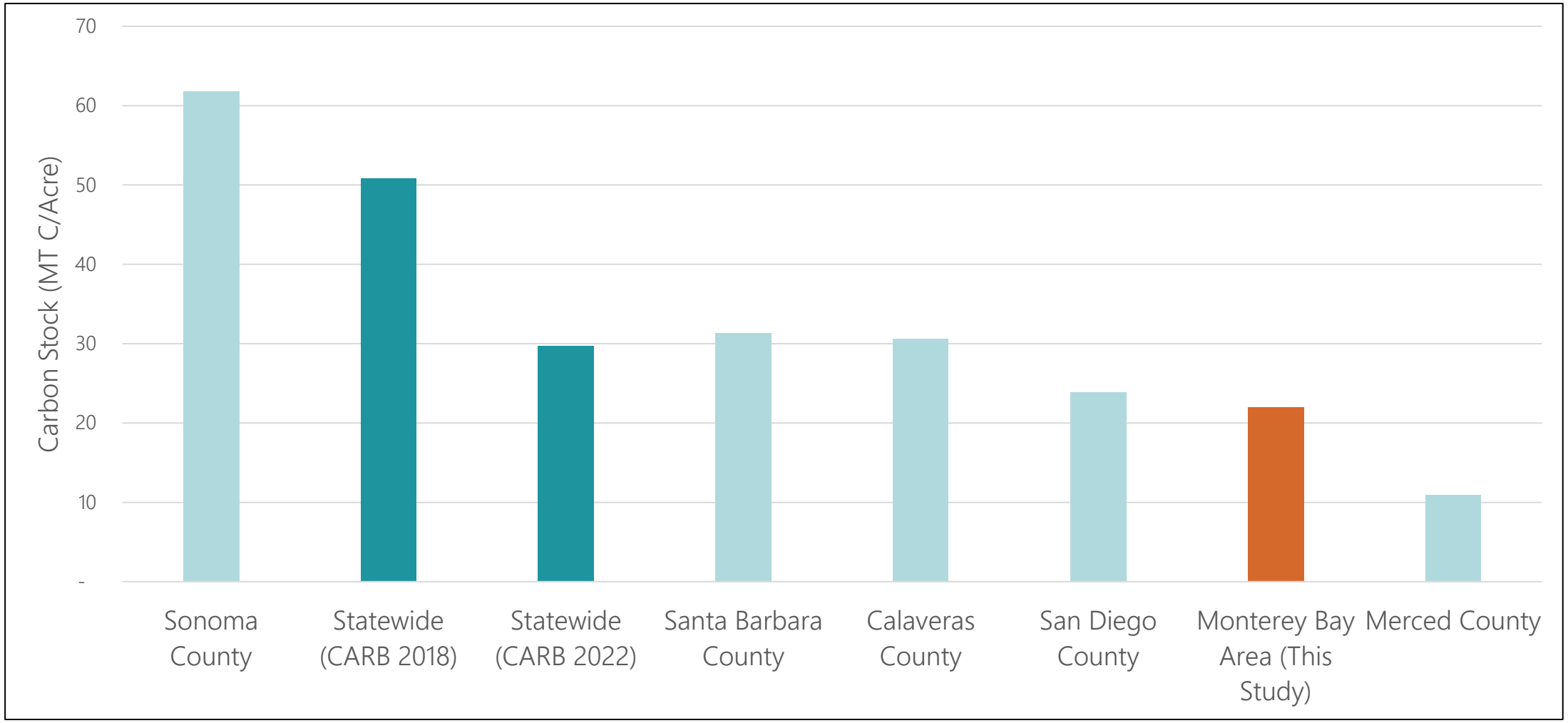
MT C = metric tons of carbon

Comparison Across Regions

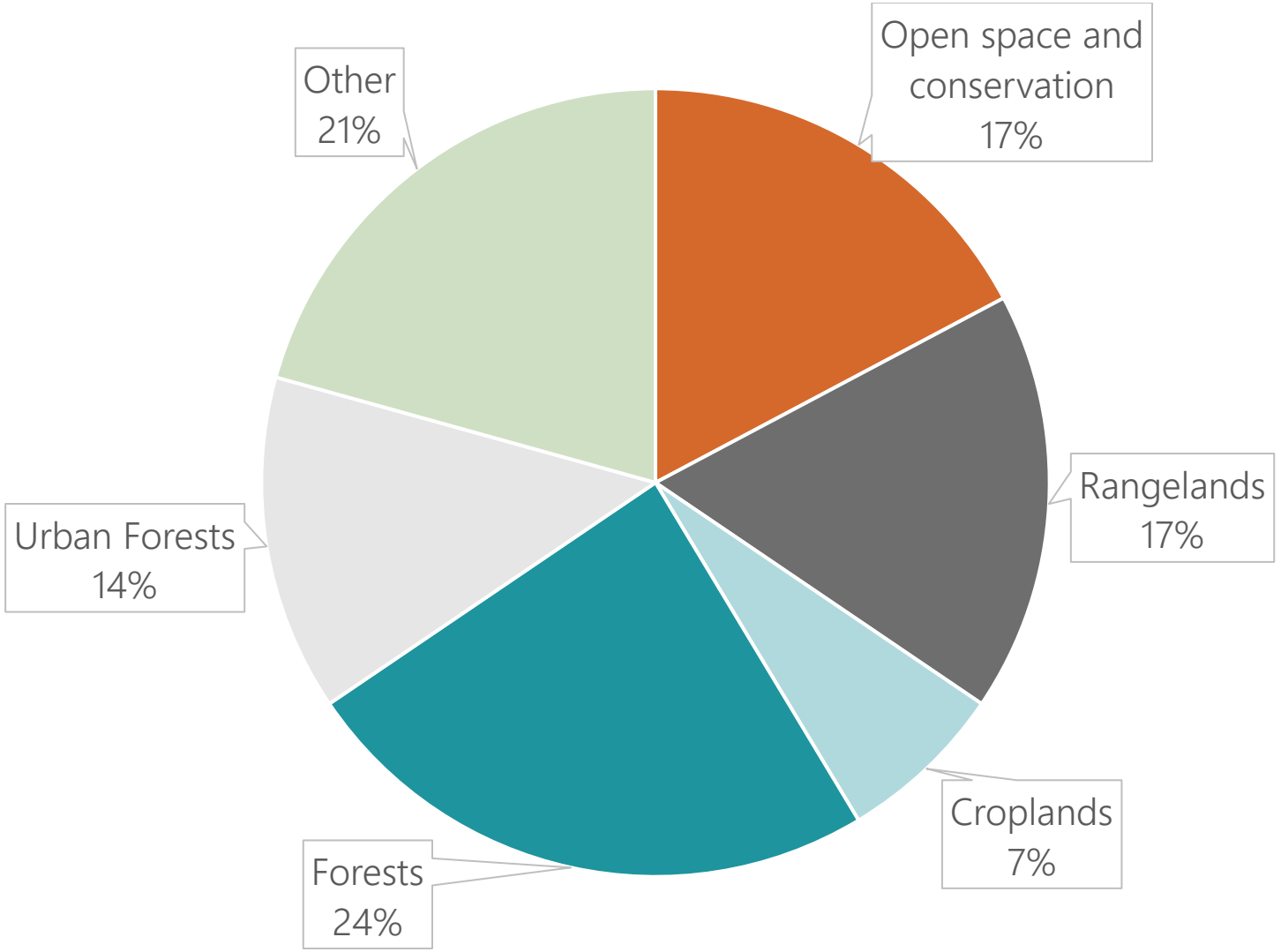
Region	Report Year	Acres	Carbon Stock (MT C/Acre)	Carbon Stock (MMT C)
Monterey Bay Area (Preliminary Results – This Study)	2023	3,232,404	35	116
Sonoma County	2016	1,016,781	62	63
Santa Barbara County	2020	1,632,162	31	51
Merced County	2019	1,265,303	11	14
San Diego County	2022	2,727,116	24	65
Calaveras County	2021	662,838	31	20
Statewide (CARB)*	2018	105,000,000	51	5,340
Statewide (CARB)*	2022	105,000,000	29	3,117

MMT C = million metric tons of carbon
* Using 2014 data

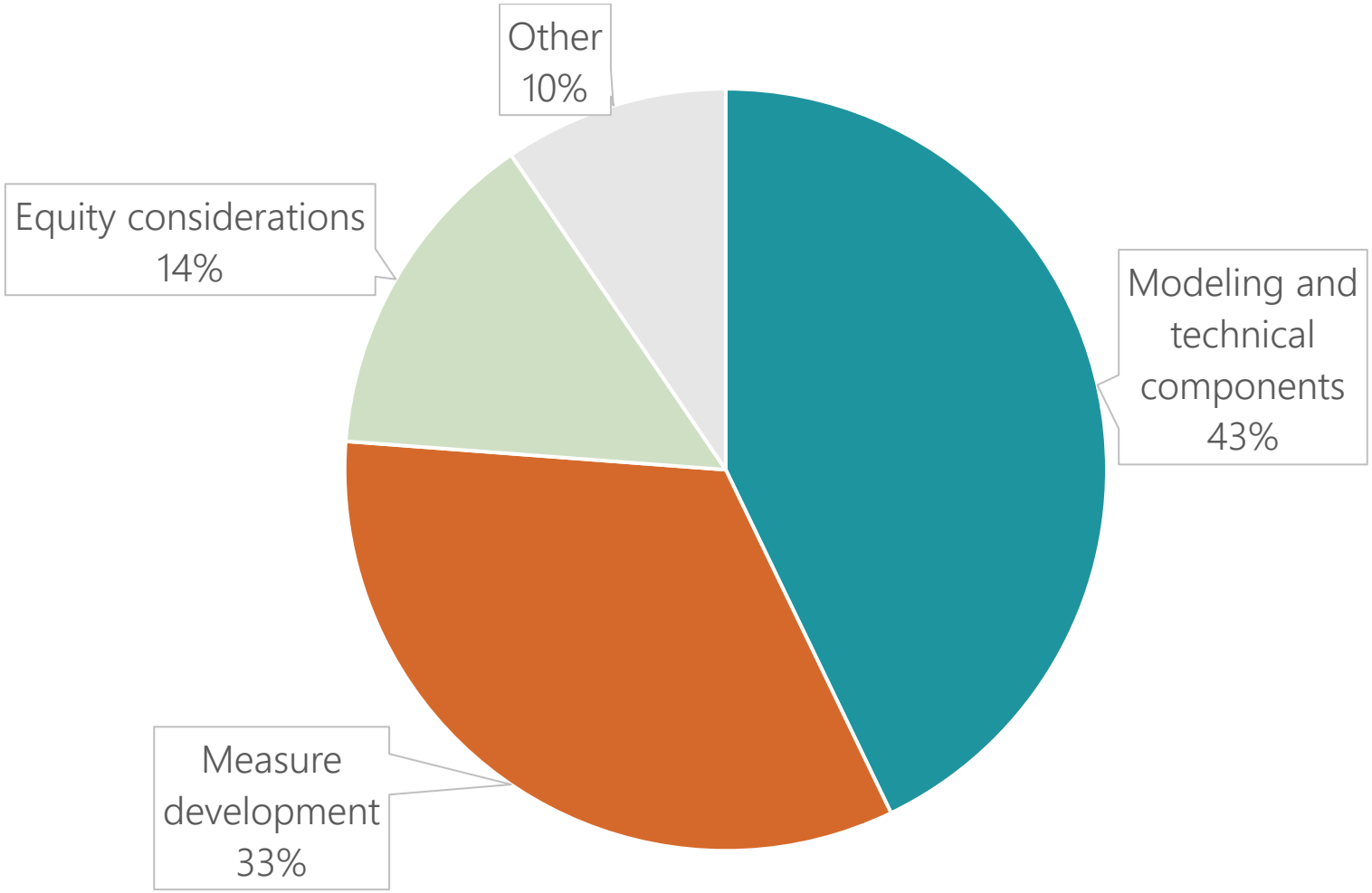
Comparison Across Regions



Focus Group Survey Results: Topic Area Interests



Focus Group Survey Results: Project Component Interests



Questions?

Type in the chat or raise your hand

Next Steps

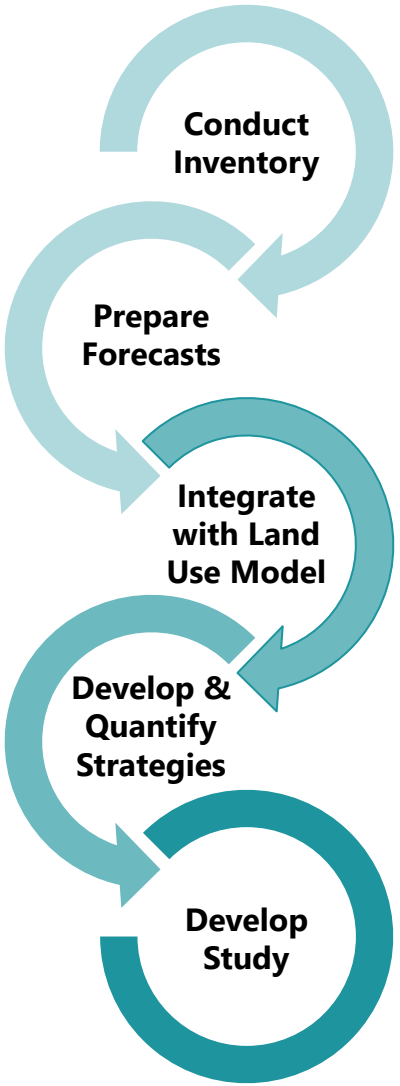
Thanks for joining us today!

End of Deck

Carbon Model Development Approach

Carbon Model Development Approach

- Develop **tool** with spatial baseline of lands with carbon stock
- Scenario forecast modeling using **climate and land use projections**
- Integrate with **Land Use Model**
- Ground-truth spatial analysis using **stakeholder feedback**
- Emphasize strategies that are **quantifiable, scalable, implementable**



Carbon Model Development Approach

Approach

- Estimate baseline stock levels
  - Carbon stock and sequestration
  - Vegetative community
  - Type of carbon storage
  - Land ownership
- Estimate change in carbon stocks
  - Future climate change scenarios
- GIS layer will be brought into AMBAG's Integrated Land Use Model
- AMBAG's Land Use Model will estimate land use change and impacts to carbon stock
- Coordination with stakeholders
  - Key technical insights
  - Ground-truthing spatial analysis
  - Measure identification
- Mitigation and adaptation measure development

Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
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Breakout Group Entry

Join any one of the three rooms to receive an overview of the three topics and provide input or ask questions

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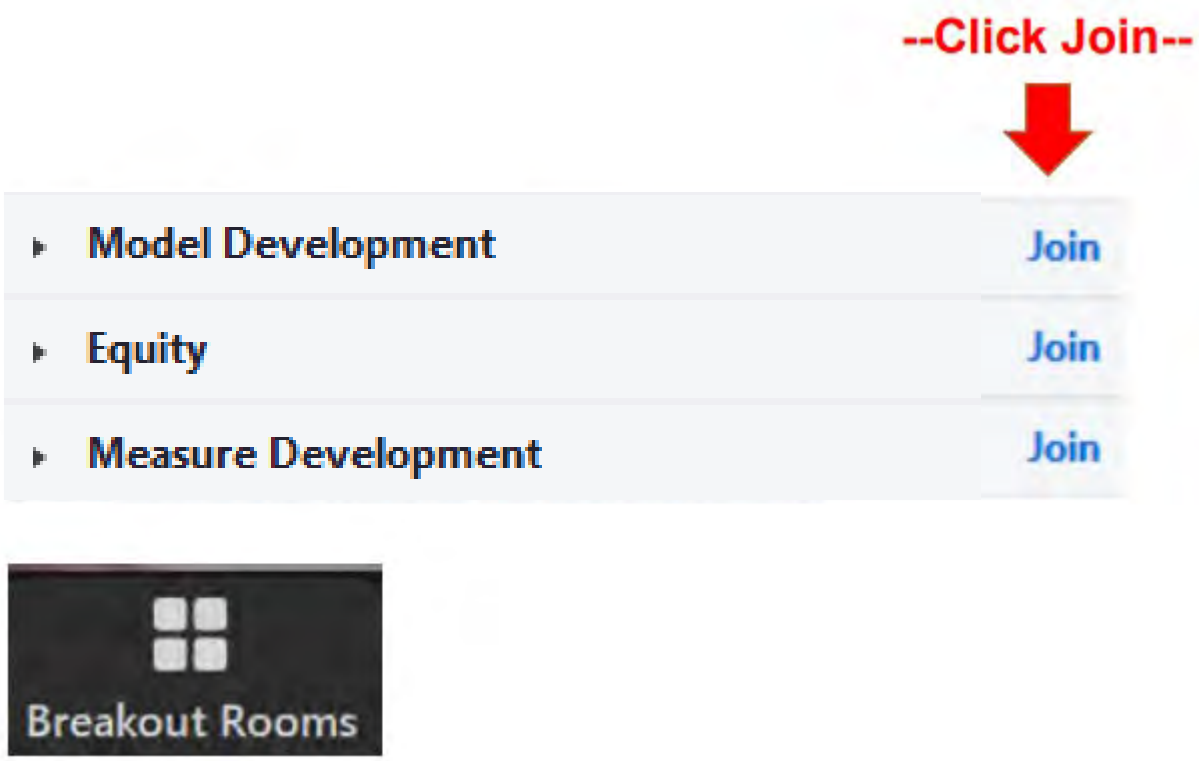

Stakeholder Working Group Meeting 2

ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

OCTOBER 31, 2023

Using Zoom Meeting

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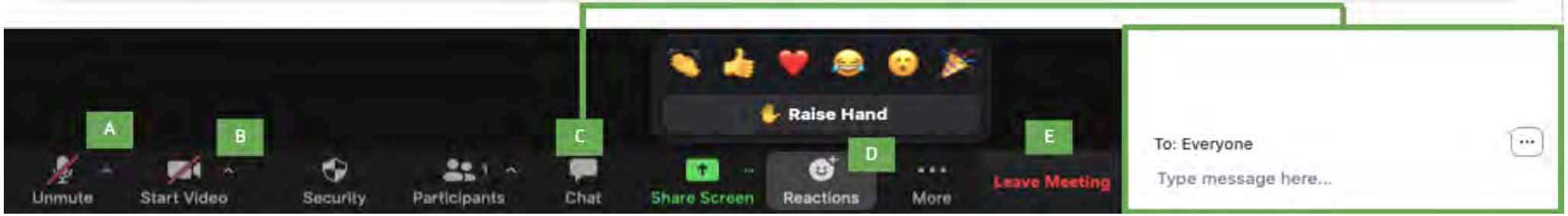

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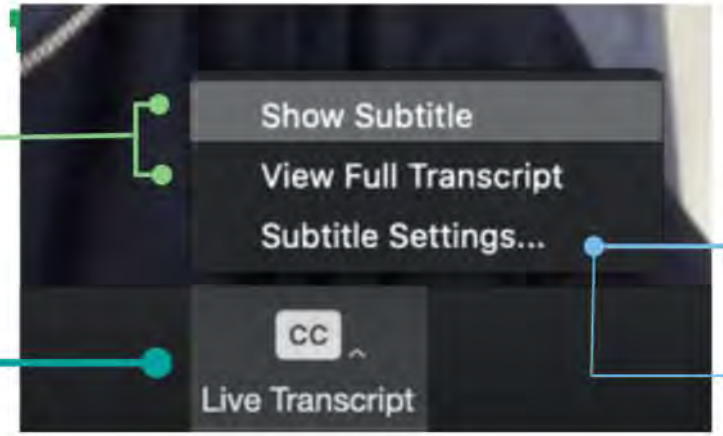
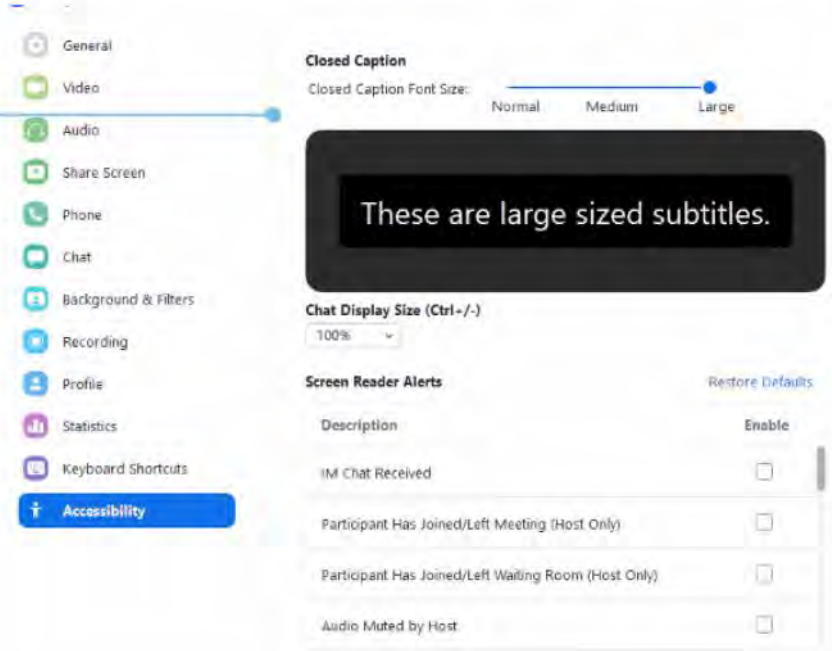


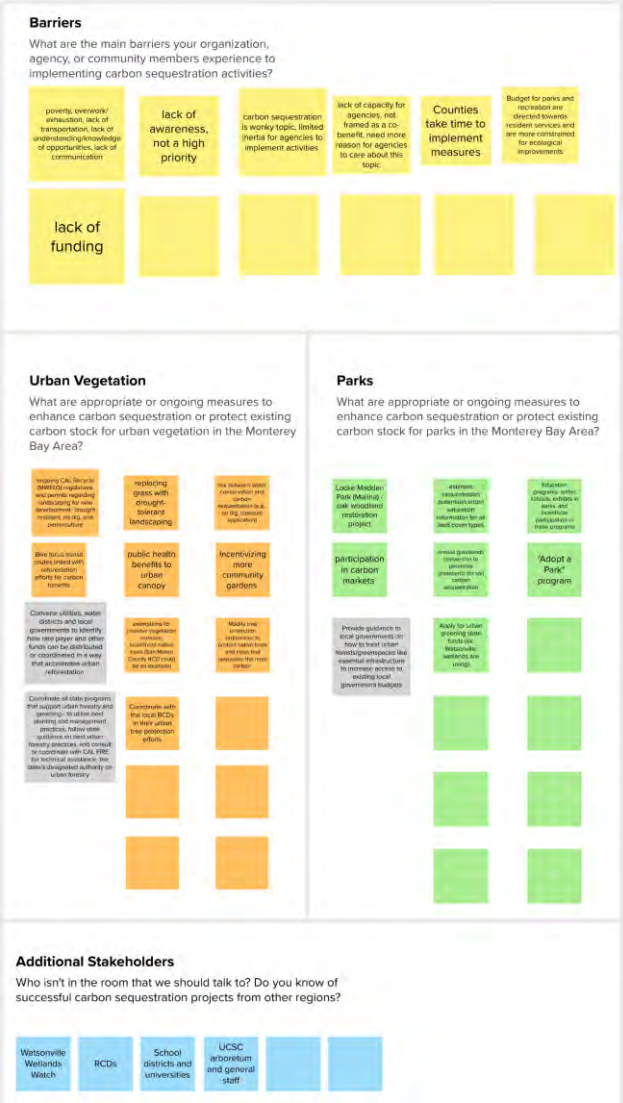


Agenda

- Focus Group Feedback
- Existing Strategy Audit
- Proposed Strategies
- Strategy Discussion
- Wrap Up and Next Steps

Focus Group Feedback: Urban Forestry and Parks

- Barriers
  - Lack of capacity for agencies, not framed as a co-benefit, need more reason for agencies to care about this topic
  - Lack of funding
- Strategies
  - Participation in carbon markets
  - Reduce regulatory burden for invasive species
  - Collaborate among utility providers, water districts, and local governments to distribute rate-payer funds and grants
  - Expand urban tree canopy

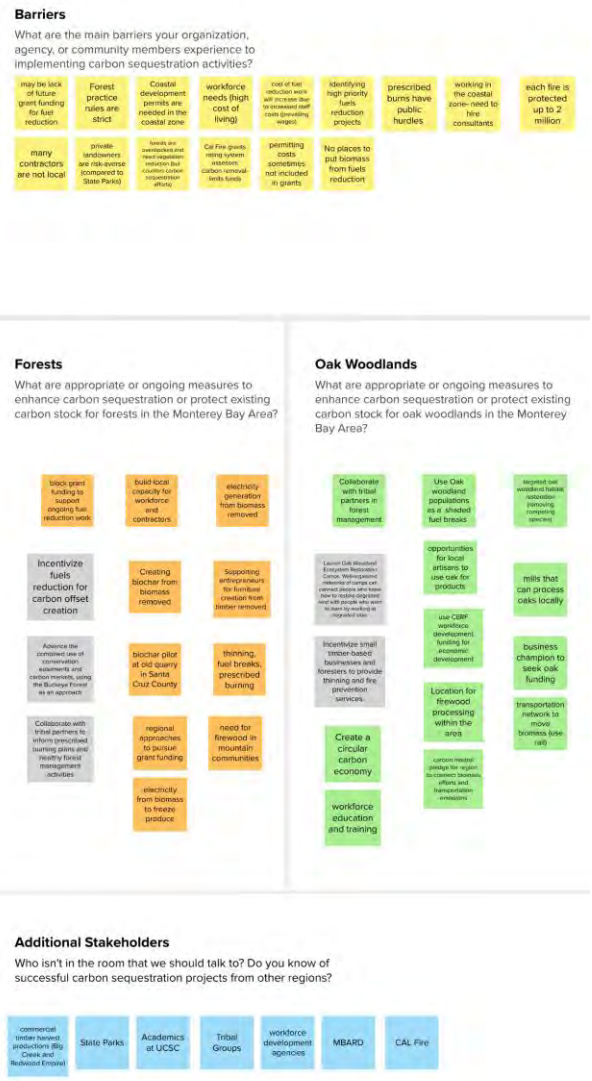


Focus Group Feedback: Open Space, Conservation, and Agriculture

- Barriers
  - Challenges coordinating across agencies
  - Limited funding and public agency staff capacity
  - Lack of incentives
  - Limited ecologically appropriate methods
- Strategies
  - Apply compost, additives, and other soil regenerative techniques
  - Promote carbon farming practices like biochar and reduced tillage
  - Utilize prescribed grazing
  - Develop a carbon credit program

Focus Group Feedback: Forests

- Barriers
  - Vegetation management can be perceived as a counter to carbon sequester efforts.
  - Workforce needs and the increased cost of fuel reduction work.
  - Limited funding and grant opportunities
  - Few local programs and limited local contractors
- Strategies
  - Collaborate with state agencies to identify grant opportunities
  - Develop locally based carbon offset programs
  - Incentivize small timber-based business to provide services
  - Increased workforce education and training



Existing Strategy Audit

- Local Plans
  - Capitola CAP
  - Carmel-by-the-Sea CAP
  - City of Santa Cruz CAP
  - County of Santa Cruz CAAP
  - Santa Cruz County Regional Conservation Investment Strategy
  - Watsonville CAP
- State Resources
  - Natural and Working Lands Climate Smart Strategy
  - 2022 Scoping Plan for Achieving Carbon Neutrality
  - Pathways to 30x30 California
- Organized into 3 categories
  - Activity
  - Resources
  - Coordination

Preliminary List of Benefits

Water Security

Forest Resilience

Economic Diversity

Climate Adaptation

Biodiversity Conservation

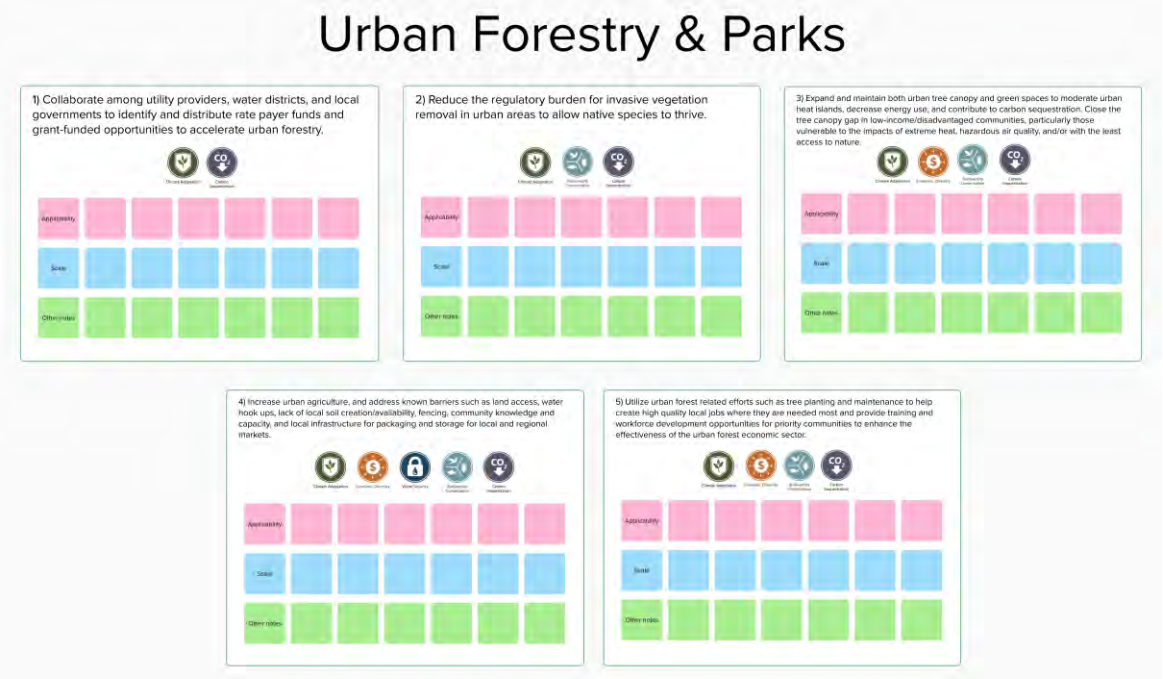
GHG Mitigation

Questions?

Type in the chat or raise your hand

Strategy Feedback Discussion

- Discuss the proposed strategies: 15 total, 5 per focus area
- Are these strategies applicable and appropriate to the region?
- On what scale could these strategies be implemented?
- Other concerns or thoughts about the strategies?



Next Steps

What should be the focus of the next focus group series?

End of Deck

Breakout Groups Ground Rules

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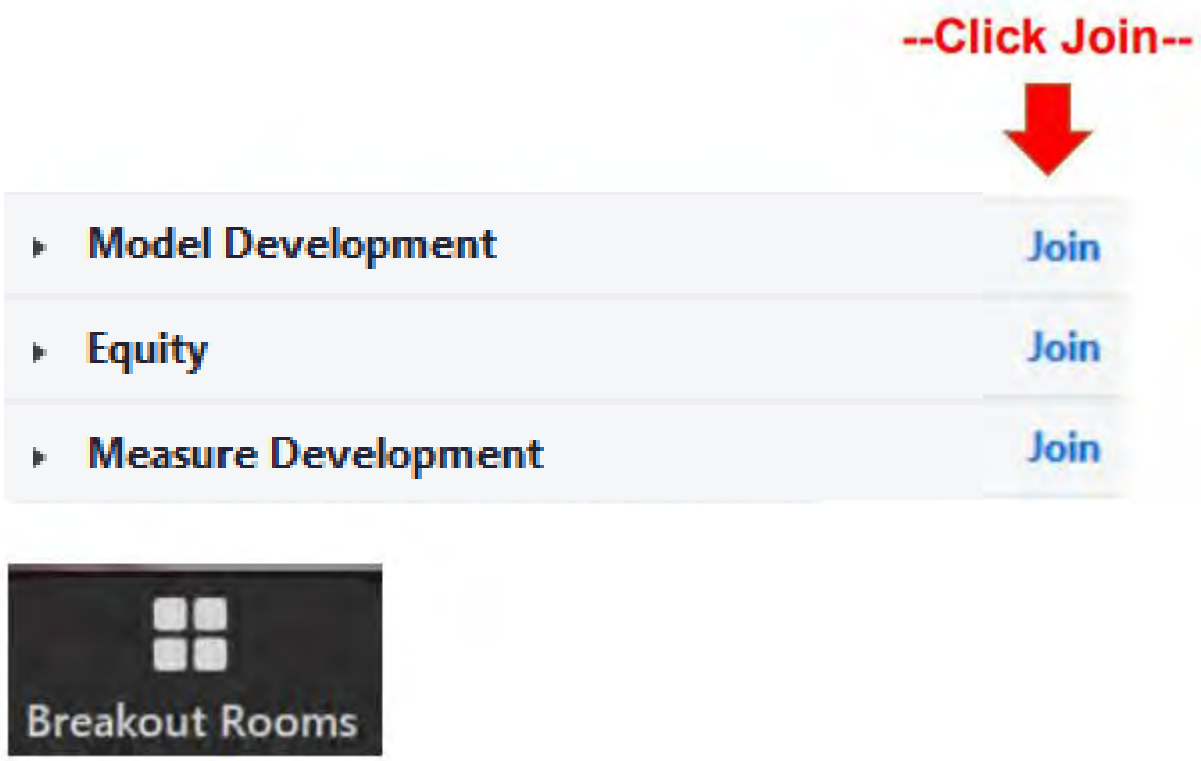
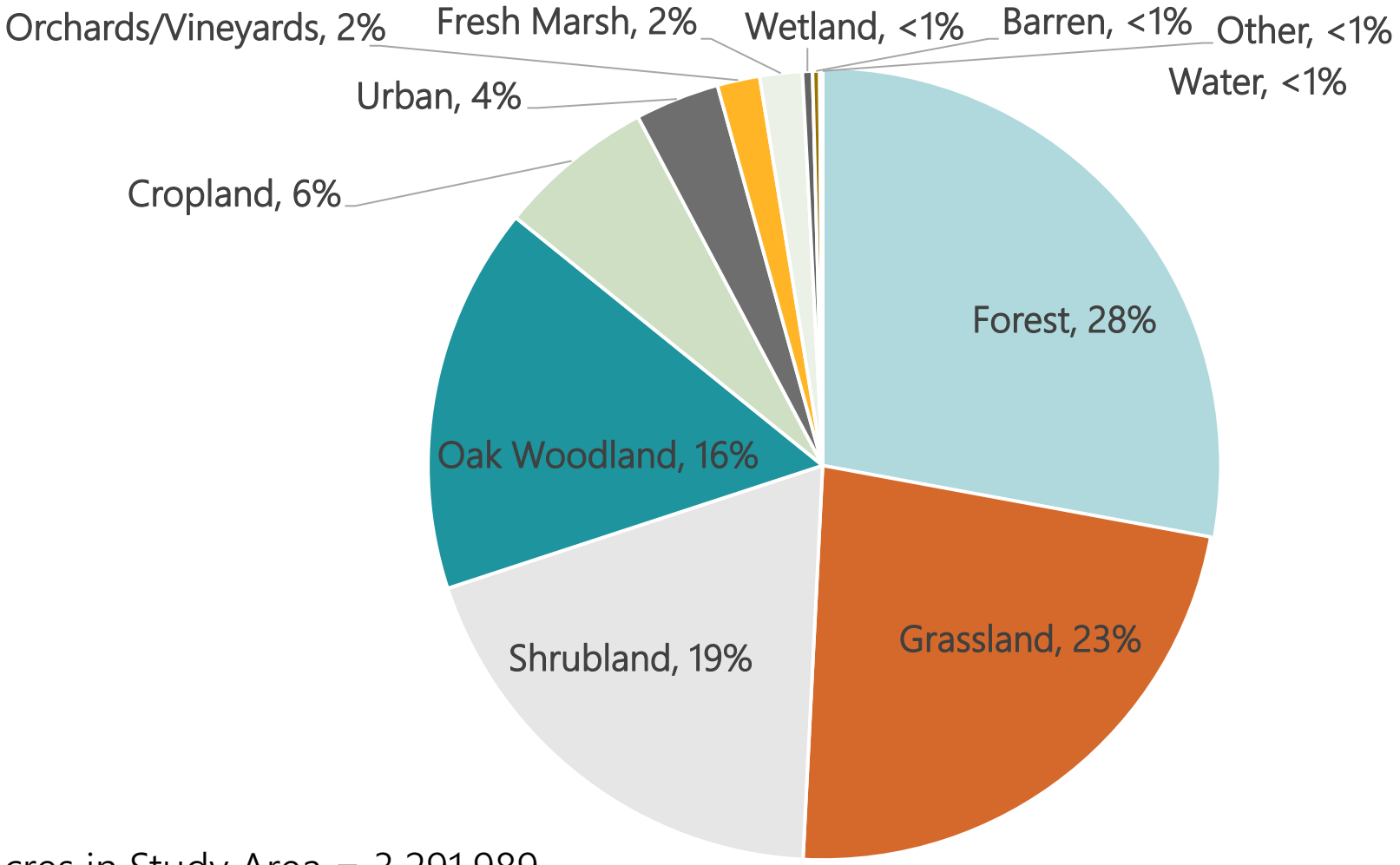


Land Cover Types in Study Area



Total Acres in Study Area = 3,291,989

Proposed Strategies: Urban Forestry and Parks

- Collaborate among utility providers, water districts, and local governments to identify and distribute rate-payer funds and grant-funded opportunities to accelerate urban forestry.

- Reduce the regulatory burden for invasive vegetation removal in urban areas to allow native species to thrive.

- Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Proposed Measures: Urban Forestry and Parks

- Increase urban agriculture, and address known barriers such as land access, water hook ups, lack of local soil creation/availability, fencing, community knowledge and capacity, and local infrastructure for packaging and storage for local and regional markets.

- Utilize urban forest related efforts such as tree planting and maintenance to help create high quality local jobs where they are needed most and provide training and workforce development opportunities for priority communities to enhance the effectiveness of the urban forest economic sector.

Proposed Measures: Open Space, Conservation, and Agriculture

- Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing State programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces.

- Promote carbon farming practices such as cover cropping, reduced tillage, and regenerative agriculture techniques like compost application, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.

Proposed Measures: Open Space, Conservation, and Agriculture

- Develop a locally managed carbon credit program to increase climate smart and regenerative practices on grasslands, such as range planting, riparian restoration, grazing management regimes that work to support positive ecological outcomes and to increase the amount of deep rooted, quality rangeland grasses for improved vegetation for feed, carbon and water storage, and fire resiliency. Use prescribed grazing to decrease loss of carbon in wildfire events.

- Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.

Proposed Measures: Open Space, Conservation, and Agriculture

- Track early adopters of carbon sequestration agricultural practices and support those early adopters in peer-to-peer transfer of knowledge. Lean on RCDs to help disseminate information and track sequestration practices in the region. Partner with RCDs, land trusts, and park districts to apply for funding to execute the work.

Proposed Measures: Forests

- Incentivize small timber-based businesses and foresters to provide thinning and fire prevention services.
- Develop a locally based carbon offset program for fuel treatment projects for avoided carbon loss.
- Support the development of biochar facilities, incentivize local projects that create woody biomass waste, and promote the use of locally produced biochar to increase soil carbon sequestration.

Proposed Measures: Forests

- Create a resilient workforce development program using CERF funding and other grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass while ensuring prevailing wages are met.

- Collaborate with State agencies to identify grant opportunities, streamline permitting processes, and reduce permit costs for forest management practices in the coastal zone and on public lands.

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Stakeholder Working Group Meeting 2

October 31, 2023

Urban Forestry & Parks

1) Collaborate among utility providers, water districts, and local governments to identify and distribute rate payer funds and grant-funded opportunities to accelerate urban forestry.

Climate Adaptation | Carbon Sequestration

Applicability	We as a City provide all our own utilities, except gas and electricity. So no spare additional funds.	Caltrans could be player in this.				
Scale	There is opportunity to focus reforestation and afforestation around planned active transportation routes and community gathering places. Municipalities can focus on benefits to air quality and noise pollution.	Urban areas tend to be small - seems like larger opportunities outside of urban limits - i.e. side of highways, BLM land, etc.				
Other notes	Prop 218 limits the use of funds from utilities	ReGen Monterey can be a useful example. They are collaborating on a biochar project.	Local governments and business will be increasingly interested in carbon offsets and a regional framework or strategy here could partly fill this gap.	MoCo Parks is interested in carbon sequestration.		

2) Reduce the regulatory burden for invasive vegetation removal in urban areas to allow native species to thrive.

Climate Adaptation | Biodiversity Conservation | Carbon Sequestration

Applicability	Yes please!	could this even be done	Conflicting agency objectives for vegetative management	Costs of permits for restoration	Carbon removal credit funds are perhaps a means to fund these types of projects.	
Scale	Difficult to scale in natural environs due to costs					
Other notes	No idea how to actually do this. CDFW, Waterboard, Army Corp, etc. would have to change.	Ecosystem services should be prioritized in climate action & adaptation commitments. Gap in accounting Frameworks.	Salinas River channel has heavily invasive vegetation but regulatory agencies prevent work	Invasive species can make good biochar feedstock. Arundo Donax for example.	ESA conflicts with species mgmt.	

3) Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Climate Adaptation | Economic Diversity | Biodiversity Conservation | Carbon Sequestration

Applicability	Yes - Super Important in Urban Environment						
Scale	There is opportunity to focus reforestation and afforestation around planned active transportation routes and community gathering places. Municipalities can focus on benefits to air quality and noise pollution.	how would this be accomplished. Low income areas tend to not have parks, etc and street trees create tripping hazards and associated liability					
Other notes	Municipal budgets fail to prioritize canopy management	How will elimination of commercial lawn space impact heat islands?	Water availability and access for tree care and maintenance	Access to water - rivers, lakes, the ocean. Maybe add access to nature?	Opportunity to evaluate public nuisance laws for fruit trees.	Consider FMUs to support tree planting efforts/funding	more urban fruit trees that people could eat off of. And less palm trees. I've heard cities sometimes avoid planting female trees because they are so messy... ...which seems a little weird to me. I'd prioritize fruit/food, and shade.

4) Increase urban agriculture, and address known barriers such as land access, water hook ups, lack of local soil creation/availability, fencing, community knowledge and capacity, and local infrastructure for packaging and storage for local and regional markets.

Climate Adaptation | Economic Diversity | Water Security | Biodiversity Conservation | Carbon Sequestration

Applicability	Water availability a requirement for success	Consider native and seasonally available crops				
Scale	Depends on land space available	Community knowledge needs to be expanded	seems like there is growing interest n community gardens in many Cities			
Other notes	The Carbon Neutral Cities Alliance is an excellent source of information on creating climate smart communities.	Management of urban garden space is not always succesful	Can be hard to quantify/justify from a carbon sequestration or climate benefit	Packaging is expensive	Resources needed to foster culture of gardening and to have paid positions for garden managers. Plug in schools and elderly populations for community cohesian.	

5) Utilize urban forest related efforts such as tree planting and maintenance to help create high quality local jobs where they are needed most and provide training and workforce development opportunities for priority communities to enhance the effectiveness of the urban forest economic sector.

Climate Adaptation | Economic Diversity | Biodiversity Conservation | Carbon Sequestration

Applicability	Municipal budgets are limited for staffing	Municipalities often have strict tree regulations	Prioritize active transit routes and third space for communities, potentially with bond effort.				
Scale	Seems like the scale is larger outside of urban boundaries.	scale limited by urban infratructure					
Other notes	job creation often goes against City budgets - i.e. fewer staff means money saved.	Cities continue to cut their urban forestry programs/staff	Collaborate and learn from indigenous knowledge for many of these strategies	Include land acknowledgments in CAP materials.	Learn from those who know the land (families that have been stewards for generations)	find opportunities to compensate people for expertise	Learn from multiple-generation landowners who have provided successful land mgmt.

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Stakeholder Working Group Meeting 2

October 31, 2023

Forests

11) Incentivize small timber-based businesses and foresters to provide thinning and fire prevention services.

Climate Adaptation | Economic Diversity | Forest Resilience | Biodiversity Conservation | Carbon Sequestration

Applicability	Work with timber operators to identify bottlenecks--equipment, keeping field crews, insurance costs, continuity of work longterm to keep people on	Tackling the other sheets in this exercise (streamline permitting, increase funding, develop biomass processing areas for the region) will create a more steady stream of work for added predictability by supporting landowners to scale up work on the ground				
Scale	Need to scale to be effective for fuel load reductions	Transportation is an issue here. Moving feedstocks to treatment areas can be difficult.				
Other notes	Timber management plans need to be executed years in advance					

12) Develop a locally based carbon offset program for fuel treatment projects for avoided carbon loss.

Climate Adaptation | Economic Diversity | Forest Resilience | Biodiversity Conservation | Carbon Sequestration

Applicability	This would need to be outside the typical carbon credit program, which requires that any offset carbon be above required levels and Forest Practice Rules in our region are already very protective of carbon, making carbon credits impossible to get on traditional markets.	Placer County has hired SIG to do an analysis like this for their region. coordinated by Placer County Air Board.				
Scale						
Other notes						

13) Support the development of biochar facilities, incentivize local projects that create woody biomass waste, and promote the use of locally produced biochar to increase soil carbon sequestration.

Climate Adaptation | Economic Diversity | Forest Resilience | Carbon Sequestration

Applicability	Biochar is only one piece of the biomass puzzle. Also look into dimensional lumber, artisanal furniture, etc to utilize forestry residual removed during fuel thinning	Biochar is but one tool in the toolbox but a great one.	Biochar facilities can produce abundant renewable energy for challenged local microgrids.			
Scale	Requires large (and/or multiple) sites to act as a "transfer station" to move material. Transportation is a huge cost.	Scale is perhaps THE issue in biochar production. The technology is not to scale.	New Markets Tax Credits in low income census tracts is a good means of funding biochar facilities.	NMTC census tracts are in Santa Cruz, Watsonville, Salinas, Gonzales, etc.	Need to loop in PG&E and other power companies to upgrade grid/install energy generating components/plug into grid OR harness electricity in the forest to replace diesel-powered machinery	
Other notes	PG&E seeking partners for RNG from woody biomass. Would require facility to creat RNG (and biochar as a byproduct)	Likely requires deep collaboration with California Coastal Commission, as most places that would fit these needs are in coastal zone	May trigger a need to alter new (CAL FIRE) Vegetation Treatment Program permitting mechanism which does not allow for the commercialization of forestry residue			

14) Create a resilient workforce development program using CERF funding and other grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass while ensuring prevailing wages are met.

Climate Adaptation | Economic Diversity | Forest Resilience | Carbon Sequestration

Applicability	The major factor here is cost of living. People with the skills to do these tasks can't afford to live in our region. Once that's solved, you can create more training opportunities.	Markets need to be developed to pay for the products of these workforces to help provide funding as grants dry up	Biochar system operators is a new job category. Biochar plants run 24/7 and will create new jobs.	Improve immigration policy to promote legal workforce		
Scale	Existing groups (Conservation Corps, etc) could be trained in these fields	Costs of prevailing wage not always affordable				
Other notes	Small companies struggle to meet requirements of prevailing wage in many ways (for example- apprenticeship programs creating unsafe conditions). Could an apprenticeship program specifically on forestry skills be developed?	Duplicative of current workforce development programs??	Most biochar feedstock sources are located in low-income communities. Biochar production is hopefully a good means of new income opportunity.	Forest management plans need years of planning and approvals		

15) Collaborate with State agencies to identify grant opportunities, streamline permitting processes, and reduce permit costs for forest management practices in the coastal zone and on public lands.

Climate Adaptation | Economic Diversity | Forest Resilience | Carbon Sequestration

Applicability	There are a lot of fuel reduction grants available now-- the bottle neck in our region is what to do with the biomass that's being removed.	As grants dry up, we need market based ways to pay for fuel reduction work, like mills, biochar, biofuels, etc. to help pay for critical work currently being funded by grants	Public Works Plan isn't enough to streamline processes.	For actions already being protected by State regs (like Forest Practice Rules) Coastal Zone restrictions should be loosened	MBARD can incentivize fuel reduction efforts by providing funding, streamlining approvals, etc. See Placer County Air District as inspiration.	
Scale	This is an issue throughout the entire state.	Permitting costs and process are not going to change	MBARD must follow US EPA rules and cannot by itself ease permitting. Biochar processes are not well understood so are in their early stages of permitting.			
Other notes	So many agencies have conflicting objectives	Permit processes will need legislative support to simplify				

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Stakeholder Working Group Meeting 2

October 31, 2023

Open Space, Conservation, and Agriculture

6) Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing State programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces.

Climate Adaptation | Economic Diversity | Forest Resilience | Biodiversity Conservation | Carbon Sequestration

Applicability	Ag Repurposing Grants	Land trust funding for on-going management				
Scale	Cost of farm land is barrier.	Conservation easements need a willing seller				
Other notes	Carbon offset program facilitators are abundant, but not generally in California. Nori, Indigo Ag, Agoro Carbon, Acre, Anew are all good firms, but not local.	Land Trusts, and the RCD seem like natural partners in this.	Includes various types of easements	Consider the integrity of the strategies in the study		

7) Promote carbon farming practices such as cover cropping, reduced tillage, and regenerative agriculture techniques like compost application, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.

Climate Adaptation | Economic Diversity | Water Security | Carbon Sequestration

Applicability	Biochar is an ideal means of facilitating conversion to regenerative practices.	Explore more applications for biochar	working with RCDs seems critical	Farmers may not have technical skills to estimate sequestration	Many farmers operating at very thin margins - no room for error or experimentation	Regenerative lacks a formal definition that drives practices
Scale	Scaling Regenerative practices is difficult for specialty crops	Permanent plantings are much easier to farm regeneratively.	Large barrier to entry for ag., but huge opportunity given size of industry.		Sustainability practices are market driven	
Other notes	Slow Pyrolysis equipment difficult to obtain.	Regenerative practices are occurring extensively in Salinas valley vineyards, as an example.	Distinguish between carbon offsets and removals.	On-farm composting is restricted by IRLP	Biochar / Compost blend is proven, locally.	We like compost from waste mgmt facilities. It's a home for wood waste otherwise difficult to repurpose.

Need government programs to support ag. industry in this

Align with industry sustainability programs and practices

8) Develop a locally managed carbon credit program to increase climate smart and regenerative practices on grasslands, such as range planting, riparian restoration, grazing management regimes that work to support positive ecological outcomes and to increase the amount of deep rooted, quality rangeland grasses for improved vegetation for feed, carbon and water storage, and fire resiliency. Use prescribed grazing to decrease loss of carbon in wildfire events.

Climate Adaptation | Economic Diversity | Water Security | Biodiversity Conservation | Carbon Sequestration

Applicability	There is a local Climate Smart Commodity Grant program taking place. These are good means of funding early example programs.					
Scale	Costs will limit scale	How to define this in a multi-crop production area?				
Other notes	Plenty of rangeland regulations prevent change to landscapes	Are there food safety concerns with this?				

9) Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.

Climate Adaptation | Economic Diversity | Water Security | Carbon Sequestration

Applicability	Biochar application on grasslands will need to be at some depth. Broadcast methods do not lead to durability or permanence.					
Scale	Costs will limit scale	Grasslands offer large soil carbon sequestration opportunities, if done correctly.				
Other notes	Grasslands may be considered natural lands that are regulated on additives	Limitations imposed by ILRP on water quality management				

10) Track early adopters of carbon sequestration agricultural practices and support those early adopters in peer-to-peer transfer of knowledge. Lean on RCDs to help disseminate information and track sequestration practices in the region. Partner with RCDs, land trusts, and park districts to apply for funding to execute the work.

Climate Adaptation | Economic Diversity | Carbon Sequestration

Applicability						
Scale	Scaling Regenerative practices may be difficult for specialty crops.					
Other notes	Local vineyard management company is farming regeneratively, at scale.	RCD funding may be limited or non-existant	USDA NRCS Soil Carbon Amendment Program (Code 336) is available to support biochar applications.			

Focus Group Kickoff Meeting

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ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

FEBRUARY 7, 2023

Using Zoom Meeting

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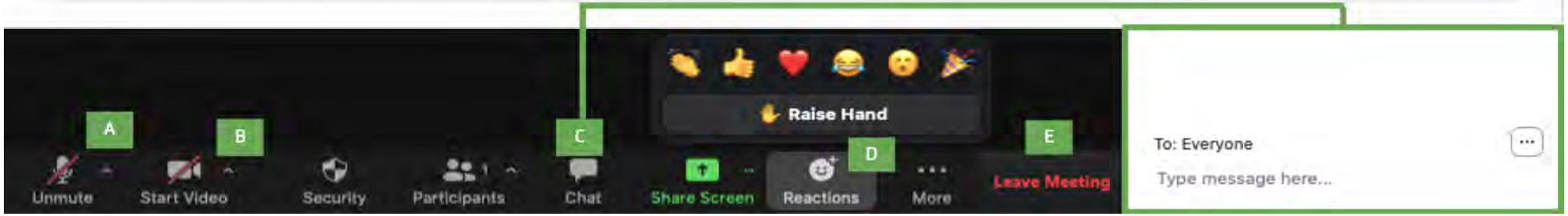

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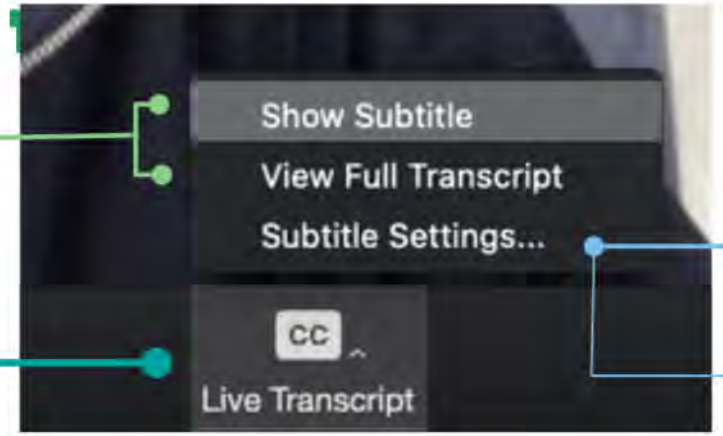

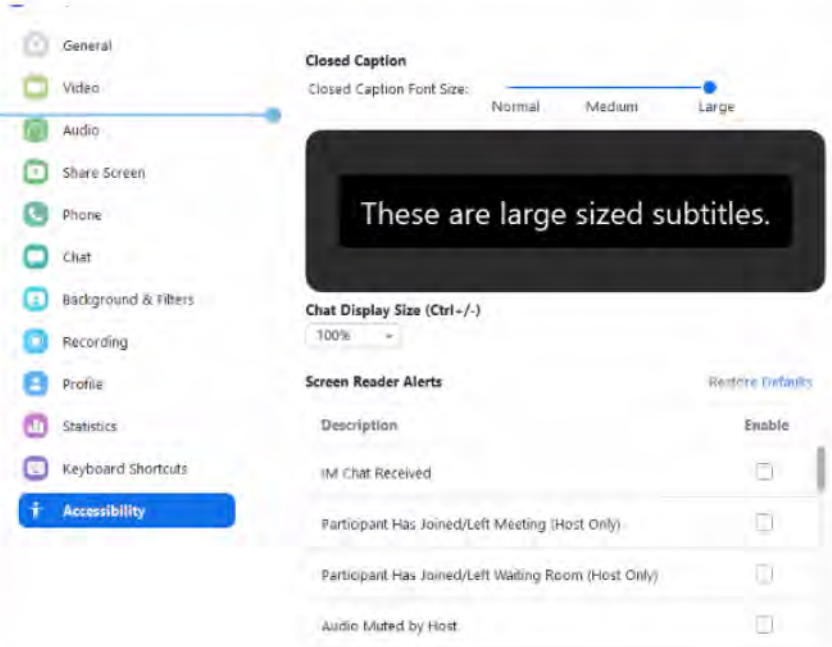

Introductions

In the chat, please share:

- Name
- Organization/agency affiliation
- Favorite natural/open space place in Monterey Bay Area

Project Team

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

- Amaury Berteaud, Sustainability Program Manager
- Gina Schmidt, GIS Coordinator
- Will Condon, Associate Planner

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- Poonam Boparai, Principal-in-Charge
- Hannah Kornfeld, Project Manager
- Liz Luck, Climate Change Analyst

MANHAN

City Explained, Inc.

What is the Natural and Working Lands Climate Mitigation and Resiliency Study?

- Funded by a CA Dept of Conservation Sustainable Agricultural Lands Conservation (SALC) grant
- Create a geospatial carbon model that calculates the carbon stored in natural and working lands of the Monterey Bay Area (i.e., Monterey, San Benito, Santa Cruz Counties)
- Engage member jurisdictions and partner agencies/organizations
- Identify strategies to enhance climate resilience and carbon sequestration potential

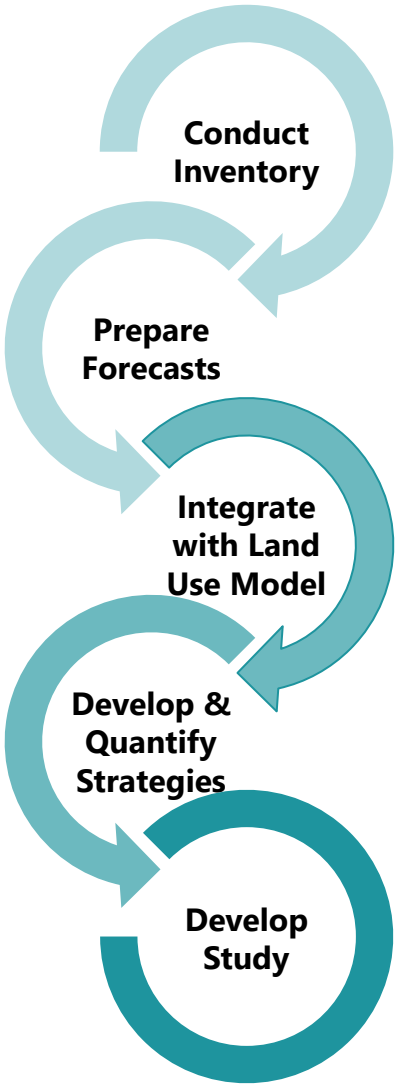
Carbon Model Development Approach

Key Terms

- Carbon pool = a system which has the capacity to accumulate or release carbon, considered to be a reservoir
- Carbon sequestration = the process of increasing the content of a carbon pool other than the atmosphere
- Carbon stock = the absolute quantity of carbon held within a pool at a specified time
- Natural Lands = lands consisting of forests, grasslands, deserts, freshwater and riparian systems, wetlands, coastal and estuarine areas, watersheds, wildlands, wildlife habitat, land uses for recreational purposes (e.g., city parks, urban forests)
- Working Lands = lands used for farming, grazing, or the production of forest products

Carbon Model Development Approach

- Develop **tool** with spatial baseline of lands with carbon stock
- Scenario forecast modeling using **climate and land use projections**
- Integrate with **Land Use Model**
- Ground-truth spatial analysis using **stakeholder feedback**
- Emphasize strategies that are **quantifiable, scalable, implementable**



Carbon Model Development Approach

Approach

- Estimate baseline stock levels
  - Carbon stock and sequestration
  - Vegetative community
  - Type of carbon storage
  - Land ownership
- Estimate change in carbon stocks
  - Future climate change scenarios
- GIS layer will be brought into AMBAG's Integrated Land Use Model
- AMBAG's Land Use Model will estimate land use change and impacts to carbon stock
- Coordination with stakeholders
  - Key technical insights
  - Ground-truthing spatial analysis
  - Measure identification
- Mitigation and adaptation measure development

Stakeholder Overview

Stakeholder Overview

- Stakeholder Working Group
  - Provides technical assistance and feedback
  - Consists of member jurisdictions, regional & state agencies, conservation groups, technical experts
  - Meets up to 3 times during project development
- Public Workshops
  - Held virtually
  - 3 workshops, each focused on a different county in the Monterey Bay Area
  - Spanish interpretation available
- Focus Groups
  - Meets up to 6 times during project development
  - Topic areas of groups based on results of survey: https://www.surveymonkey.com/r/8CCYBY3

Questions?

Type in the chat or raise your hand

Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
- Help the facilitator to keep things on time

Breakout Group Options

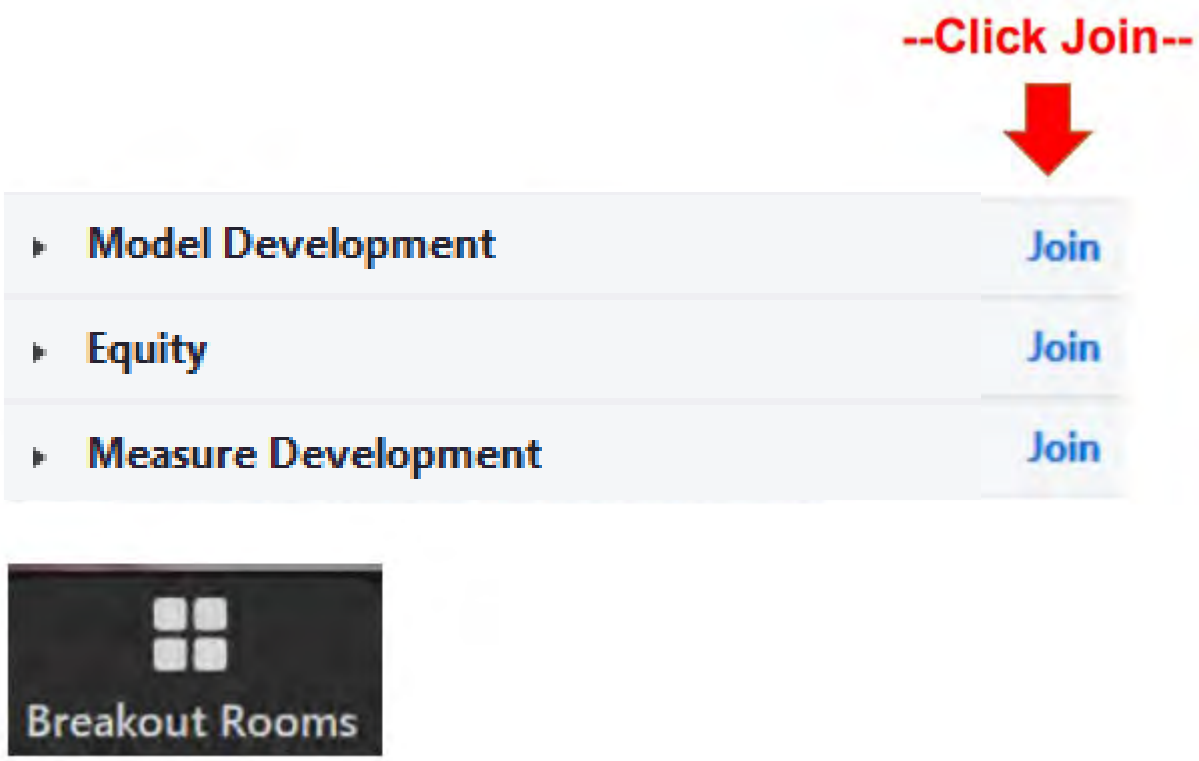
- Room 1: Model Development
- Room 2: Measure Development
- Room 3: Equity Considerations

When prompted, select the room in which you are most interested.

Breakout Group Entry

Join any one of the three rooms to receive an overview of the three topics and provide input or ask questions

Transition to another Room to join a discussion on another topic(use the Breakout Room icor at the bottom of your screen to bring up the room menu)



Next Steps

Thanks for joining us today!

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Focus Group Kickoff Workshop
February 7, 2023

Breakout Group 1

Modeling

What do you hope to get out of the model?
What would help your org/agency plan for carbon sequestration opportunities?
How would carbon stock modeling help your planning efforts?
How could the carbon model be compatible with your existing spatially based tools?

- understanding baseline carbon stock, to identify where the best opportunities are. A tool to help prioritize and guide action
- Include projected land changes - such as rising ocean levels creating new wetlands and the potential for those new wetlands to sequester carbon
- Kelp? Can we include a look at the potential to create new kelp beds and what that would mean for additional sequestration?
- USGS is working on a Strategic Growth Council grant to model spatially-explicit land use, carbon, and water use under future climate change, including RHNA
- Ownership data is in California Protected Areas Database as polygons
- How are you quantifying and parameterizing land use change?
- how management options affect carbon sequestration (on a per acre)
- How to balance the ecological and fuel load reduction needs for prescribed fire (C emissions), with that of C sequestration?
- Tools: vegetation types and their sequestration capacity. Basically, open source data to refine local modeling.
- If doing scenarios, you need to clearly identify the scenario narrative and model against a baseline and other scenarios to compare
- Compare sequestration potential relative to emissions reduction targets
- MCRCD is working on detailed land use/ veg data for MC and SBC, similar to what is being developed for Santa Cruz and santa clara counties (https://pacificvegmap.org/). It would be great if this modeling approach developed a crosswalk for Santa Cruz veg data that could be applied to this new veg data for MC and SBC once it is available
- Would like the work to provide a baseline to understand existing sequestration and land use changes that increase or decrease sequestration
- Most of the stock in in the soil but most of the flux is in the vegetation. Which matters more - flux or stock - will have a big influence on where to put your effort. E.g. How deep into the soil profile will you consider? A lot of carbon is deeper than 1m. But it isnt very mobile
- How are you accounting for climate future? Water? All impact productivity and carbon sequestration rates
- Development of tools that allow juris.dictions to estimate sequestration impacts
- Scenario planning is helpful as a method of making cost-benefit analysis for management actions

Breakout Group 2

Measures

What measures are you currently working on that you would want reflected in the study?
What future measures are you anticipating that could be reflected in the study?
How do you think the tool will be useful to encourage implementation of natural and working land solutions?
How do you think the study could be useful?
What types of information in the study could be helpful to include when your org/agency is pursuing funding opportunities for implementation and planning for natural and working lands?

- Forest waste management (woody waste management) returning this to the soil either as biochar or compost, etc.
- SB1383 integration - there is so much compost being created - can this become sequestered carbon
- biochar - infinite sequestration!
- How to incentivize sequestration in working lands
- Caltrans - have jurisdiction over large areas of land. Find ways to engage them (Alex Yasbek)
- opportunities and incentives for reduced tillage
- Is it possible to deliberately do restoration work in a way that increases sequestration
- Who are the players who are not currently involved but could be - i.e. caltrans, BLM, etc.
- Patrick Riparetti - Big Sur Land Trust. Part of a pilot program
- Mark Swisher - converting wood waste to biochar.
- Consider measures like transfer of development rights and urban infill measures that protect NWLs
- Be sure to consider measures that also enhance/protect the ecosystems services/ functions for (non-)carbon value in addition to sequestration by itself
- A regional woody waste/organic waste processing facility (produce both compost and biochar). Such a facility does not yet exist. This could serve tri-county region.
- Waste being transported out of region for composting.
- intersection between land (soil C) management practices and access to land / long-term land tenure
- Be sure to distinguish enhanced management of natural landcover communities from restoration/creation of natural landcover communities.
- Consider cost of measures and way to pool investment in NWL based on multi-benefit nature of NWLs
- Thinning forest overstocking to lead to less devastating wildfires and better forest health.
- Restoration of agricultural land/marginal agricultural land
- Be careful about assumptions around biosolid application suitability in natural areas or ag lands
- evaluate novel funding sources/ strategies that have been successful in expanding NWL mgmt in other areas
- Support prescribed burn association projects that aim to increase resilience and mitigation
- consider how to align NWL conservation strategy to also support 30x30 targets
- Support ground truth efforts that have dual purpose (e.g. meet project needs but also answer regional research questions)

Breakout Group 3

Equity

What are your equity-related concerns with this effort?
What are some of the co-benefits to consider in developing the model and measures?
What equity considerations should be included when developing the measures?

- long-term land access or land tenure security
- knowing that the process is happening. Seeing themselves as relevant to the process. Opportunity for education? for students to participates.
- How does the carbon footprint of urban residents compare to rural residents?
- What are the indirect effects of land management on emissions, e.g. How do parks close to town cut emissions, compared to parks that require a longer drive?
- barriers to participations due to lack of funding for participation
- Do not refer to Indigenous Peoples as merely stakeholders, as it erase the deep inequities that have been perpetuated. lack of informed perspective in decision makers. Cultural sensitivity at a minimum, listening sessions.
- Land back, cultural easements and access, capacity building. MOA, MOU and memorandum of recognition. harvest cultural resources, manage the land. Setting commitments toward indigenous peoples.
- lack of safety that folks might feel because of injustices.
- Not equal opportunities to visit land, public transportation to beaches and forests.
- Seperation of natural and working lands is coming from a settler mentality.
- private lands include a lot of acres. The landscape does not understand ownership. when talking about different opportunities if not a non profit or local government you do not get to participate. Generally private entities do not have funding assistance.
- Include things that private land owners can participate in.

Urban Forests Focus Group Meeting 1

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ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

URBAN FORESTRY AND PARKS

JULY 10, 2023

Using Zoom Meeting

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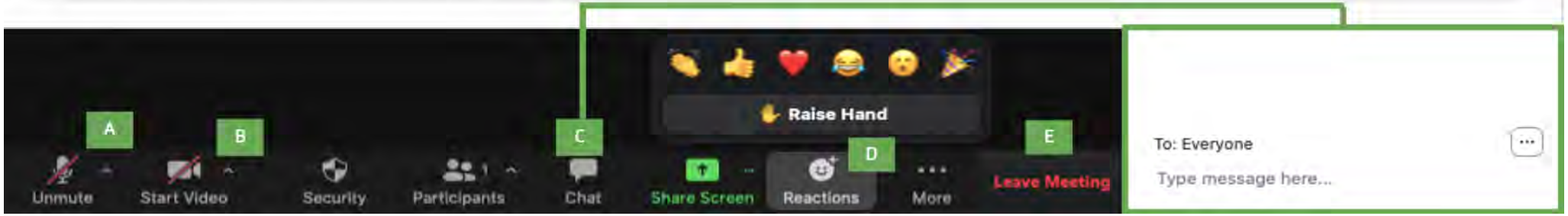

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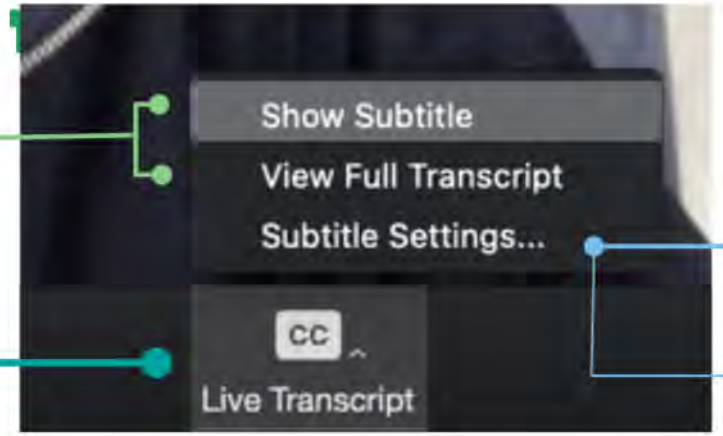
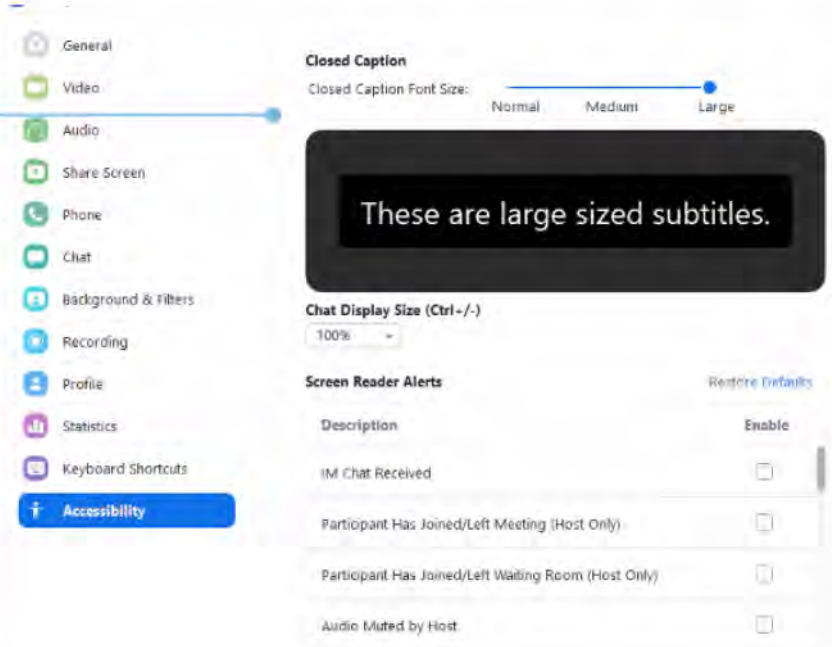




Agenda

- Carbon Stock Inventory Results
- Refined Methodology
- Next Steps for Study
- Questions & Answers
- Measure Brainstorm
- Wrap Up

Carbon Stock Inventory Results: All Land Cover Types

Updated results from preliminary estimates

Updates to Preliminary Estimates

- What changed between preliminary estimates and inventory memo numbers?
  - Soil carbon was added to analysis
  - Variation in aboveground carbon stock due to the incorporation of more species-specific and region-specific rates
- Why did the overall acreage change?
  - Acreage in the study area increased from 3,232,404 to 3,291,989
  - 98% of land cover was included in preliminary estimates
  - Carbon values have now been assigned manually to the remaining 2% of land cover

Carbon Stock Inventory Results: Monterey Bay Area Rates

Land Cover Type	Aboveground Carbon (MT C/acre)	Soil Carbon (MT C/acre)	Total Carbon (MT C/acre)
Forest	79	22	101
Fresh Marsh	17	19	37
Oak Woodland	9	24	33
Urban	7	27	34
Cropland	1	27	28
Orchards/Vineyards	3	26	29
Shrubland	11	17	28
Grassland	1	24	26
Wetland	7	16	24
Other	0	20	20
Barren	0	18	18
Water	0	10	10
Total	**13**	**22**	**35**

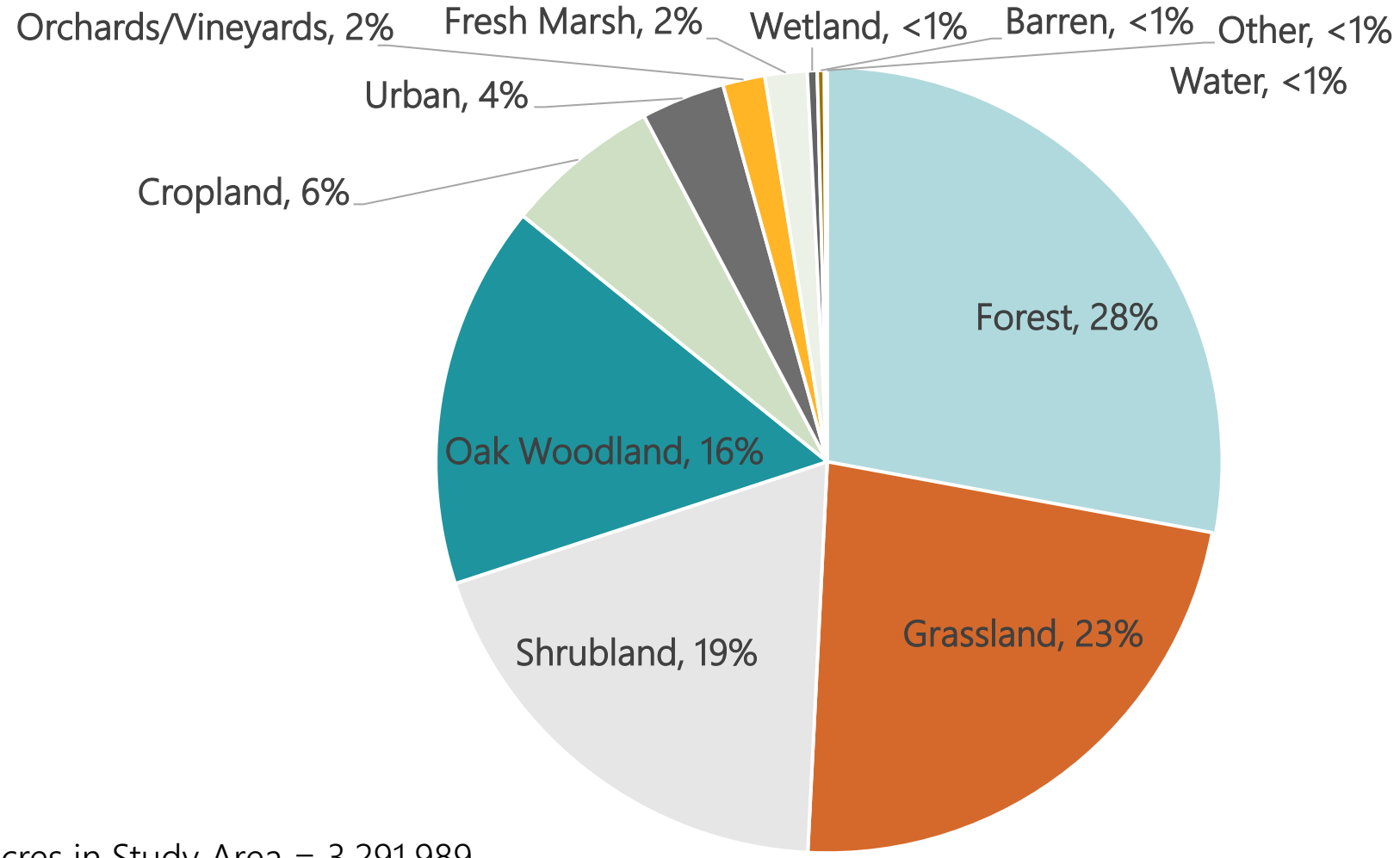
MT C = metric tons of carbon

Carbon Stock Inventory Results: Monterey Bay Area Total

Land Cover Type	Acres	Aboveground Carbon (MT C)	Soil Carbon (MT C)	Total Carbon (MT C)
Forest	322,437	7,051,753	25,540,394	32,592,147
Fresh Marsh	55,500	1,080,143	949,994	2,030,136
Oak Woodland	563,980	13,307,214	5,218,605	18,525,818
Urban	119,422	3,206,899	829,958	4,036,857
Cropland	265,179	7,146,384	364,004	7,510,388
Orchards/Vineyards	70,438	1,834,723	198,257	2,032,979
Shrubland	803,213	13,642,693	8,740,482	22,383,175
Grassland	1,039,070	25,270,515	1,471,740	26,742,255
Wetland	20,373	329,334	149,494	478,828
Other	201	4,114	-	4,114
Barren	19,031	340,346	-	340,346
Water	13,145	134,437	-	134,437
Total	**3,291,989**	**73,348,553**	**43,462,927**	**116,811,480**

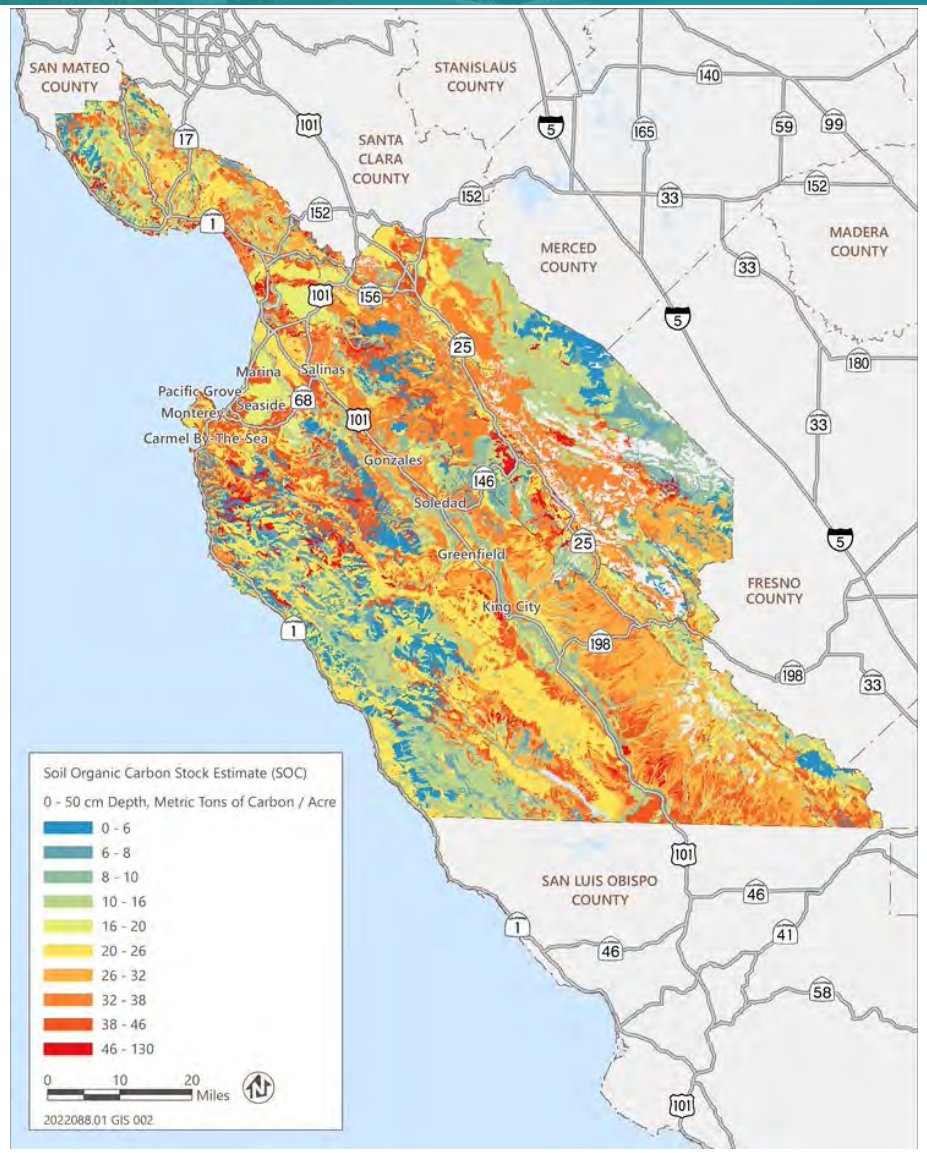
MT C = metric tons of carbon

Carbon Stock Inventory Results by Land Cover Type: Monterey Bay Area



Total Acres in Study Area = 3,291,989

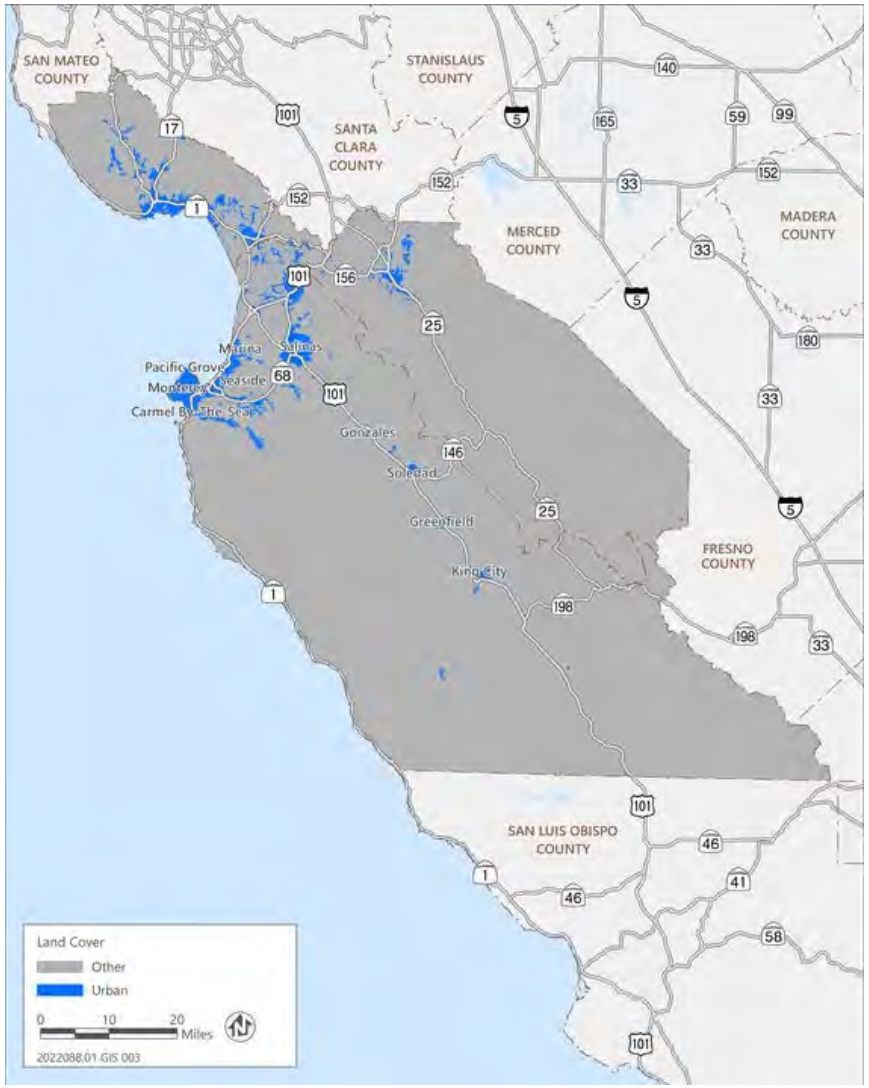
Soil Carbon Map



Carbon Stock Inventory Results: Urban Forestry and Parks

Updated results from preliminary estimates

Urban Forestry & Parks Land Cover Types

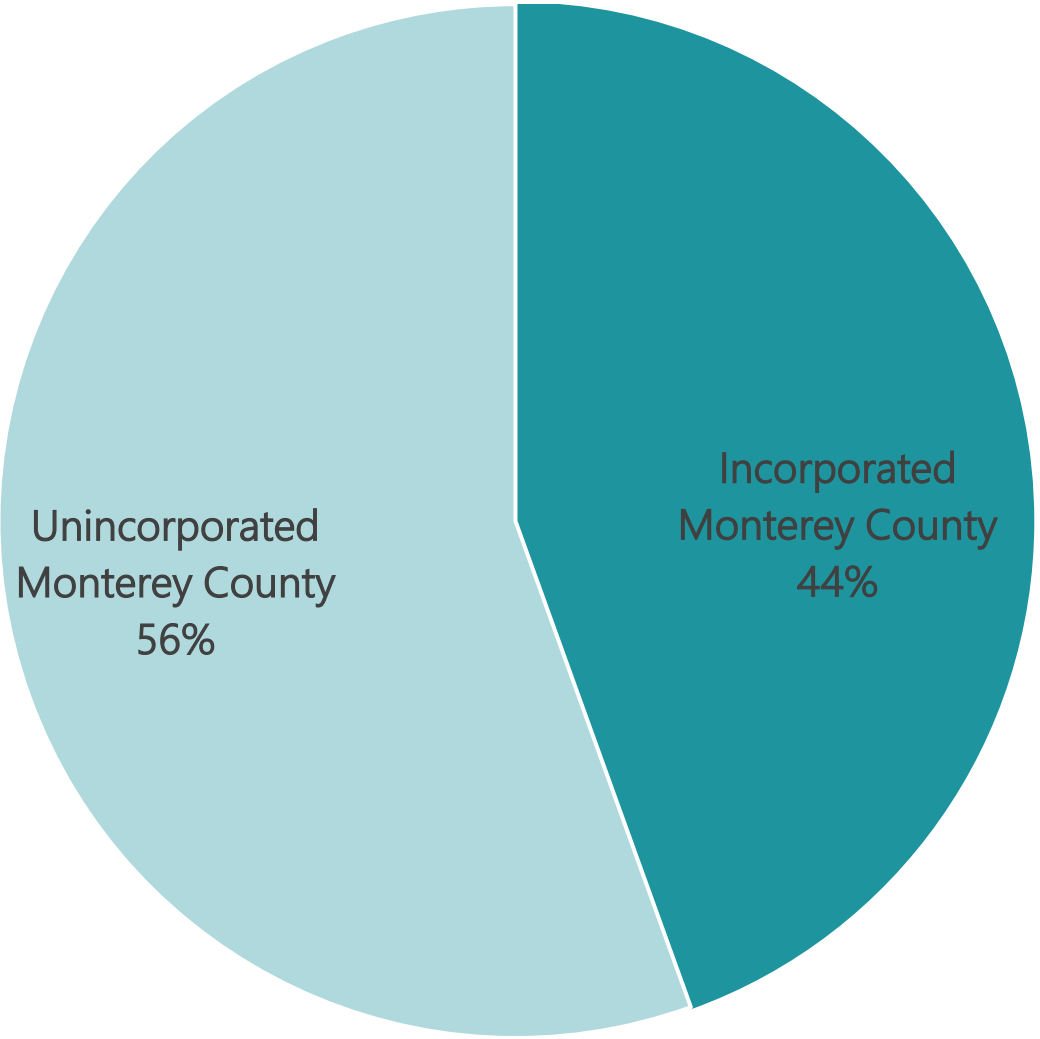


Total Acres Represented = 119,422
Percent of Land Cover in Study Area Represented = 3.6%

Carbon Stock Inventory Results – Urban Forestry & Parks: Monterey County

Jurisdiction	Acreage	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Carmel By-The-Sea	649	19,326	3,768	23,095
Del Rey Oaks	270	11,228	1,566	12,794
Gonzales	795	20,405	4,615	25,020
Greenfield	1,179	27,508	6,842	34,350
King City	1,375	42,045	7,981	50,026
Marina	3,039	109,867	17,643	127,509
Monterey	4,903	137,232	28,464	165,696
Pacific Grove	1,654	44,958	9,601	54,558
Salinas	11,396	332,203	66,163	398,367
Sand City	156	5,008	908	5,916
Seaside	3,680	114,142	21,367	135,509
Soledad	1,702	49,859	9,883	59,742
Unincorporated Monterey County	42,643	1,115,654	247,585	1,363,239
Total	**73,439**	**2,029,436**	**426,386**	**2,455,822**

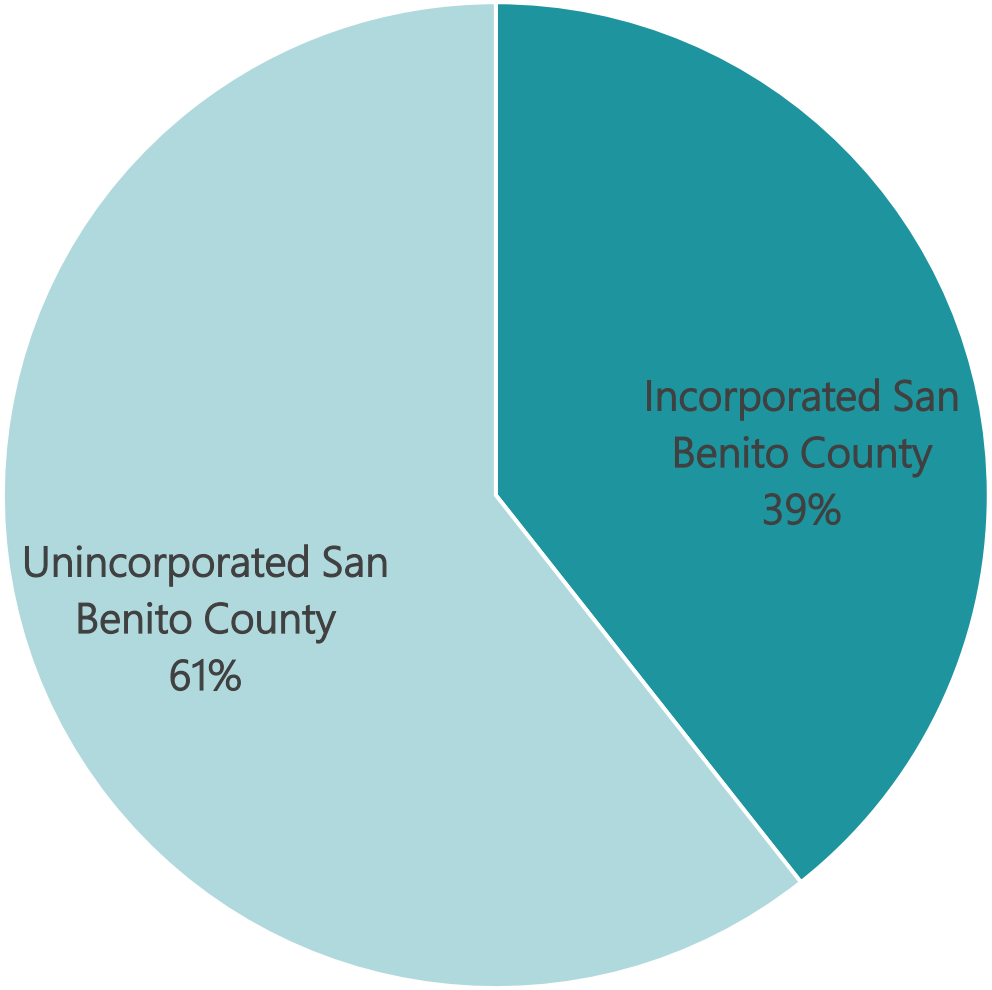
Carbon Stock Inventory Results – Urban Forestry & Parks: Monterey County



Carbon Stock Inventory Results – Urban Forestry & Parks: San Benito County

Jurisdiction	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Hollister	3,632	4,811	120,638	23,095
San Juan Bautista	293	388	8,146	12,794
Unincorporated San Benito County	7,812	10,347	198,277	25,020
Total	**11,738**	**311,514**	**15,547**	**327,061**

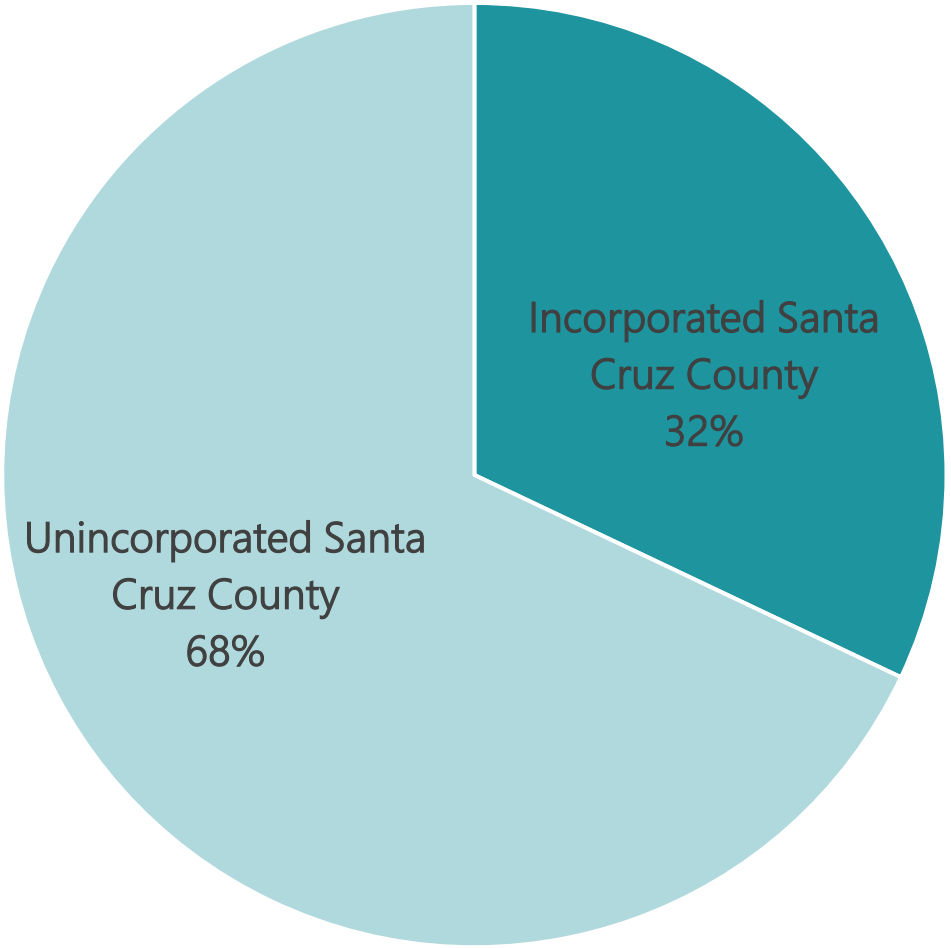
Carbon Stock Inventory Results – Urban Forestry & Parks: San Benito County



Carbon Stock Inventory Results – Urban Forestry & Parks: Santa Cruz County

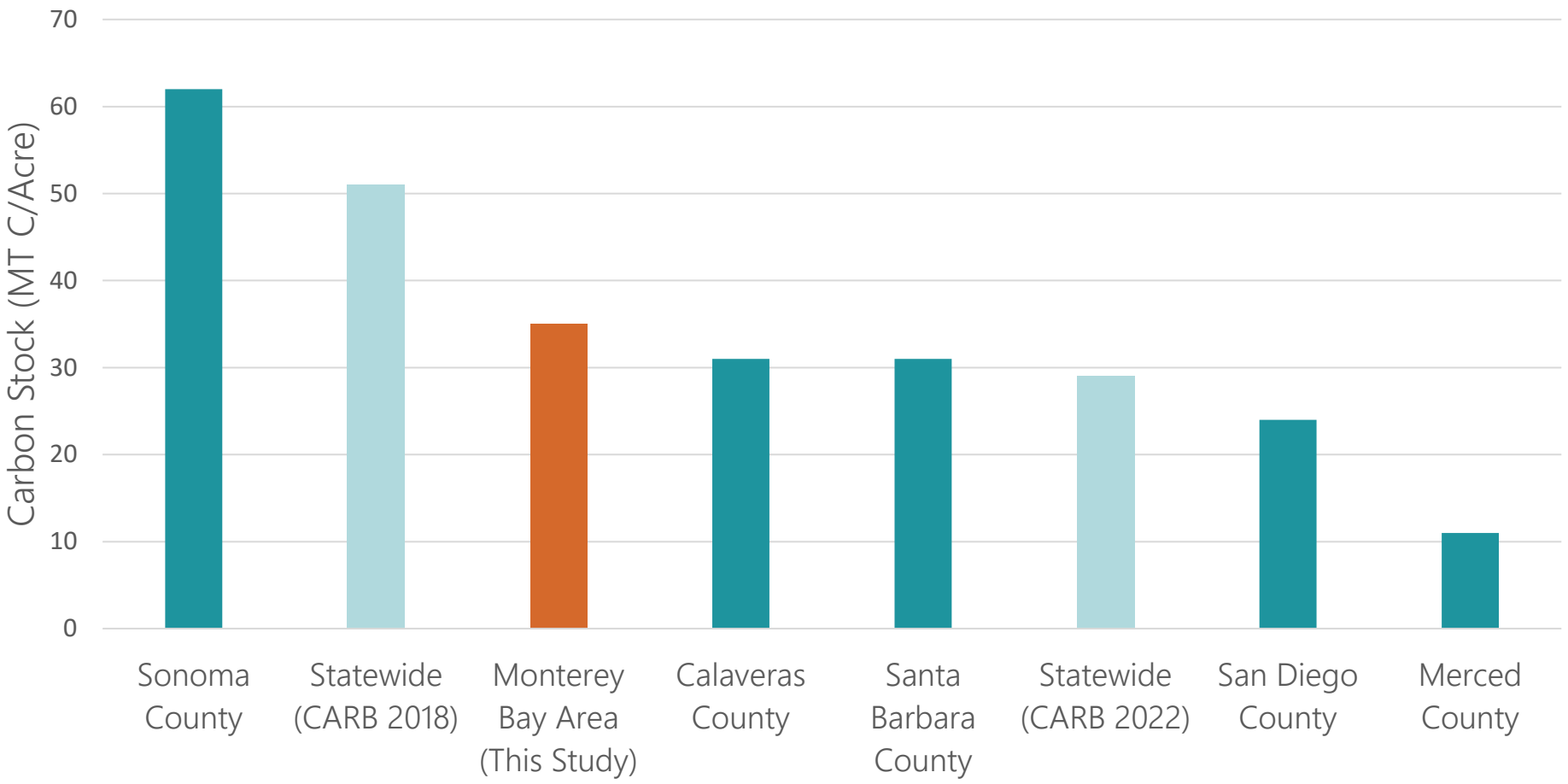
Jurisdiction	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Capitola	881	29,146	9,987	39,133
Santa Cruz	5,421	105,612	61,424	167,035
Scotts Valley	1,864	48,293	21,116	69,409
Unincorporated Santa Cruz County	22,470	597,530	254,597	852,127
Watsonville	3,610	85,369	40,901	126,270
Total	**34,245**	**865,949**	**388,025**	**1,253,974**

Carbon Stock Inventory Results – Urban Forestry & Parks: Santa Cruz County



Carbon Stock Inventory Results: Comparison Across Regions

Carbon Stock Inventory Rates: Comparison Across Regions



Carbon Stock Inventory Results: Comparison Across Regions

Region	Report Year	Acres	Carbon Stock (MT C/Acre)	Carbon Stock (MMT C)
Monterey Bay Area (This Study)	2023	3,291,989	35	116
Sonoma County	2016	1,016,781	62	63
Santa Barbara County	2020	1,632,162	31	51
Merced County	2019	1,265,303	11	14
San Diego County	2022	2,727,116	24	65
Calaveras County	2021	662,838	31	20
Statewide (CARB)*	2018	105,000,000	51	5,340
Statewide (CARB)*	2022	105,000,000	29	3,117

MMT C = million metric tons of carbon
* Using 2014 data

Refined Methodology

Data Sources: Spatial Data

Aboveground

- Urban
  - CAL FIRE Fire and Resource Assessment Program (FRAP) (2015)
    - Coordination with the CDFW VegCamp program and USDA Forest Service Region 5 Remote Sensing Laboratory data

Soil

- All soil types
  - NRCS's Soil Survey Geographic Database (2022)
    - Soil dataset that is updated and maintained through USDA
    - Data compiled by county through land surveying and soil sampling

Data Sources: Carbon Stock Values

Aboveground

- Urban Forests
  - California Air Resources Board Technical GHG appendices (Saah 2016, CARB)
    - County-specific carbon stock values for urban forests

Soil

- Soil organic carbon stock available from USDA NRCS's Soil Survey Geographic Database (SSURGO)
- SSURGO data was downloaded for the Monterey Bay Area
  - Most detailed level of soil geographic data developed by National Cooperative Soil Survey
  - Soil attributes derives from properties/characteristics in National Soil Information System
  - Includes weighted average soil organic carbon
  - Data was intersected with land cover, jurisdiction, etc. for spatially specific soil estimates

Questions?

Type in the chat or raise your hand

Next Steps

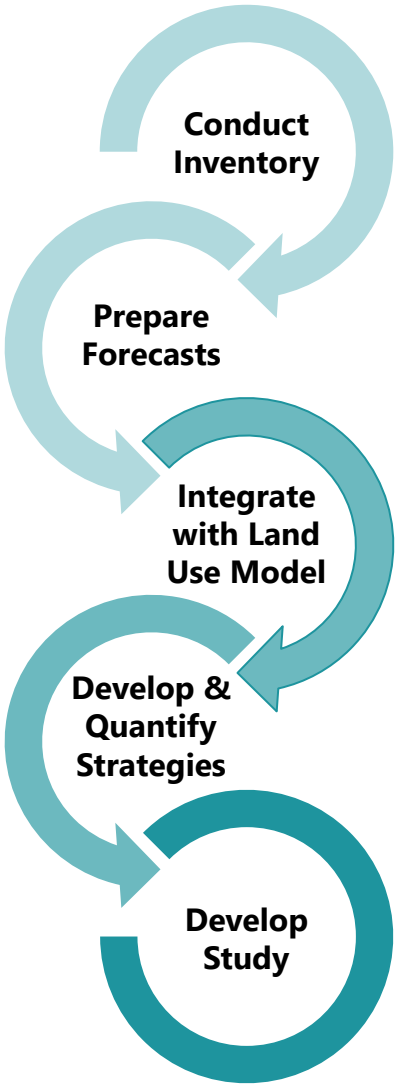
Thanks for joining us today!

End of Deck

Carbon Model Development Approach

Carbon Model Development Approach

- Develop **tool** with spatial baseline of lands with carbon stock
- Scenario forecast modeling using **climate and land use projections**
- Integrate with **Land Use Model**
- Ground-truth spatial analysis using **stakeholder feedback**
- Emphasize strategies that are **quantifiable, scalable, implementable**



Carbon Model Development Approach

Approach

- Estimate baseline stock levels
  - Carbon stock and sequestration
  - Vegetative community
  - Type of carbon storage
  - Land ownership
- Estimate change in carbon stocks
  - Future climate change scenarios
- GIS layer will be brought into AMBAG's Integrated Land Use Model
- AMBAG's Land Use Model will estimate land use change and impacts to carbon stock
- Coordination with stakeholders
  - Key technical insights
  - Ground-truthing spatial analysis
  - Measure identification
- Mitigation and adaptation measure development

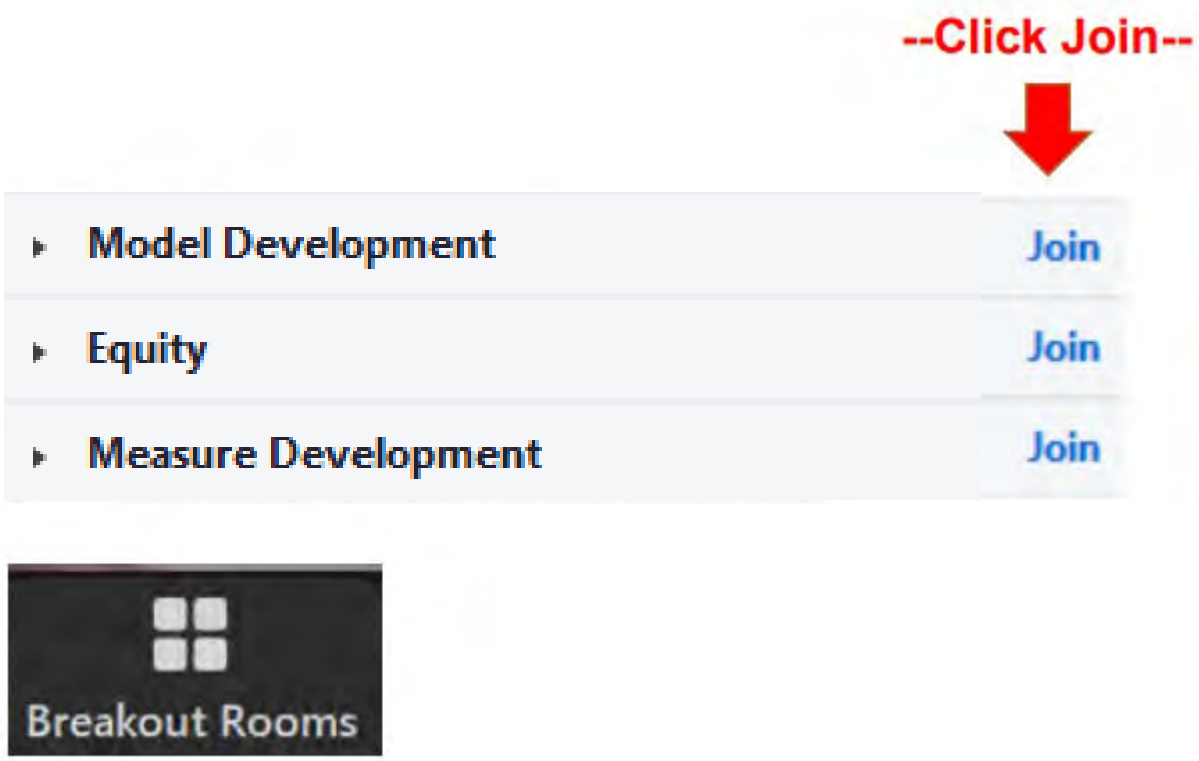
Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
- Help the facilitator to keep things on time

Breakout Group Entry

Join any one of the three rooms to receive an overview of the three topics and provide input or ask questions

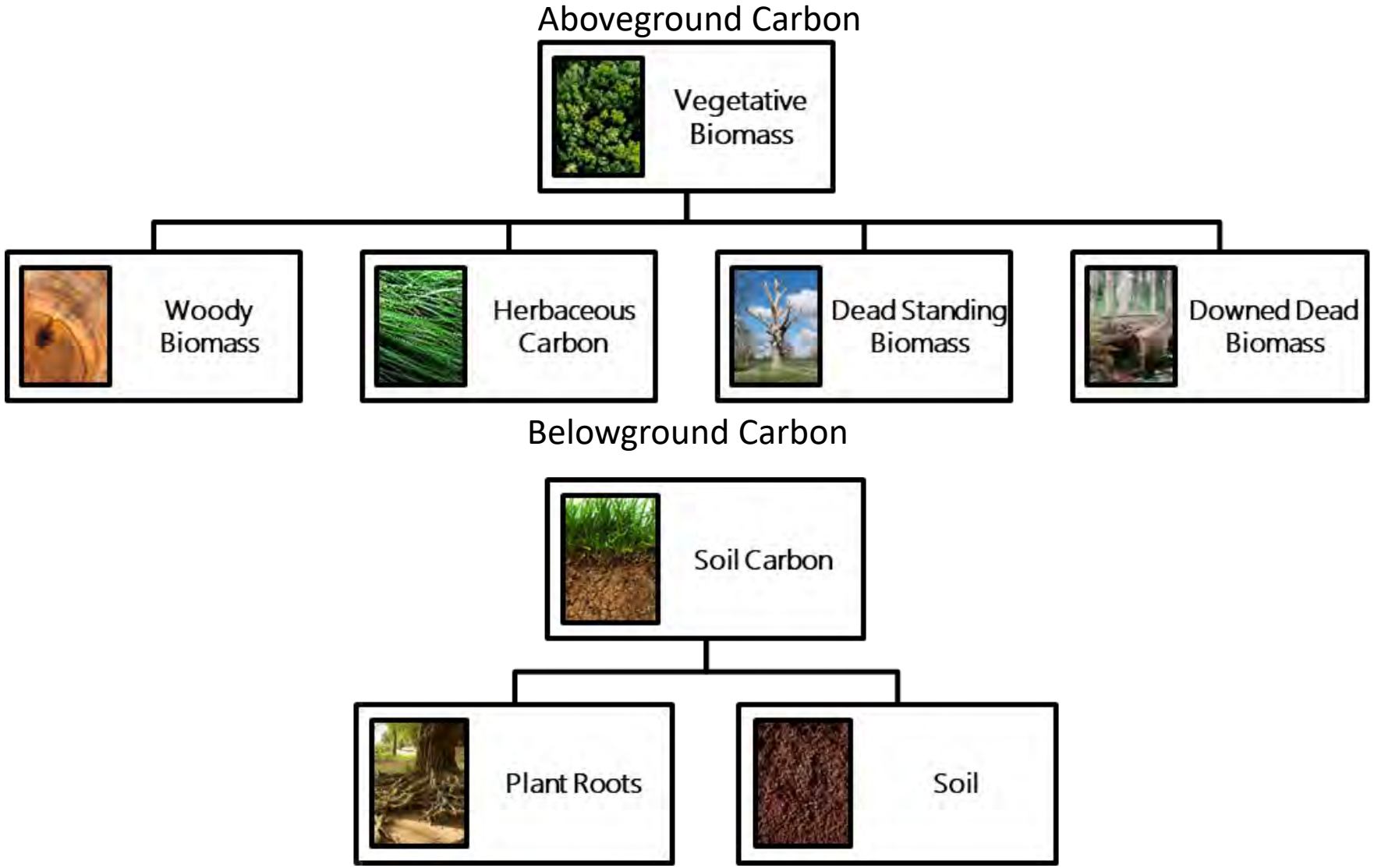
Transition to another Room to join a discussion on another topic(use the Breakout Room icor at the bottom of your screen to bring up the room menu)



Key Terms

- Carbon pool = a system which has the capacity to accumulate or release carbon, considered to be a reservoir
- Carbon sequestration = the process of increasing the content of a carbon pool other than the atmosphere
- Carbon stock = the absolute quantity of carbon held within a pool at a specified time
- Natural Lands = lands consisting of forests, grasslands, deserts, freshwater and riparian systems, wetlands, coastal and estuarine areas, watersheds, wildlands, wildlife habitat, land uses for recreational purposes (e.g., city parks, urban forests)
- Working Lands = lands used for farming, grazing, or the production of forest products

Carbon Stock Inventory Anatomy



Data Gaps/Challenges

- Agriculture
  - Crop carbon stock rates are limited in available scientific literature
  - Discrepancies between the data layers from different agencies (CAL FIRE FRAP vs. DWR Statewide Cropping)
- Lack of Specificity
  - Some carbon values could not be matched to the level of specificity of data layers
  - Carbon stock values often do not reflect current management practices
  - Carbon stock values represent averages and do not include the spatial variability that is representative of carbon stocks in natural areas
- Rapidly Evolving Field of Study
  - New tools being developed by federal and state agencies (e.g., LUCAS from USGS)
  - More specific carbon factors are being published in new scientific literature

ASSOCIATION OF
MONTEREY BAY AREA
GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study Urban Forestry and Parks

Focus Group Series 1
July 10, 2023

Barriers

What are the main barriers your organization, agency, or community members experience to implementing carbon sequestration activities?

- poverty, overwork/ exhaustion, lack of transportation, lack of understanding/knowledge of opportunities, lack of communication
- lack of awareness, not a high priority
- carbon sequestration is wonky topic, limited inertia for agencies to implement activities
- lack of capacity for agencies, not framed as a co-benefit, need more reason for agencies to care about this topic
- Counties take time to implement measures
- Budget for parks and recreation are directed towards resident services and are more constrained for ecological improvements
- lack of funding

Urban Vegetation

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for urban vegetation in the Monterey Bay Area?

- ongoing CAL Recycle (MWELO) regulations and permits regarding landscaping for new development- drought resistant, no dig, and permaculture
- replacing grass with drought-tolerant landscaping
- link between water conservation and carbon sequestration (e.g., no dig, compost application)
- Bike focus transit routes linked with reforestation efforts for carbon benefits
- public health benefits to urban canopy
- Incentivizing more community gardens
- Convene utilities, water districts and local governments to identify how rate payer and other funds can be distributed or coordinated in a way that accelerates urban reforestation
- exemptions for invasive vegetation removal, incentivize native trees (San Mateo County RCD could be an example)
- Modify tree protection ordinances to protect native trees and trees that sequester the most carbon
- Coordinate all state programs that support urban forestry and greening– to utilize best planting and management practices, follow state guidance on best urban forestry practices, and consult or coordinate with CAL FIRE for technical assistance- the state's designated authority on urban forestry
- Coordinate with the local RCDs in their urban tree protection efforts

Parks

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for parks in the Monterey Bay Area?

- Locke Madden Park (Marina) - oak woodland restoration project
- estimate sequestration potential/carbon saturation information for all land cover types
- Education programs- within schools, exhibits in parks, and incentivize participation in these programs
- participation in carbon markets
- annual grasslands conversion to perennial grasslands for soil carbon sequestration
- "Adopt a Park" program
- Provide guidance to local governments on how to treat urban forests/greenspaces like essential infrastructure to increase access to existing local government budgets
- Apply for urban greening state funds (ex. Watsonville wetlands are using)

Additional Stakeholders

Who isn't in the room that we should talk to? Do you know of successful carbon sequestration projects from other regions?

- Watsonville Wetlands Watch
- RCDs
- School districts and universities
- UCSC arboretum and general staff

Urban Forests Focus Group Meeting 2

ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

MARCH 4, 2024

Agenda

- Welcome
- Preliminary Actions and Feedback Requests
  - Lead Organizations
  - Current Efforts
  - Barriers to Implementation
- Group Exercise/Discussion
- Questions
- Next Steps and Closing Comments

A Note on Proposed Actions in this Presentation

- Actions presented here are in draft form and presented to help:
  - ✓ Gather information
  - ✓ Define problems
  - ✓ Brainstorm possible solutions
  - ✓ Think through methods of collaboration
  - ✗ Decide on near-term actions
  - ✗ Assign tasks

- For each action, your feedback is requested on the following:
  - Who could implement this action or is already working on a similar action?
  - Are you or another organization already implementing this?
  - Are there barriers to implementation of the action?

Urban Forest and Parks Implementation Strategies and Actions

Themes

- All Actions within the Urban Forest and Park Strategies fall under one or more of the following three overarching themes
  - **Collaboration:** Working collectively among local governments, special districts, community-based organizations, industry groups
  - **Funding:** Grants, philanthropy, and other funding source to implement actions
  - **Workforce development:** Training a local workforce to support implementation

Collaborate among utility providers, water districts, and local governments to identify and distribute rate-payer funds and grant-funded opportunities to accelerate urban forestry.

Urban Forest and Parks Strategy 1

Urban Forest and Parks Strategy 1

- Implementation Actions
  - **Action 1.1:** Convene every three to six months to share information and best practices about obtaining urban forestry grants, including the reduction of duplicative effort(s) when applying for grants and how best to collaborate on grant applications.
    - Lead Organizations: could consist of a collaboration of public agencies such as RCDs, water districts, and local governments, as well CBOs and industry groups
    - Current efforts: The Monterey Bay Area Climate Justice Collaborative, The California Urban Forest Council
  - **Action 1.2:** Develop a methodology for prioritizing projects when seeking funding in a collaborative regional framework.

Reduce the regulatory burden for invasive vegetation removal and native planting in urban areas to allow native species to thrive.

Urban Forest and Parks Strategy 2

Urban Forest and Parks Strategy 2

- Implementation Actions
  - **Action 2.1:** Explore opportunities to create coalitions for elevating issues around regulatory burden of invasive vegetation removal and native planting—for example, simplifying permitting requirements.
    - Lead organizations: CALCOG, CSAC, League of California Cities, individual jurisdictions
    - Barriers to Implementation: Coordination and collaboration amongst the stakeholders

Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Urban Forest and Parks Strategy 3

Urban Forest and Parks Strategy 3

- Implementation Actions
  - **Action 3.1:** Explore the creation of programs for urban forestry, including scale, scope, and budget.
    - Lead organization(s): local governments
    - Current Efforts: The City of Watsonville and Carmel-by-the-Sea's programs to partner with communities to increase urban forestry and canopy.
  - **Action 3.2:** Convene a meeting to learn best practices from local jurisdictions who already have active urban forestry programs.
    - Lead organizations(s): AMBAG, local governments, CBOs

Increase urban agriculture, and address known barriers such as land access, water hook-ups, lack of local soil creation/availability, fencing, community knowledge and capacity, and local infrastructure for packaging and storage of urban agriculture products for local and regional markets.

Urban Forest and Parks Strategy 4

Urban Forest and Parks Strategy 4

Implementation Actions

- **Action 4.1:** Identify water service needs that may exist for empty or underutilized plots that could serve as urban food gardens.
- **Action 4.2:** Host workshops on urban agriculture best practices. These workshops could include organizations/agencies that have received US Forest Service funding for urban agriculture.
  - Lead Organization(s): AMBAG, local governments, and CBOs
  - Current Efforts: Urban and Community Forestry Grants

Urban Forest and Parks Strategy 4 (continued)

Implementation Actions

- **Action 4.3:** Explore designating areas in city- or county-owned parks for community gardens.
  - Lead Organization(s): Local governments in partnership with CBOs
  - Current Efforts: The City of Santa Cruz has a community garden.
- **Action 4.4:** Allocate budget for community garden supplies and equipment.
  - Lead Organization(s): Local governments and CBOs
- **Action 4.5:** Dedicate a certain percentage of municipally collected compost for the community garden.
  - Lead Organization(s): Local governments
  - Current Efforts: Local agencies could collaborate to obtain Community Composting for Green Spaces grant funding.

Create urban forestry jobs and workforce development opportunities in Monterey Bay Area communities.

Urban Forest and Parks Strategy 5

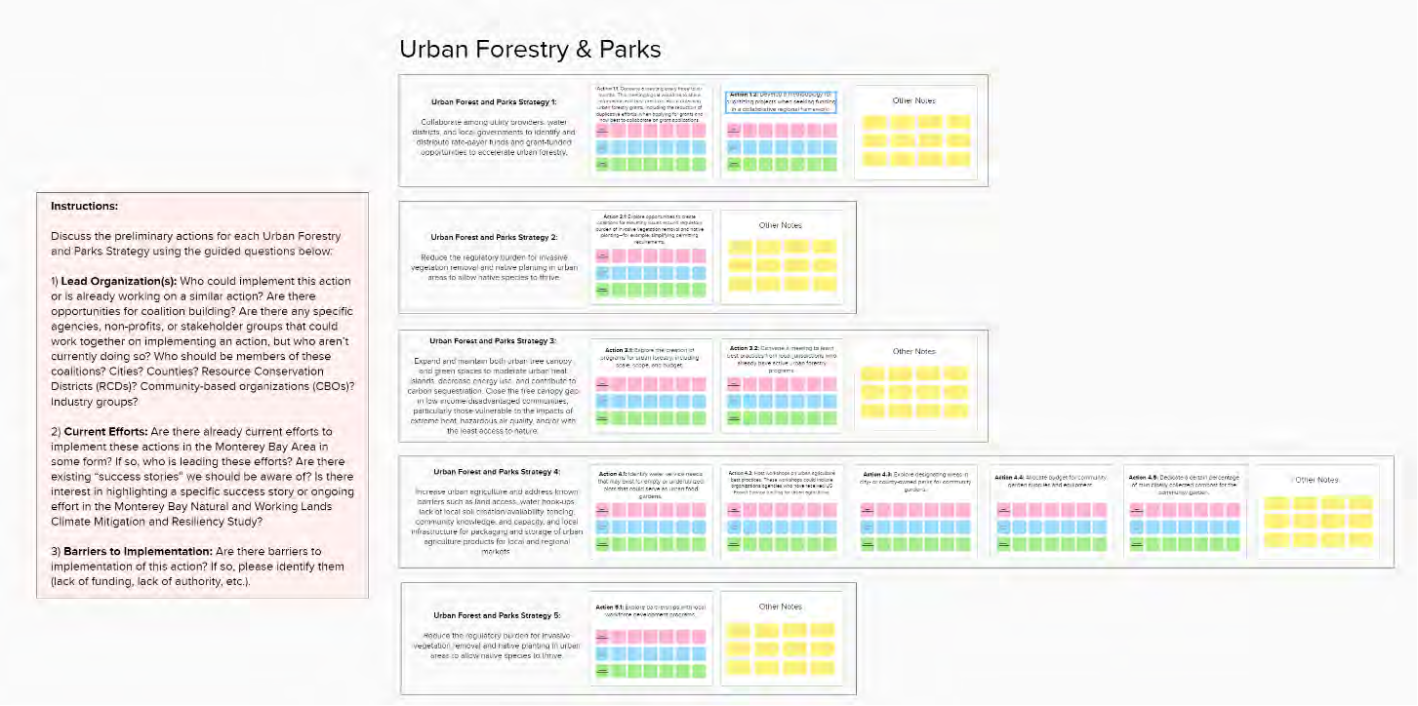
Urban Forest and Parks Strategy 5

- Implementation Actions
  - **Action 5.1:** Explore the creation of local workforce development programs.
    - Lead organization(s): Local governments, CBOs, industry groups
    - Current efforts: The Western Urban and Community Forestry Committee

Group Exercise/Discussion

Strategy Feedback Discussion

- Discuss the proposed actions: 5 strategies, each with 1-5 preliminary actions.
  - **Lead Organization(s):** Who could implement this action or is already working on a similar action?
  - **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
  - **Barriers to Implementation:** Are there barriers to implementation of action(s)?



Instructions:

Discuss the preliminary actions for each Urban Forestry and Parks Strategy using the guided questions below:

1) **Lead Organization(s):** Who could implement this action or is already working on a similar action? Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so? Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

2) **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form? If so, who is leading these efforts? Are there existing "success stories" we should be aware of? Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

3) **Barriers to Implementation:** Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

Urban Forestry & Parks

Urban Forest and Parks Strategy 1:

Collaborate among utility providers, water districts, and local governments to identify and distribute rate-payer funds and grant-funded opportunities to accelerate urban forestry.

Action 1.1: Develop a methodology to prioritize projects when leveraging funding in a collaborative regional framework

Other Notes

Urban Forest and Parks Strategy 2:

Reduce the regulatory burden for invasive vegetation removal and native planting in urban areas to allow native species to thrive.

Action 2.1: Explore opportunities to create collaborations for resulting issues around regulatory burden of invasive vegetation removal and native planting—for example, simplifying permitting requirements.

Other Notes

Urban Forest and Parks Strategy 3:

Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low income-disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Action 3.1: Explore the creation of programs for urban forestry, including scale, scope, and budget.

Action 3.2: Convene a meeting to learn lessons learned from local jurisdictions that already have active urban forestry programs.

Other Notes

Urban Forest and Parks Strategy 4:

Increase urban agriculture and address known barriers such as land access, water hookups, lack of local soil, irrigation availability, lacking community knowledge, and capacity, and local infrastructure for packaging and storage of urban agriculture products for local and regional markets.

Action 4.1: Identify water service needs that may lead to simply an unfair or unjust water rate model cause an urban food garden.

Action 4.2: Host workshops on urban agriculture best practices. These workshops could include organizations/agencies who have received US Forest Service funding for urban agriculture.

Action 4.3: Explore designating areas in city or county-owned parks for community gardens.

Action 4.4: Allocate budget for community garden supplies and equipment.

Action 4.5: Dedicate a certain percentage of municipally-owned land for community gardens.

Other Notes

Urban Forest and Parks Strategy 5:

Reduce the regulatory burden for invasive vegetation removal and native planting in urban areas to allow native species to thrive.

Action 5.1: Explore ways to encourage and incentivize development processes.

Other Notes

Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
- Help the facilitator to keep things on time

Mural Board

- 3.4 Urban Forests and Parks Strategies Focus Group Meeting 1 • ASCENT (mural.co)

Thank you!

Questions? Please type in the chat or raise your hand.

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

FOCUS GROUP MEETING HANDOUT: URBAN FORESTS AND PARKS

MONDAY, MARCH 4, 2024

Purpose: This handout provides a proposed list of specific actions for protecting and increasing the existing carbon stock held in soil and vegetation in urban forests and parks in the Monterey Bay Area (including Monterey, San Benito, and Santa Cruz Counties). The handout poses the following discussion items for each proposed implementation action.

Lead Organization(s)

- Who could implement this action or is already working on a similar action?
- Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so?
    - Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

Current Efforts

- Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
- If so, who is leading these efforts?
- Are there existing "success stories" we should be aware of?
- Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

Barriers to Implementation

- Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

Where information was publicly available, draft answers have been provided for each of these items. If no answer could be provided based on publicly available information, the text "feedback requested" appears inline. Please note that both the draft answers and the "feedback requested" text are intended to spark discussion only—your feedback on any of the information presented here will be fundamental in drafting the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study.

URBAN FOREST AND PARK STRATEGIES

All actions within the Urban Forest and Park strategies fall under one or more of the following three overarching themes, which are defined and denoted as follows:

Theme	Definition	Icon
Collaboration	Working collectively among local governments, special districts, community-based organizations, industry groups	
Funding	Grants, philanthropy, and other funding source to implement actions	
Workforce Development	Training a local workforce to support implementation	

UFP STRATEGY 1.

Collaborate among utility providers, water districts, and local governments to identify and distribute or access funding opportunities, such as grants, to accelerate urban forestry.

Implementation Action 1.1

Convene a meeting every three to six months. This meeting's goal would be to share information and best practices about obtaining urban forestry grants, including the reduction of duplicative effort(s) when applying for grants and how best to collaborate on grant applications.

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs, water districts, and local governments, as well CBOs and industry groups
- **Current Efforts:**
  - The Monterey Bay Area Climate Justice Collaborative could be a nexus for convening these conversations.
  - The California Urban Forest Council could be a source of useful information for obtaining grant funding.
  - Specific funding options are described in the document available here.
  - Other organizations involved in urban forestry can be found here.
  - The California Wildfire and Forest Resilience Task Force already serves a coordination role on grant-related matters.

- CALFIRE could provide funding support through its Urban and Community Forestry program.

- **Barriers to Implementation:**
  - Staff capacity
  - Others?

Implementation Action 1.2

Develop a methodology for prioritizing projects when seeking funding in a collaborative regional framework.

- **Lead Organization(s):** Feedback requested
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

UFP STRATEGY 2.

Reduce the regulatory burden for invasive vegetation removal and native planting in urban areas to allow native species to thrive.

Implementation Action 2.1

Explore opportunities to create coalitions for elevating issues around regulatory burden of invasive vegetation removal and native planting—for example, simplifying permitting requirements.

- **Lead Organization(s):** Organizations such as CALCOG, CSAC, League of California Cities, individual jurisdictions
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:**
  - Coordination and collaboration amongst the stakeholders
  - Others?

UFP STRATEGY 3.

Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Implementation Action 3.1

Explore the creation of programs for urban forestry, including scale, scope, and budget.

- **Lead Organization(s):** Local governments
- **Current Efforts:** Cities in the Monterey Bay Area are engaging with communities around urban forestry and partnering to increase urban canopy. Two examples include:
  - The City of Watsonville
  - Carmel-by-the-Sea
- **Barriers to Implementation:** Feedback requested

Implementation Action 3.2

Convene a meeting to learn best practices from local jurisdictions who already have active urban forestry programs.

- **Lead Organization(s):** AMBAG, local governments, CBOs
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

UFP STRATEGY 4.

Increase urban agriculture, and address known barriers such as land access, water hook-ups, lack of local soil creation/availability, fencing, community knowledge and capacity, and local infrastructure for packaging and storage of urban agriculture products for local and regional markets.

Implementation Action 4.1

Identify water service needs that may exist for empty or underutilized plots that could serve as urban food gardens.

- **Lead Organization(s):** Feedback requested
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 4.2

Host workshops on urban agriculture best practices. These workshops could include organizations/agencies who have received US Forest Service funding for urban agriculture.

- **Lead Organization(s):** AMBAG, local governments, and CBOs
- **Current Efforts:** A list of jurisdictions who have received grants is publicly available here.
- **Barriers to Implementation:** Feedback requested

Implementation Action 4.3

Explore designating areas in city- or county-owned parks for community gardens.

- **Lead Organization(s):** Local governments in partnership with CBOs
- **Current Efforts:** The City of Santa Cruz has a community garden.
- **Barriers to Implementation:** Feedback requested

Implementation Action 4.4

Allocate budget for community garden supplies and equipment.

- **Lead Organization(s):** Local governments and CBOs
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 4.5

Dedicate a certain percentage of municipally collected compost for the community garden.

- **Lead Organization(s):** Local governments
- **Current Efforts:** Local agencies could collaborate to obtain Community Composting for Green Spaces grant funding.
- **Barriers to Implementation:** Feedback requested

UFP STRATEGY 5

Create urban forestry jobs and workforce development opportunities in Monterey Bay Area communities.

Implementation Action 5.1

Explore partnerships with local workforce development programs.

- **Lead Organization(s):** Local governments, CBOs, industry groups
- **Current Efforts:** The Western Urban and Community Forestry Committee could help here.
- **Barriers to Implementation:** Feedback requested

Forests Focus Group Meeting 1

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Focus Group Series 2
March 4, 2024

Urban Forestry & Parks

Urban Forest and Parks Strategy 1:

Collaborate among utility providers, water districts, and local governments to identify and distribute rate-payer funds and grant-funded opportunities to accelerate urban forestry.

Action 1.1: Convene a meeting every three to six months. This meeting's goal would be to share information and best practices about obtaining urban forestry grants, including the reduction of duplicative effort(s) when applying for grants and how best to collaborate on grant applications.

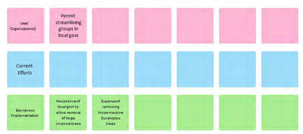
Action 1.2: Develop a methodology for prioritizing projects when seeking funding in a collaborative regional framework.

Other Notes

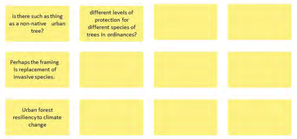
Urban Forest and Parks Strategy 2:

Reduce the regulatory burden for invasive vegetation removal and native planting in urban areas to allow native species to thrive.

Action 2.1: Explore opportunities to create coalitions for elevating issues around regulatory burden of invasive vegetation removal and native planting—for example, simplifying permitting requirements.



Other Notes

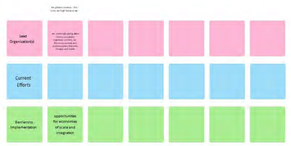


Urban Forest and Parks Strategy 3:

Expand and maintain both urban tree canopy and green spaces to moderate urban heat islands, decrease energy use, and contribute to carbon sequestration. Close the tree canopy gap in low-income/disadvantaged communities, particularly those vulnerable to the impacts of extreme heat, hazardous air quality, and/or with the least access to nature.

Action 3.1: Explore the creation of programs for urban forestry, including scale, scope, and budget.

Action 3.2: Convene a meeting to learn best practices from local jurisdictions who already have active urban forestry programs.



Other Notes

Urban Forest and Parks Strategy 4:

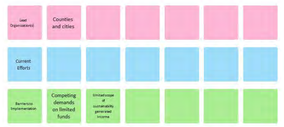
Increase urban agriculture and address known barriers such as land access, water hook-ups, lack of local soil creation/availability, fencing, community knowledge, and capacity, and local infrastructure for packaging and storage of urban agriculture products for local and regional markets.

Action 4.1: Identify water service needs that may exist for empty or underutilized plots that could serve as urban food gardens.

Action 4.2: Host workshops on urban agriculture best practices. These workshops could include organizations/agencies who have received US Forest Service funding for urban agriculture.

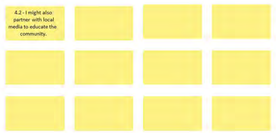
Action 4.3: Explore designating areas in city- or county-owned parks for community gardens.

Action 4.4: Allocate budget for community garden supplies and equipment.



Action 4.5: Dedicate a certain percentage of municipally collected compost for the community garden.

Other Notes

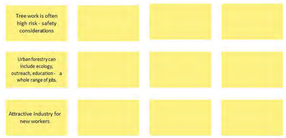


Urban Forest and Parks Strategy 5:

Create urban forestry jobs and workforce development opportunities in Monterey Bay Area communities.

Action 5.1: Explore the creation of local workforce development programs.

Other Notes



ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

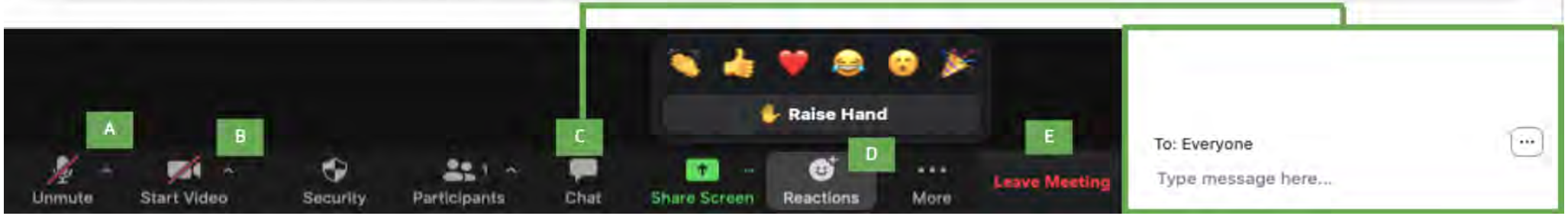
MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

FORESTS

JULY 12, 2023

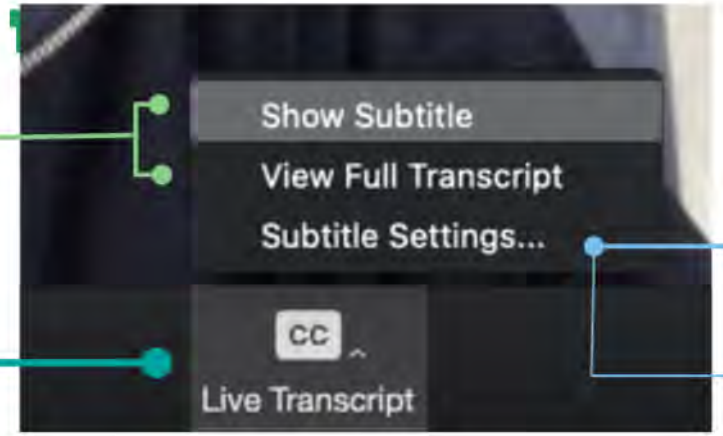
Using Zoom Meeting

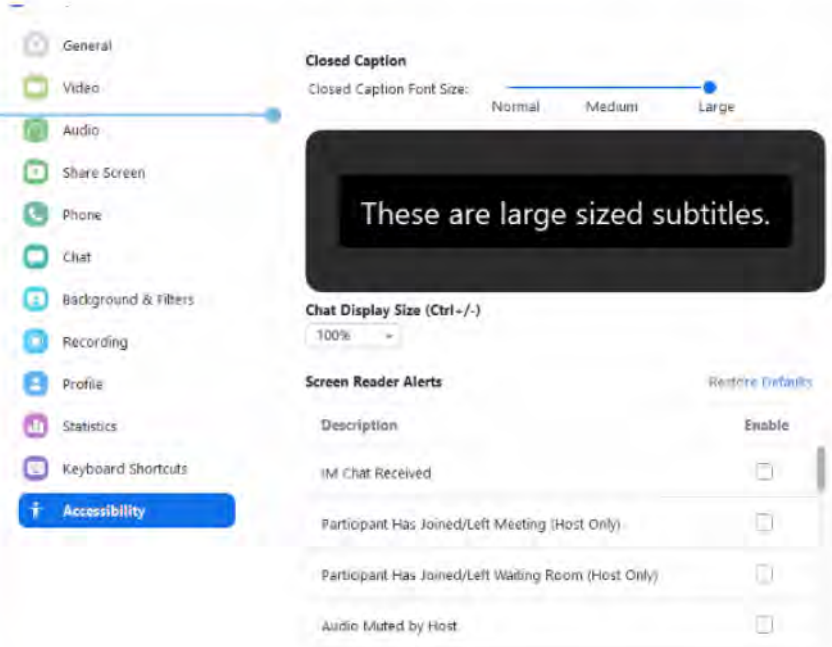
- **A** **Mute / Unmute:** Mutes and unmutes your microphone. Please stay on mute unless you are invited to speak.
- **B** **Start Video / Stop Video:** Turns your camera on and off.
- **C** **Chat:** Opens and closes the chat box. You may leave questions and comments here. We may share notifications or instructions here.
- **D** **Reactions:** Opens menu of non-verbal reactions. We ask that you use the "Raised Hand" feature to notify us when you would like to be called on to speak. can use reactions to provide a reaction to what someone else is saying.
- **E** **Leave Meeting:** Click to leave the meeting while it continues for the other participants. Only the host can end the meeting.



Zoom Closed Caption Feature

1. Click Live Transcript
2. Click Subtitle and/or View Full Transcript
3. Optional: Click Subtitle Settings to change the text size of the subtitles





Agenda

- Carbon Stock Inventory Results
- Refined Methodology
- Next Steps for Study
- Questions & Answers
- Measure Brainstorm
- Wrap Up

Carbon Stock Inventory Results

Updated results from preliminary estimates

Updates to Preliminary Estimates

- What changed between preliminary estimates and inventory memo numbers?
  - Soil carbon was added to analysis
  - Variation in aboveground carbon stock due to the incorporation of more species-specific and region-specific rates
- Why did the overall acreage change?
  - Acreage in the study area increased from 3,232,404 to 3,291,989
  - 98% of land cover was included in preliminary estimates
  - Carbon values have now been assigned manually to the remaining 2% of land cover

Carbon Stock Inventory Results: Monterey Bay Area Rates

Land Cover Type	Aboveground Carbon (MT C /acre)	Soil Carbon (MT C/acre)	Total Carbon (MT C/acre)
Forest	79	22	101
Fresh Marsh	17	19	37
Oak Woodland	9	24	33
Urban	7	27	34
Cropland	1	27	28
Orchards/Vineyards	3	26	29
Shrubland	11	17	28
Grassland	1	24	26
Wetland	7	16	24
Other	0	20	20
Barren	0	18	18
Water	0	10	10
Total	**13**	**22**	**35**

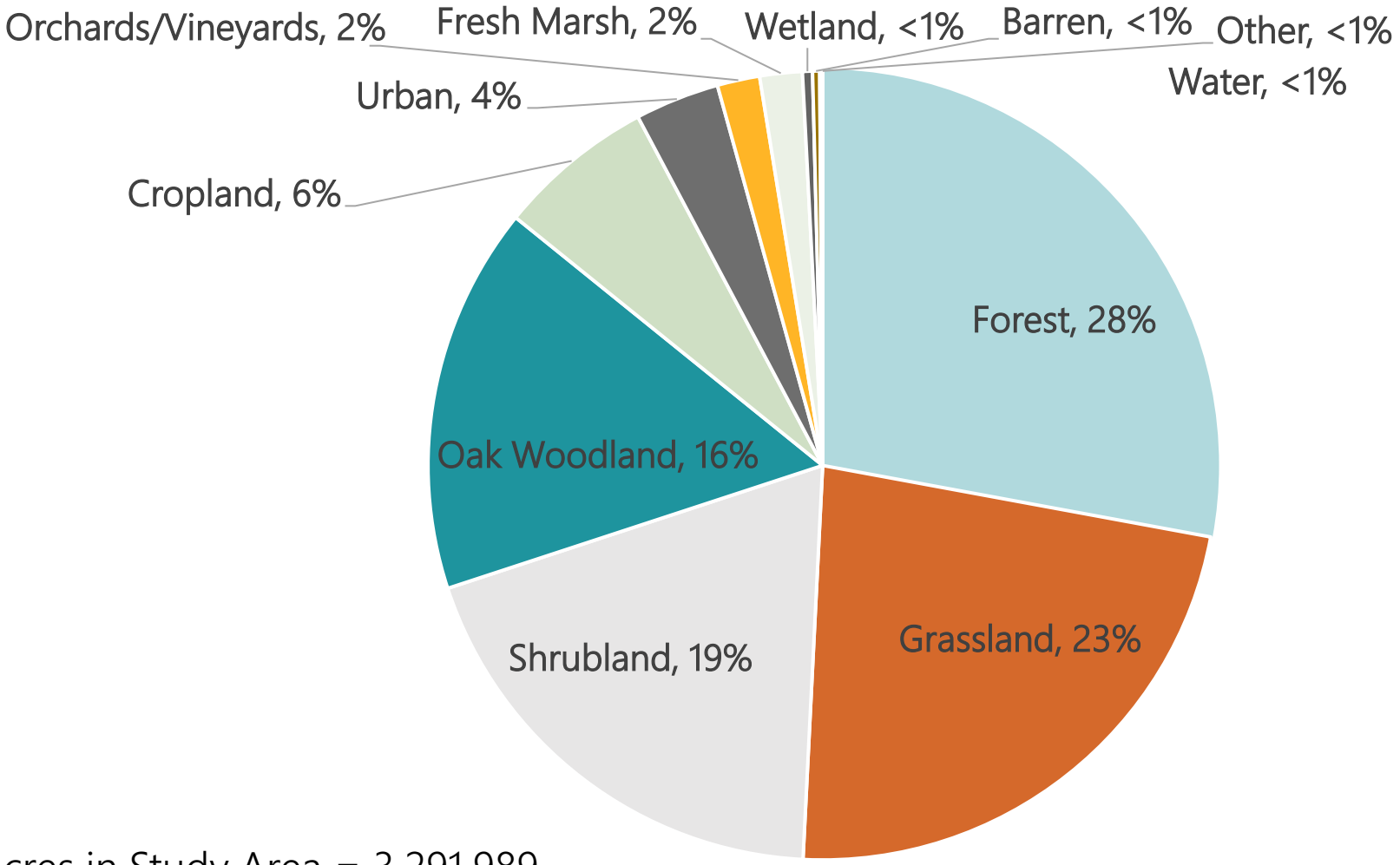
MT C = metric tons of carbon

Carbon Stock Inventory Results: Monterey Bay Area Total

Land Cover Type	Acres	Aboveground Carbon (MT C)	Soil Carbon (MT C)	Total Carbon (MT C)
Forest	322,437	7,051,753	25,540,394	32,592,147
Fresh Marsh	55,500	1,080,143	949,994	2,030,136
Oak Woodland	563,980	13,307,214	5,218,605	18,525,818
Urban	119,422	3,206,899	829,958	4,036,857
Cropland	265,179	7,146,384	364,004	7,510,388
Orchards/Vineyards	70,438	1,834,723	198,257	2,032,979
Shrubland	803,213	13,642,693	8,740,482	22,383,175
Grassland	1,039,070	25,270,515	1,471,740	26,742,255
Wetland	20,373	329,334	149,494	478,828
Other	201	4,114	-	4,114
Barren	19,031	340,346	-	340,346
Water	13,145	134,437	-	134,437
Total	**3,291,989**	**73,348,553**	**43,462,927**	**116,811,480**

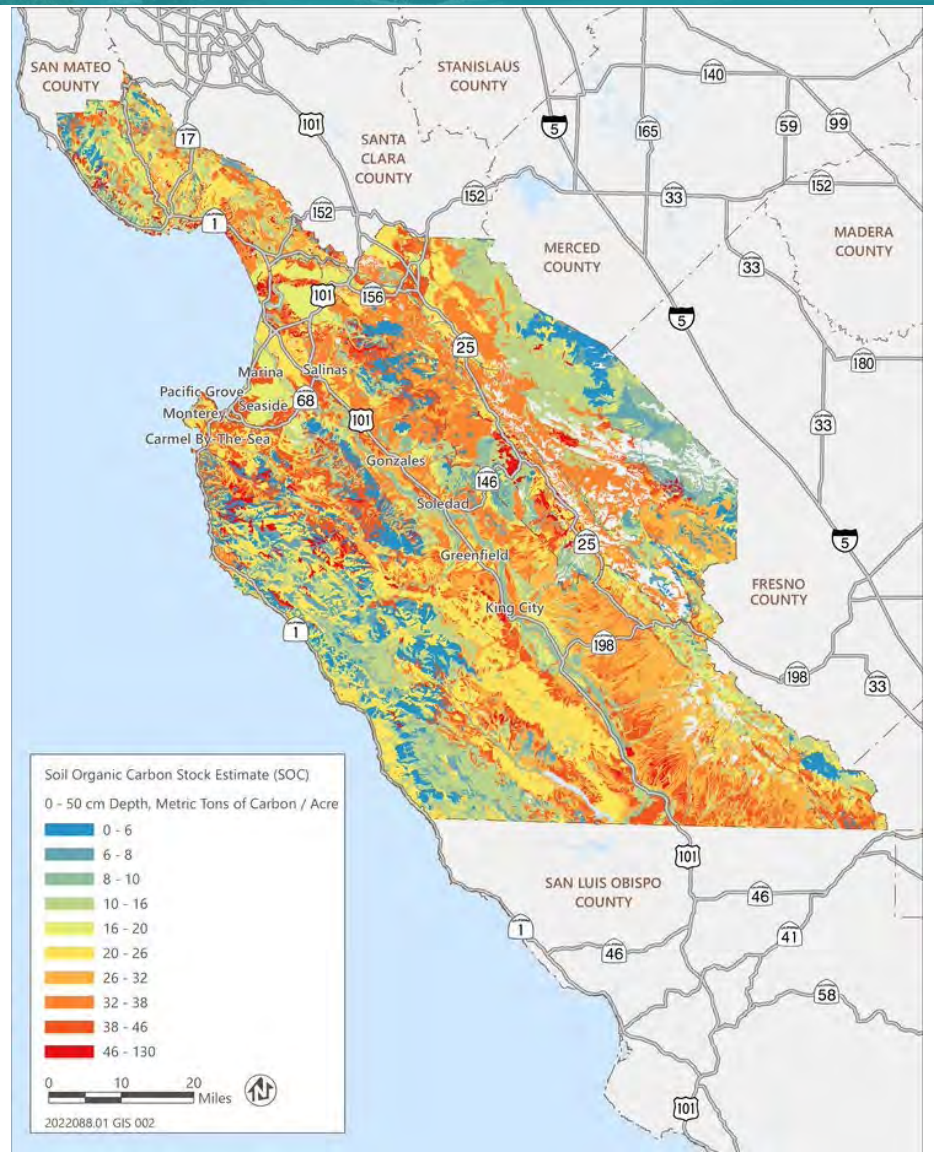
MT C = metric tons of carbon

Carbon Stock Inventory Results by Land Cover Type: Monterey Bay Area



Total Acres in Study Area = 3,291,989

Soil Carbon Map: Monterey Bay Area



Carbon Stock Inventory Results: Forest and Oak Woodland

Updated results from preliminary estimates

Forest and Oak Woodland Land Cover Area

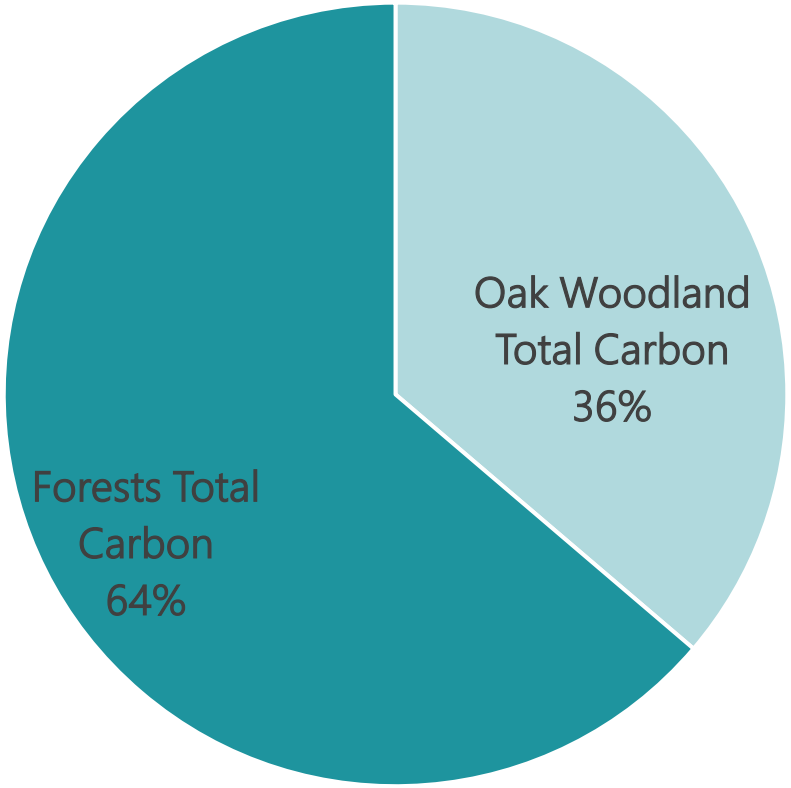
Total Acres Represented = 88,417
Percent of Land Cover in Study Area Represented = 27%

Carbon Stock Inventory Results – Forests & Oak Woodlands: Monterey Bay Area

Land Cover Type	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Monterey County				
Forest	100,115	2,311,156	5,600,559	7,911,715
Oak Woodland	388,661	9,677,761	3,636,555	13,314,316
Monterey County Subtotal	488,776	11,988,917	9,237,114	21,226,031
San Benito County				
Forest	66,167	1,385,780	1,551,533	2,937,313
Oak Woodland	149,169	3,026,153	1,254,115	4,280,268
San Benito County Subtotal	215,336	4,411,933	2,805,648	7,217,581
Santa Cruz County				
Forest	156,155	3,354,817	18,388,302	21,743,118
Oak Woodland	26,150	603,300	327,935	931,234
Santa Cruz County Subtotal	182,305	3,958,116	18,716,236	22,674,353
Total	886,417	20,358,966	30,758,999	51,117,965

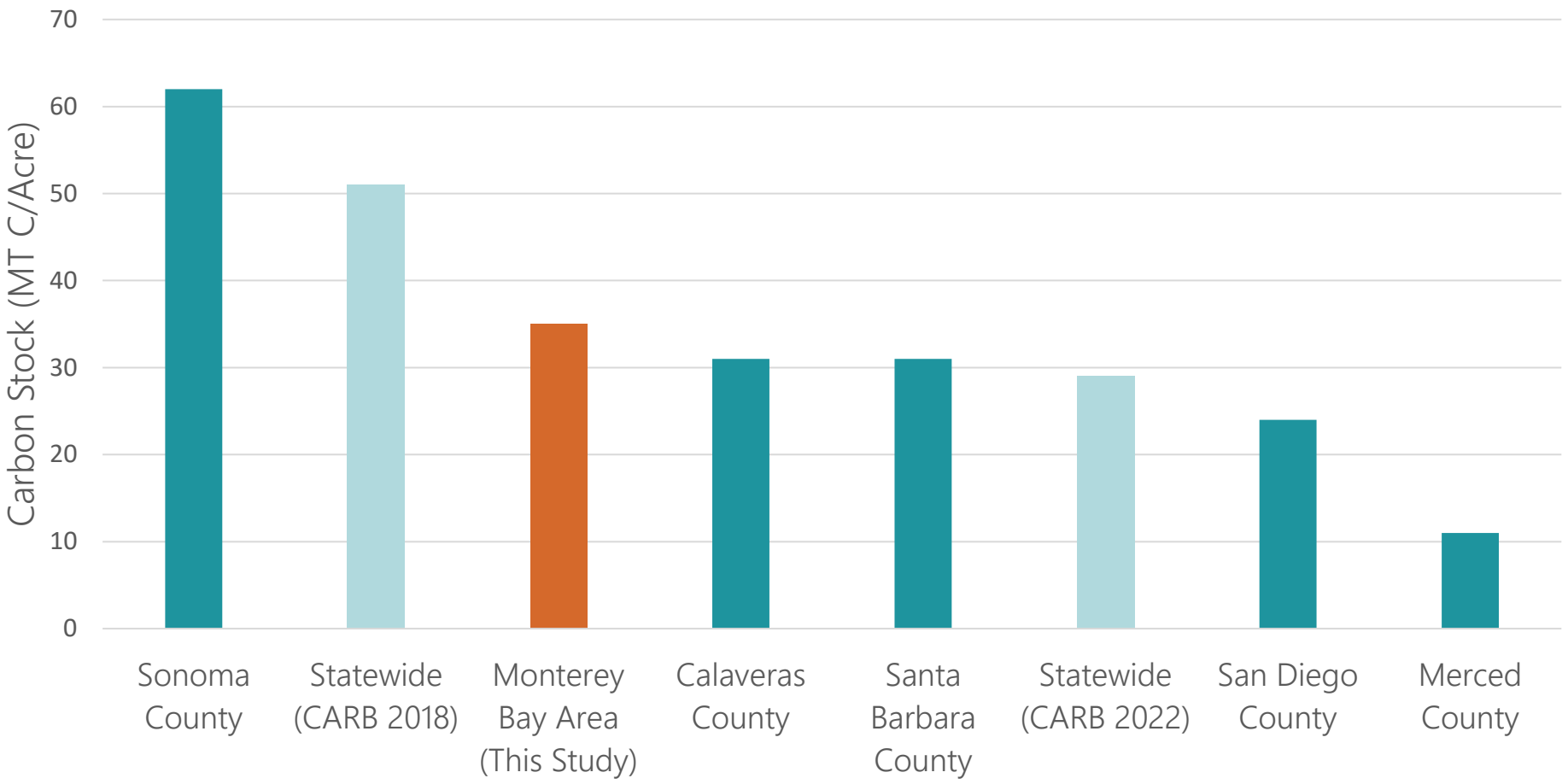
MT C = metric tons of carbon

Carbon Stock Inventory Results – Forests & Oak Woodlands: Monterey Bay Area



Carbon Stock Inventory Results: Comparison Across Regions

Carbon Stock Inventory Rates: Comparison Across Regions



Carbon Stock Inventory Results: Comparison Across Regions

Region	Report Year	Acres	Carbon Stock (MT C/Acre)	Carbon Stock (MMT C)
Monterey Bay Area (This Study)	2023	3,291,989	35	117
Sonoma County	2016	1,016,781	62	63
Santa Barbara County	2020	1,632,162	31	51
Merced County	2019	1,265,303	11	14
San Diego County	2022	2,727,116	24	65
Calaveras County	2021	662,838	31	20
Statewide (CARB)*	2018	105,000,000	51	5,340
Statewide (CARB)*	2022	105,000,000	29	3,117

MMT C = million metric tons of carbon
* Using 2014 data

Refined Methodology

Data Sources: Spatial Data

Aboveground

- Forests and Oak Woodlands
  - CAL FIRE Fire and Resource Assessment Program (FRAP) (2015)
    - Coordination with the CDFW VegCamp program and USDA Forest Service Region 5 Remote Sensing Laboratory data

Soil

- All soil types
  - NRCS's Soil Survey Geographic Database (SSURGO) (2022)
    - Soil dataset that is updated and maintained through USDA
    - Data compiled by county through land surveying and soil sampling

Data Sources: Carbon Stock Values

Aboveground

- Forests (live and dead biomass)
  - California Forest Carbon Plan (Forest Climate Action Team 2018, CAL FIRE, CNRA, Cal EPA)
    - Species-specific, includes Coast Live Oak, Douglas Fir, Ponderosa Pine, etc.
  - Oaks in California (Gaman 2008, California Oaks Foundation)
    - Species-specific by region (e.g., Central Coast) for oak woodlands

Data Sources: Carbon Stock Values

Soil

- Soil organic carbon stock available from USDA NRCS's Soil Survey Geographic Database (SSURGO)
- SSURGO data was downloaded for the Monterey Bay Area
  - Most detailed level of soil geographic data developed by National Cooperative Soil Survey
  - Soil attributes derives from properties/characteristics in National Soil Information System
  - Includes weighted average soil organic carbon
  - Data was intersected with land cover, jurisdiction, etc. for spatially specific soil estimates

Questions?

Type in the chat or raise your hand

Next Steps

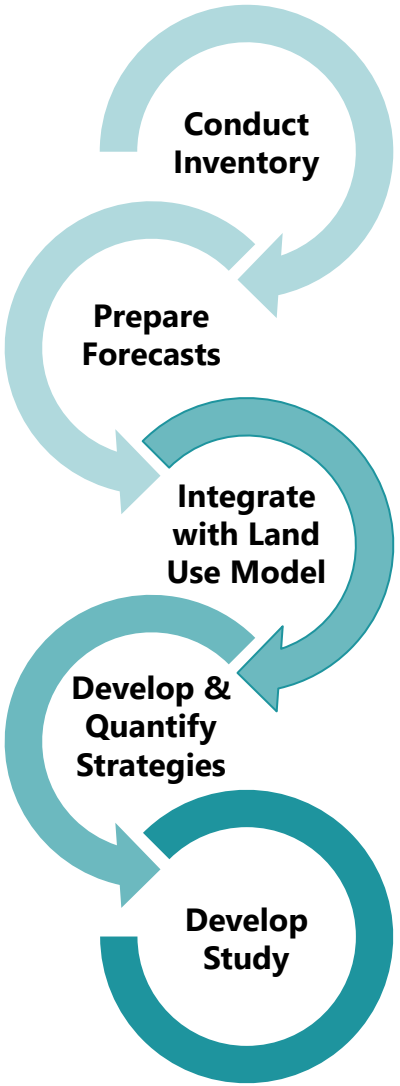
Thanks for joining us today!

End of Deck

Carbon Model Development Approach

Carbon Model Development Approach

- Develop **tool** with spatial baseline of lands with carbon stock
- Scenario forecast modeling using **climate and land use projections**
- Integrate with **Land Use Model**
- Ground-truth spatial analysis using **stakeholder feedback**
- Emphasize strategies that are **quantifiable, scalable, implementable**



Carbon Model Development Approach

Approach

- Estimate baseline stock levels
  - Carbon stock and sequestration
  - Vegetative community
  - Type of carbon storage
  - Land ownership
- Estimate change in carbon stocks
  - Future climate change scenarios
- GIS layer will be brought into AMBAG's Integrated Land Use Model
- AMBAG's Land Use Model will estimate land use change and impacts to carbon stock
- Coordination with stakeholders
  - Key technical insights
  - Ground-truthing spatial analysis
  - Measure identification
- Mitigation and adaptation measure development

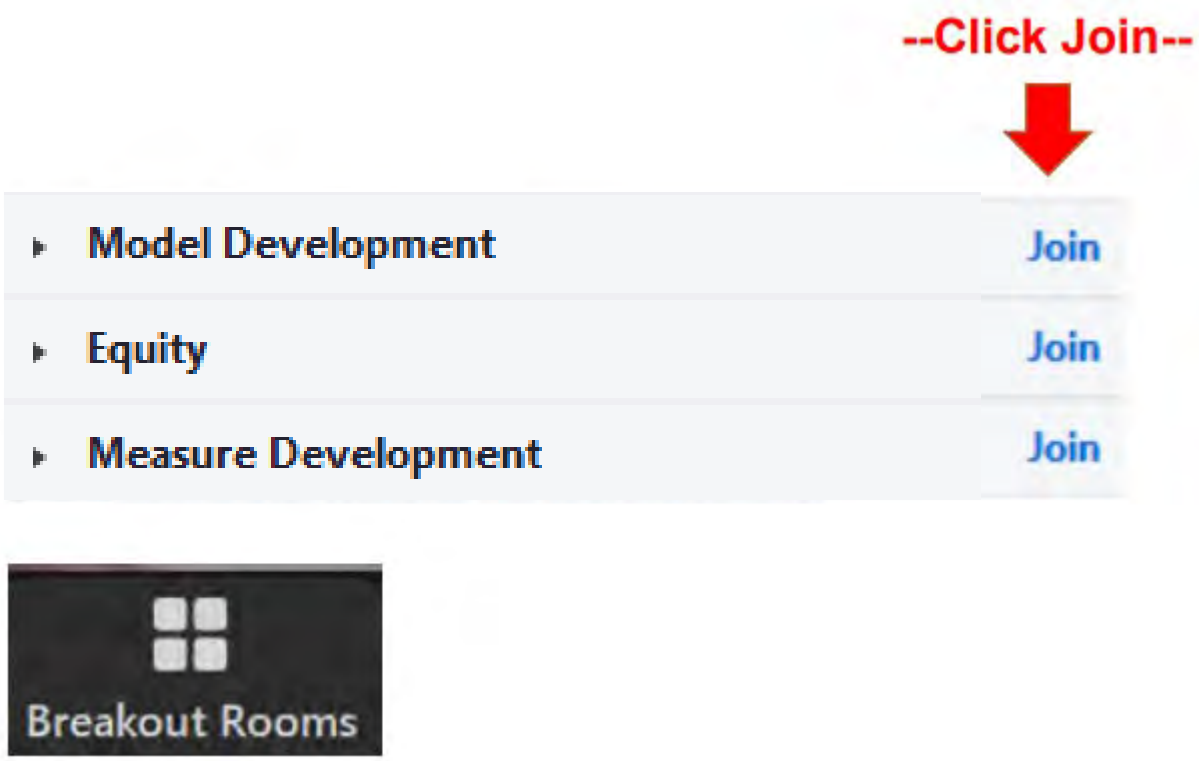
Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
- Help the facilitator to keep things on time

Breakout Group Entry

Join any one of the three rooms to receive an overview of the three topics and provide input or ask questions

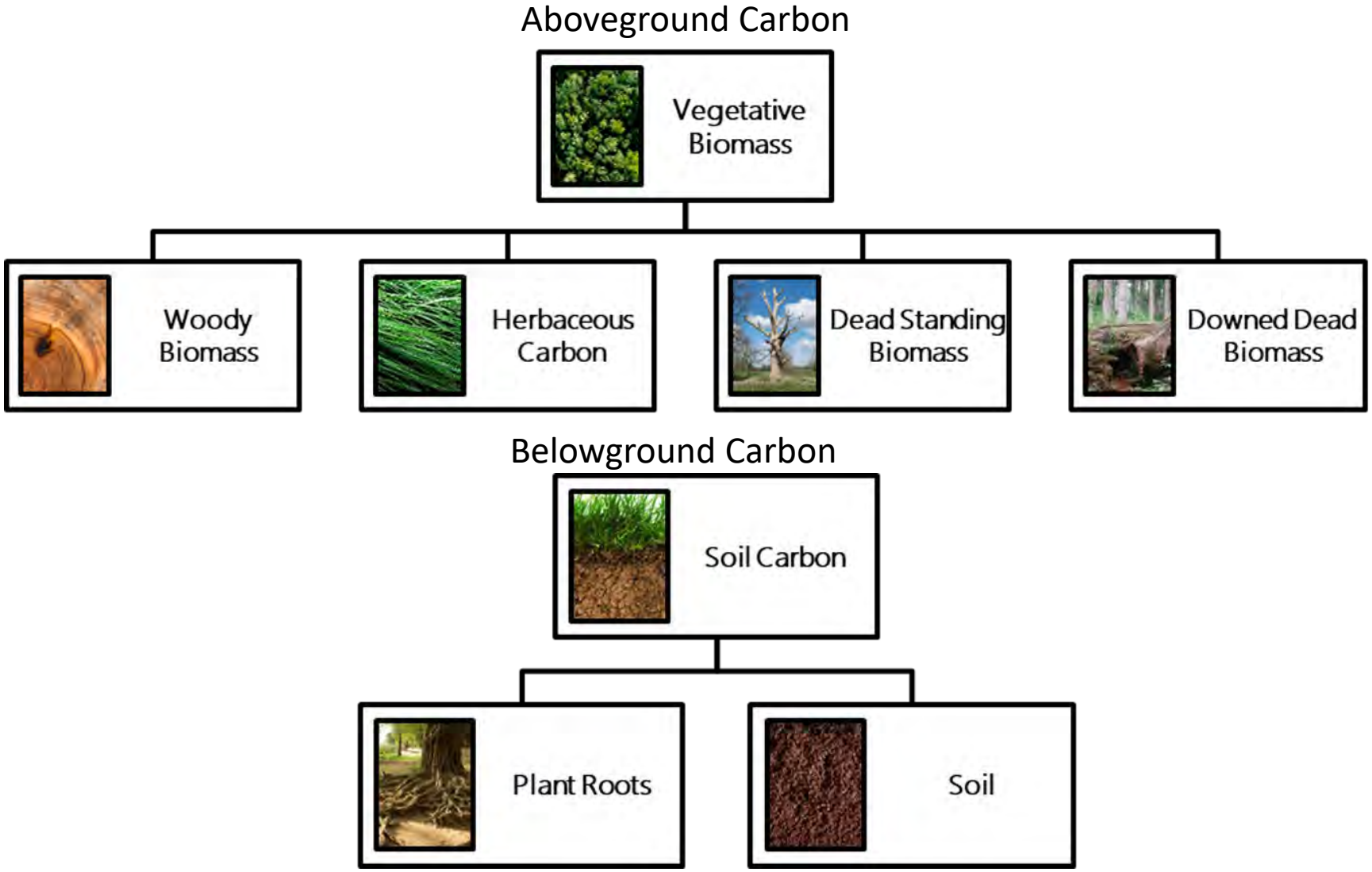
Transition to another Room to join a discussion on another topic(use the Breakout Room icor at the bottom of your screen to bring up the room menu)



Key Terms

- Carbon pool = a system which has the capacity to accumulate or release carbon, considered to be a reservoir
- Carbon sequestration = the process of increasing the content of a carbon pool other than the atmosphere
- Carbon stock = the absolute quantity of carbon held within a pool at a specified time
- Natural Lands = lands consisting of forests, grasslands, deserts, freshwater and riparian systems, wetlands, coastal and estuarine areas, watersheds, wildlands, wildlife habitat, land uses for recreational purposes (e.g., city parks, urban forests)
- Working Lands = lands used for farming, grazing, or the production of forest products

Carbon Stock Inventory Anatomy



Data Gaps/Challenges

- Agriculture
  - Crop carbon stock rates are limited in available scientific literature
  - Discrepancies between the data layers from different agencies (CAL FIRE FRAP vs. DWR Statewide Cropping)
- Lack of Specificity
  - Some carbon values could not be matched to the level of specificity of data layers
  - Carbon stock values often do not reflect current management practices
  - Carbon stock values represent averages and do not include the spatial variability that is representative of carbon stocks in natural areas
- Rapidly Evolving Field of Study
  - New tools being developed by federal and state agencies (e.g., LUCAS from USGS)
  - More specific carbon factors are being published in new scientific literature

ASSOCIATION OF
MONTEREY BAY AREA
GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study Forests

Focus Group Series 1
July 12, 2023

Barriers

What are the main barriers your organization, agency, or community members experience to implementing carbon sequestration activities?

- may be lack of future grant funding for fuel reduction
- Forest practice rules are strict
- Coastal development permits are needed in the coastal zone
- workforce needs (high cost of living)
- cost of fuel reduction work will increase due to increased staff costs (prevailing wages)
- Identifying high priority fuels reduction projects
- prescribed burns have public hurdles
- working in the coastal zone- need to hire consultants
- each fire is protected up to 2 million
- private landowners are risk-averse (compared to State Parks)
- forests are overstocked and need vegetation reduction (but counters carbon sequestration efforts)
- Cal Fire grants rating system assesses carbon removal- limits funds
- permitting costs sometimes not included in grants
- No places to put biomass from fuels reduction

Forests

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for forests in the Monterey Bay Area?

- block grant funding to support ongoing fuel reduction work
- build local capacity for workforce and contractors
- electricity generation from biomass removed
- Incentivize fuels reduction for carbon offset creation
- Creating biochar from biomass removed
- Supporting entrepreneurs for furniture creation from timber removed
- Advance the combined use of conservation easements and carbon markets, using the Buckeye Forest as an approach
- biochar pilot at old quarry in Santa Cruz County
- thinning, fuel breaks, prescribed burning
- Collaborate with tribal partners to inform prescribed burning plans and healthy forest management activities
- regional approaches to pursue grant funding
- need for firewood in mountain communities
- electricity from biomass to freeze produce

Oak Woodlands

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for oak woodlands in the Monterey Bay Area?

- Collaborate with tribal partners in forest management
- Use Oak woodland populations as a shaded fuel breaks
- targeted oak woodland habitat restoration (removing competing species)
- Launch Oak Woodland Ecosystem Restoration Camps. Well-organized networks of camps can connect people who know how to restore degraded land with people who want to learn by working at degraded sites.
- opportunities for local artisans to use oak for products
- mills that can process oaks locally
- use CERF workforce development funding for economic development
- Incentivize small timber-based businesses and foresters to provide thinning and fire prevention services.
- business champion to seek oak funding
- Location for firewood processing within the area
- transportation network to move biomass (use rail)
- Create a circular carbon economy
- carbon neutral pledge for region to connect biomass efforts and transportation emissions
- workforce education and training

Additional Stakeholders

Who isn't in the room that we should talk to? Do you know of successful carbon sequestration projects from other regions?

- commercial timber harvest productions (Big Creek and Redwood Empire)
- State Parks
- Academics at UCSC
- Tribal Groups
- workforce development agencies
- MBARD
- CAL Fire

Forests Focus Group Meeting 2

ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

MARCH 6, 2024

Agenda

- Welcome
- Preliminary Actions and Feedback Requests
  - Lead Organizations
  - Current Efforts
  - Barriers to Implementation
- Group Exercise/Discussion
- Questions
- Next Steps and Closing Comments

A Note on Proposed Actions in this Presentation

- Actions presented here are straw proposals only, presented to help:
  - ✓ Gather information
  - ✓ Define problems
  - ✓ Brainstorm possible solutions
  - ✓ Think through methods of collaboration
  - ✗ Decide on near-term actions
  - ✗ Assign tasks

- For each action, your feedback is requested on the following:
  - Who could implement this action or is already working on a similar action?
  - Are you or another organization already implementing this?
  - Are there barriers to implementation of the action?

Forests Implementation Strategies and Actions

Themes

- All actions within the forest strategies fall under one or more of the following three overarching themes
  - **Collaboration:** Working collectively among local governments, special districts, community-based organizations, industry groups
  - **Funding:** Grants, philanthropy, and other funding source to implement actions
  - **Workforce development:** Training a local workforce to support implementation

Collaboration

Funding

Workforce Development

Incentivize small timber-based businesses, landowners, and foresters to provide services to reduce the probability of catastrophic wildfires, including thinning, clearcut, and prescribed burns.

Forest Strategy 1

Forest Strategy 1

- Implementation Actions
  - **Action 1.1:** Form a collaborative to obtain funding for forestry treatments, such as Community Wildfire Defense Grants from the US Forest Service or Wildfire Prevention Grants from the California Department of Forestry and Fire Protection (CAL FIRE).
    - Lead organization(s): Various, this could consist of a collaboration of public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups.
  - **Action 1.2:** Explore the development an incentive program to support the costs of forest services such as thinning, clearcut, and prescribed burns. These values should be expressed in dollars per acre treated.
    - Lead Organization(s): Local governments, in collaboration with RCDs, CBOs, and industry groups.
  - **Action 1.3:** Host information-sharing sessions on best practices for prescribed burns and other specific forest treatments.
    - Lead Organizations: Various, this could consist of a collaboration of public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups

Forest Strategy 1 (continued)

- Implementation Actions
  - **Action 1.4:** Collaborate on simplifying permitting processes for forest treatments, especially those on private lands.
    - Lead organization(s): public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups. These groups could engage with regulators and agencies who issue permits.
  - **Action 1.5:** Explore the development of a transportation network to move downed woody biomass.
    - Lead Organization(s): Various, this could consist of a collaboration of public agencies such as RCDs, air districts, local governments, CAL FIRE, and the US Forest Service

Explore the development of a locally based carbon offset program for forest fuel treatment projects to avoid carbon loss.

Forest Strategy 2

Forest Strategy 2

- Implementation Actions
  - **Action 2.1:** Create a regional collaborative to explore the development of a locally based carbon offset program for forest fuel treatment projects.
    - Lead Organization(s): Public agencies such as RCDs and local governments, as well as land trusts
    - Current Efforts: The Central Coast Climate Collaborative hosted a carbon sequestration and offset webinar series in 2022

Support the development of biochar facilities, incentivize local projects that create woody biomass waste, and promote the use of locally produced biochar to increase soil carbon sequestration.

Forest Strategy 3

Forest Strategy 3

- Implementation Actions
  - **Action 3.1:** Convene an annual biochar technical meeting to share best practices in the creation and use of biochar, as well as publicize available incentives.
    - Lead organization(s): consist of a collaboration of RCDs, local governments, land trusts, and industry groups
  - **Action 3.2:** Feature and publicize biochar demonstration projects.
    - Lead organization(s): Local governments in collaboration with industry groups

Create a resilient workforce development program using grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass.

Forest Strategy 4

Forest Strategy 4

- Implementation Actions
  - **Action 4.1:** Collaborate and seek grant funding to support a workforce development program.
    - Lead Organization(s): Local governments, educational institutions, CBOs, RCDs
    - Current Efforts: CAL FIRE offers Business and Workforce Development Grants

Collaborate with state agencies to identify opportunities to streamline permitting processes and reduce permit costs for forest management practices in the coastal zone and on public lands.

Forest Strategy 5

Forest Strategy 5

- Implementation Actions
  - **Action 5.1:** Organize a meeting of agencies and organizations to discuss streamlining and consolidating permitting processes.
    - Lead Organization(s): RCDs in collaboration with the following agencies: CAL FIRE, the California Department of Fish and Wildlife, state and regional water quality control boards, the California Environmental Protection Agency, and the California Department of Conservation

Group Exercise/Discussion

Strategy Feedback Discussion

- Discuss the proposed actions: 5 strategies, each with 1-5 preliminary actions.
  - **Lead Organization(s):** Who could implement this action or is already working on a similar action?
  - **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
  - **Barriers to Implementation:** Are there barriers to implementation of action(s)?

Instructions:

Discuss the preliminary actions for each Forest Strategy using the guided questions below.

1) **Lead Organization(s):** Who could implement this action or is already working on a similar action? Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so? Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

2) **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form? If so, who is leading these efforts? Are there existing "success stories" we should be aware of? Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

3) **Barriers to Implementation:** Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

Forests

Forests Strategy 1: Incentivize small timber-based businesses, landowners, and foresters to provide services to reduce the probability of catastrophic wildfires, including thinning, clearcut, and prescribed burns.

Forests Strategy 2: Explore the development of a locally based carbon offset program for forest fuel treatment projects to avoid carbon loss.

Forests Strategy 3: Support the development of biochar facilities, incentivize local projects that create woody biomass waste, and promote the use of locally produced biochar to increase soil carbon sequestration.

Forests Strategy 4: Create a resilient workforce development program using grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass.

Forests Strategy 5: Collaborate with state agencies to identify opportunities to streamline permitting processes and reduce permit costs for forest management practices in the coastal zone and on public lands.

Other Notes

Mural Board

- 3.6 Forests Strategies Focus Group Meeting 2 • ASCENT (mural.co)

Thank you!

Questions? Please type in the chat or raise your hand.

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

FOCUS GROUP MEETING HANDOUT: FORESTS

WEDNESDAY, MARCH 6, 2024

Purpose: This handout provides a proposed list of specific actions for protecting and increasing the existing carbon stock held in soil and vegetation in forests in the Monterey Bay Area (including Monterey, San Benito, and Santa Cruz Counties). The handout poses the following discussion items for each proposed implementation action.

Lead Organization(s)

- Who could implement this action or is already working on a similar action?
- Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so?
    - Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

Current Efforts

- Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
- If so, who is leading these efforts?
- Are there existing "success stories" we should be aware of?
- Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

Barriers to Implementation

- Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

Where information was publicly available, draft answers have been provided for each of these items. If no answer could be provided based on publicly available information, the text "feedback requested" appears inline. Please note that both the draft answers and the "feedback requested" text are intended to spark discussion only—your feedback on any of the information presented here will be fundamental in drafting the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study.

FOREST STRATEGIES

All actions within the strategies fall under one or more of the following three overarching themes, which are defined and denoted as follows:

Theme	Definition	Icon
Collaboration	Working collectively among local governments, special districts, community-based organizations, industry groups	
Funding	Grants, philanthropy, and other funding sources to implement actions	
Workforce Development	Training a local workforce to support implementation	

FOREST STRATEGY 1.

Incentivize small timber-based businesses, landowners, and foresters to provide services to reduce the probability of catastrophic wildfires, including thinning, clearcut, and prescribed burns.

Implementation Action 1.1

Form a collaborative to obtain funding for forestry treatments, such as Community Wildfire Defense Grants from the US Forest Service or Wildfire Prevention Grants from the California Department of Forestry and Fire Protection (CAL FIRE).

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.2

Explore the development of an incentive program to support the costs of forest services such as thinning, clearcut, and prescribed burns. These values should be expressed in dollars per acre treated.

- **Lead Organization(s):** City and County governments, in collaboration with RCDs, CBOs, and industry groups.

- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.3

Host information-sharing sessions on best practices for prescribed burns and other specific forest treatments.

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.4

Collaborate on simplifying permitting processes for forest treatments, especially those on private lands.

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs, air districts, and local governments, as well as CBOs and industry groups. These groups could engage with regulators and agencies who issue permits.
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.5

Explore the development of a transportation network to move downed woody biomass.

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs, air districts, local governments, CAL FIRE, and the US Forest Service
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

FOREST STRATEGY 2.

Explore the development of a locally based carbon offset program for forest fuel treatment projects to avoid carbon loss.

Implementation Action 2.1

Create a regional collaborative to explore the development of a locally based carbon offset program for forest fuel treatment projects.

- **Lead Organization(s):** Various, this could consist of a collaboration of public agencies such as RCDs and local governments, as well as land trusts
- **Current Efforts:** The Central Coast Climate Collaborative hosted a carbon sequestration and offset webinar series in 2022. This work could be used as a starting point in the formation of a carbon offset program.
- **Barriers to Implementation:** Feedback requested

FOREST STRATEGY 3.

Support the development of biochar facilities, incentivize local projects that create woody biomass waste, and promote the use of locally produced biochar to increase soil carbon sequestration.

Implementation Action 3.1

Convene an annual biochar technical meeting to share best practices in the creation and use of biochar, as well as publicize available incentives.

- **Lead Organization(s):** Various, this could consist of a collaboration of RCDs, local governments, land trusts, and industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 3.2

Feature and publicize biochar demonstration projects.

- **Lead Organization(s):** Local governments in collaboration with industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

FOREST STRATEGY 4.

Create a resilient workforce development program using grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass.

Implementation Action 4.1

Collaborate and seek grant funding to support a workforce development program.

- **Lead Organization(s):** Local governments, educational institutions, CBOs, RCDs
- **Current Efforts:** CAL FIRE offers Business and Workforce Development Grants
- **Barriers to Implementation:** Feedback requested

FOREST STRATEGY 5.

Collaborate with state agencies to identify opportunities to streamline permitting processes and reduce permit costs for forest management practices in the coastal zone and on public lands.

Implementation Action 5.1

Organize a meeting of agencies and organizations to discuss streamlining and consolidating permitting processes.

- **Lead Organization(s):** RCDs in collaboration with the following agencies: CAL FIRE, the California Department of Fish and Wildlife, state and regional water quality control boards, the California Environmental Protection Agency, and the California Department of Conservation
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Focus Group Series 2
March 6, 2024

Forests

Forests Strategy 1:

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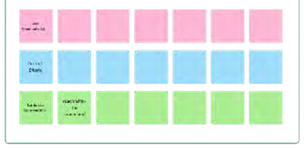
Action 1.1: Form a collaborative to obtain funding for forestry treatments, such as Community Wildfire Defense Grants from the US Forest Service or Wildfire Prevention Grants from the California Department of Forestry and Fire Protection (CAL FIRE).

Action 1.2: Explore the development an incentive program to support the costs of forest services such as thinning, clearcut, and prescribed burns. These values should be expressed in dollars per acre treated.

Action 1.3: Host information-sharing sessions on best practices for prescribed burns and other specific forest treatments.

Action 1.4: Collaborate on simplifying permitting processes for forest treatments, especially those on private lands.

Action 1.5: Explore the development of a transportation network to move downed woody biomass.

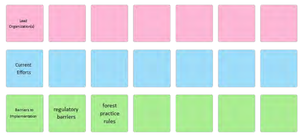


Other Notes

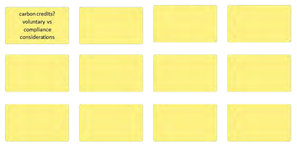
Forests Strategy 2:

Explore the development of a locally based carbon offset program for forest fuel treatment projects to avoid carbon loss.

Action 2.1: Create a regional collaborative to explore the development of a locally based carbon offset program for forest fuel treatment projects.



Other Notes



Forests Strategy 3:

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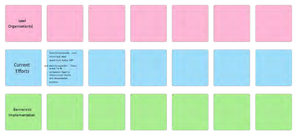
Action 3.1: Convene an annual biochar technical meeting to share best practices in the creation and use of biochar, as well as publicize available incentives.

Action 3.2: Feature and publicize biochar demonstration projects.

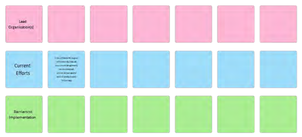


Other Notes

Forests Strategy 4:

Create a resilient workforce development program using grant support that enhances the local capacity for workforce and contractors to conduct forest thinning projects, create biochar, and find innovative uses for removed biomass.

Action 4.1: Collaborate and seek grant funding to support a workforce development program.



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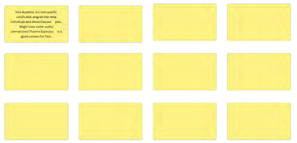


Forests Strategy 5:

Collaborate with state agencies to identify opportunities to streamline permitting processes and reduce permit costs for forest management practices in the coastal zone and on public lands.

Action 5.1: Organize a meeting of agencies and organizations to discuss streamlining and consolidating permitting processes.

Other Notes

Conservation, Open Space, and Agriculture Focus Group Meeting 1

ASCENT

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

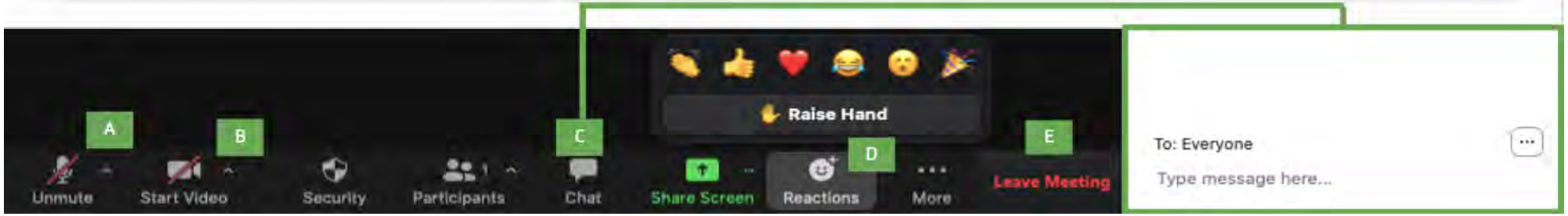
MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

OPEN SPACE, CONSERVATION, AND AGRICULTURE

JULY 11, 2023

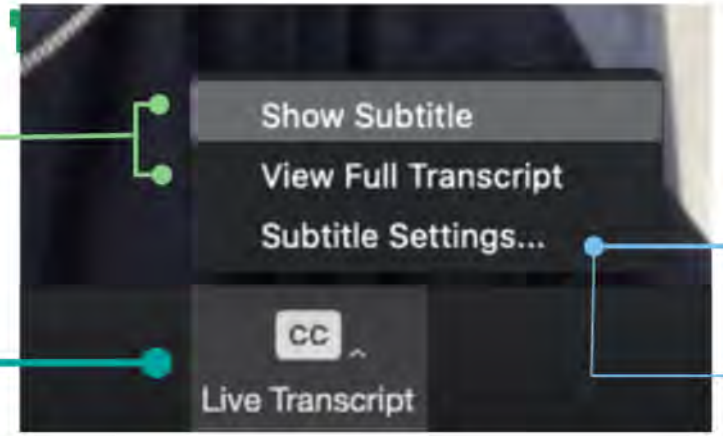
Using Zoom Meeting

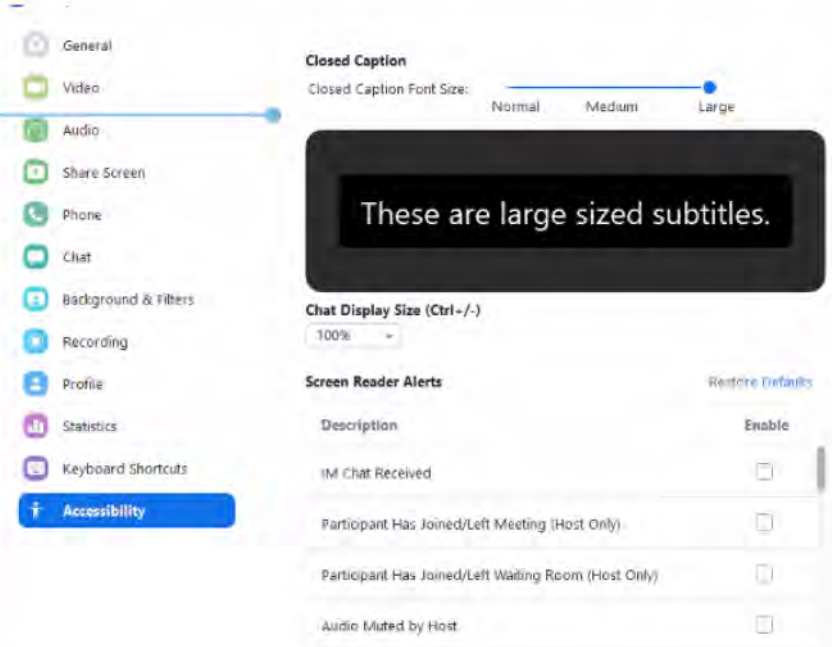
- **A** **Mute / Unmute:** Mutes and unmutes your microphone. Please stay on mute unless you are invited to speak.
- **B** **Start Video / Stop Video:** Turns your camera on and off.
- **C** **Chat:** Opens and closes the chat box. You may leave questions and comments here. We may share notifications or instructions here.
- **D** **Reactions:** Opens menu of non-verbal reactions. We ask that you use the "Raised Hand" feature to notify us when you would like to be called on to speak. can use reactions to provide a reaction to what someone else is saying.
- **E** **Leave Meeting:** Click to leave the meeting while it continues for the other participants. Only the host can end the meeting.



Zoom Closed Caption Feature

1. Click Live Transcript
2. Click Subtitle and/or View Full Transcript
3. Optional: Click Subtitle Settings to change the text size of the subtitles





Agenda

- Carbon Stock Inventory Results
- Refined Methodology
- Next Steps for Study
- Questions & Answers
- Measure Brainstorm
- Wrap Up

Carbon Stock Inventory Results: All Land Cover Types

Updated results from preliminary estimates

Updates to Preliminary Estimates

- What changed between preliminary estimates and inventory memo numbers?
  - Soil carbon was added to analysis
  - Variation in aboveground carbon stock due to the incorporation of more species-specific and region-specific rates
- Why did the overall acreage change?
  - Acreage in the study area increased from 3,232,404 to 3,291,989
  - 98% of land cover was included in preliminary estimates
  - Carbon values have now been assigned manually to the remaining 2% of land cover

Carbon Stock Inventory Results: Monterey Bay Area Rates

Land Cover Type	Aboveground Carbon (MT C/acre)	Soil Carbon (MT C/acre)	Total Carbon (MT C/acre)
Forest	79	22	101
Fresh Marsh	17	19	37
Oak Woodland	9	24	33
Urban	7	27	34
Cropland	1	27	28
Orchards/Vineyards	3	26	29
Shrubland	11	17	28
Grassland	1	24	26
Wetland	7	16	24
Other	0	20	20
Barren	0	18	18
Water	0	10	10
Total	**13**	**22**	**35**

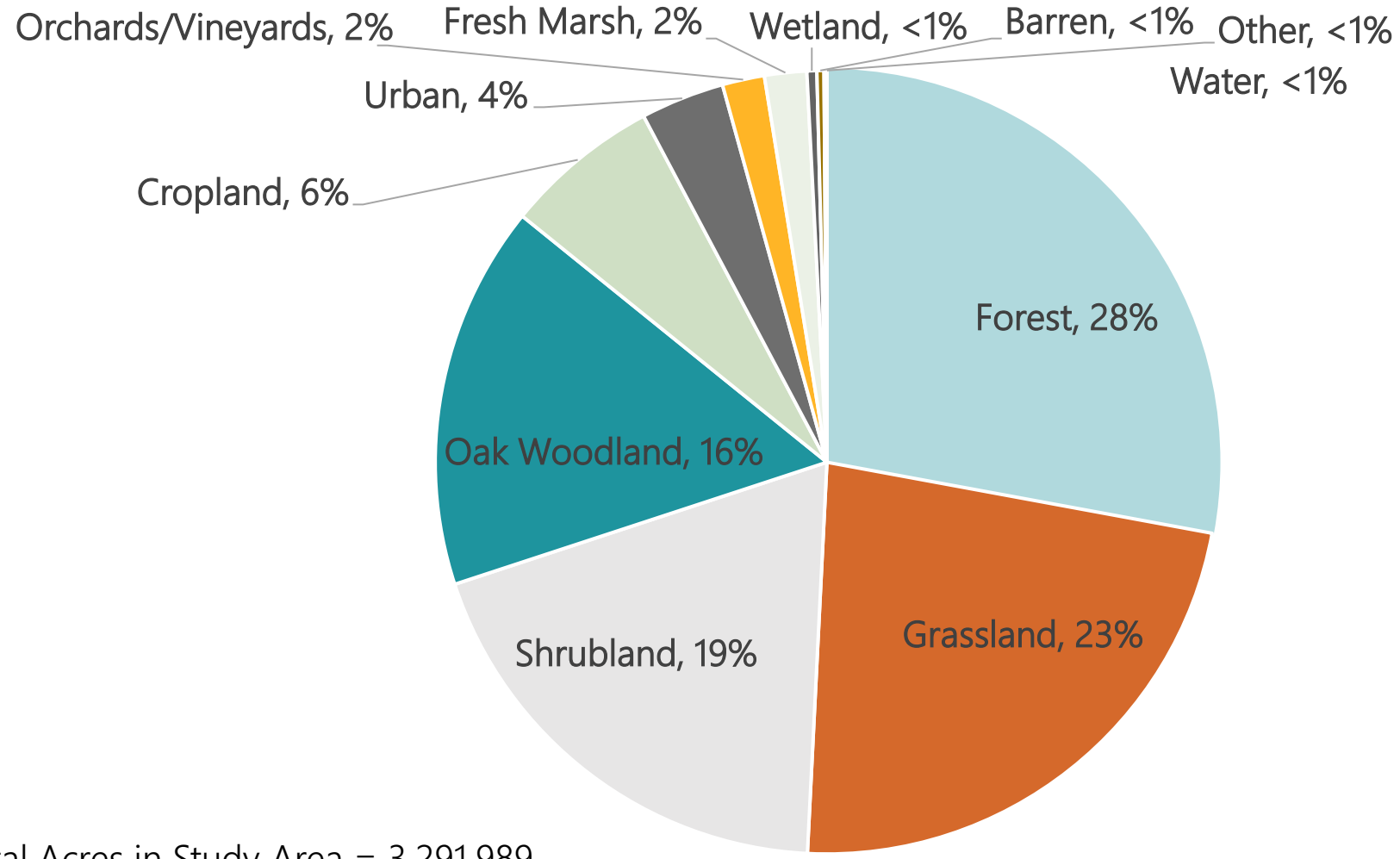
MT C = metric tons of carbon

Carbon Stock Inventory Results: Monterey Bay Area Total

Land Cover Type	Acres	Aboveground Carbon (MT C)	Soil Carbon (MT C)	Total Carbon (MT C)
Forest	322,437	7,051,753	25,540,394	32,592,147
Fresh Marsh	55,500	1,080,143	949,994	2,030,136
Oak Woodland	563,980	13,307,214	5,218,605	18,525,818
Urban	119,422	3,206,899	829,958	4,036,857
Cropland	265,179	7,146,384	364,004	7,510,388
Orchards/Vineyards	70,438	1,834,723	198,257	2,032,979
Shrubland	803,213	13,642,693	8,740,482	22,383,175
Grassland	1,039,070	25,270,515	1,471,740	26,742,255
Wetland	20,373	329,334	149,494	478,828
Other	201	4,114	-	4,114
Barren	19,031	340,346	-	340,346
Water	13,145	134,437	-	134,437
Total	**3,291,989**	**73,348,553**	**43,462,927**	**116,811,480**

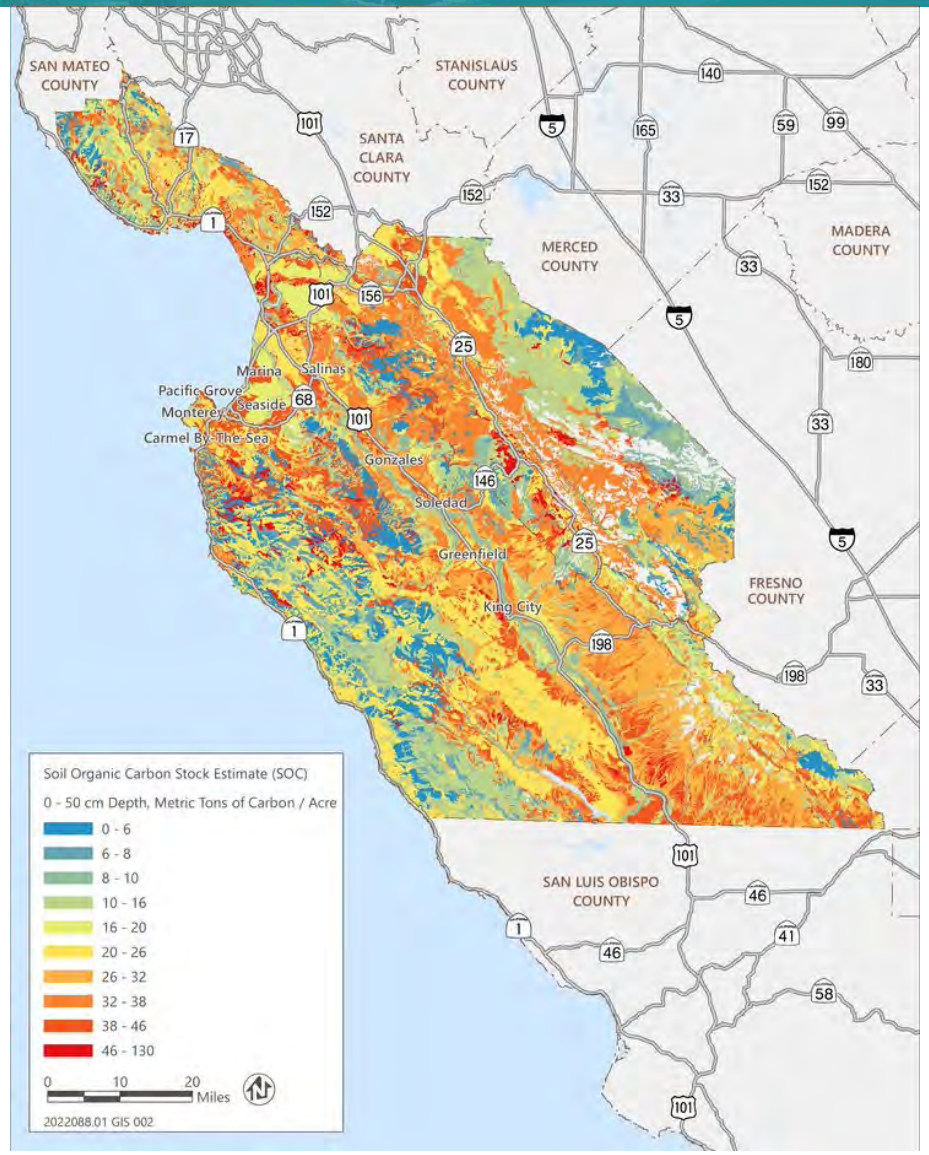
MT C = metric tons of carbon

Carbon Stock Inventory Results by Land Cover Type: Monterey Bay Area



Total Acres in Study Area = 3,291,989

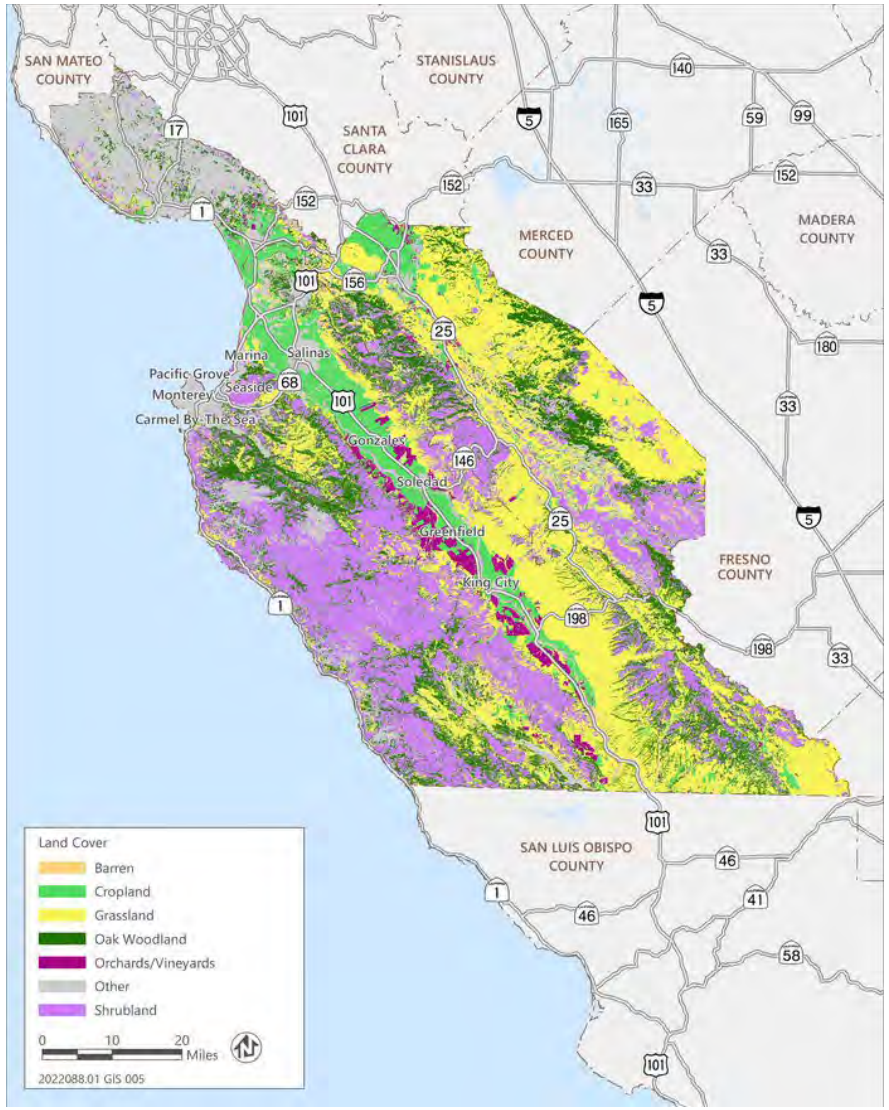
Soil Carbon Map: Monterey Bay Area



Carbon Stock Inventory Results: Open Space, Conservation, Agriculture

Updated results from preliminary estimates

Open Space, Conservation, Agriculture Land Cover Area

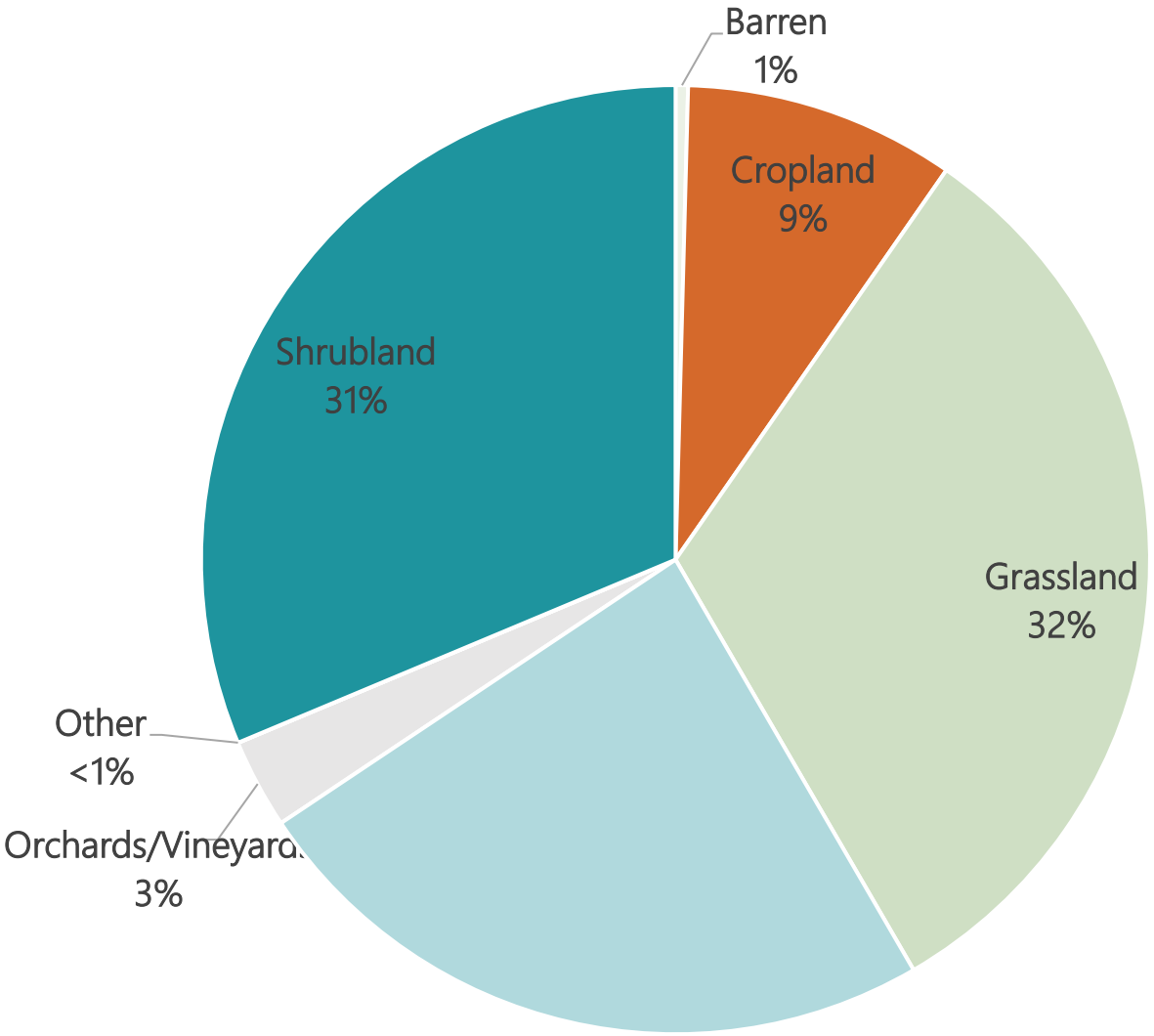


Total Acres Represented = 2,761,112
Percent of Land Cover in Study Area Represented = 84%

Carbon Stock Inventory Results – Open Space, Conservation, Ag: Monterey County

Land Cover Type	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Barren	11,256	234,064	-	234,064
Cropland	183,571	4,913,608	217,869	5,131,477
Grassland	610,098	16,865,435	864,144	17,729,579
Oak Woodland	88,661	9,677,761	3,636,555	13,314,316
Orchards/Vineyards	60,159	1,535,968	161,122	1,697,090
Other	42	761	-	761
Shrubland	621,401	10,507,861	6,860,035	17,367,896
Total	**1,875,187**	**34,057,697**	**8,103,170**	**42,160,867**

Carbon Stock Inventory Results – Open Space, Conservation, Ag: Monterey County

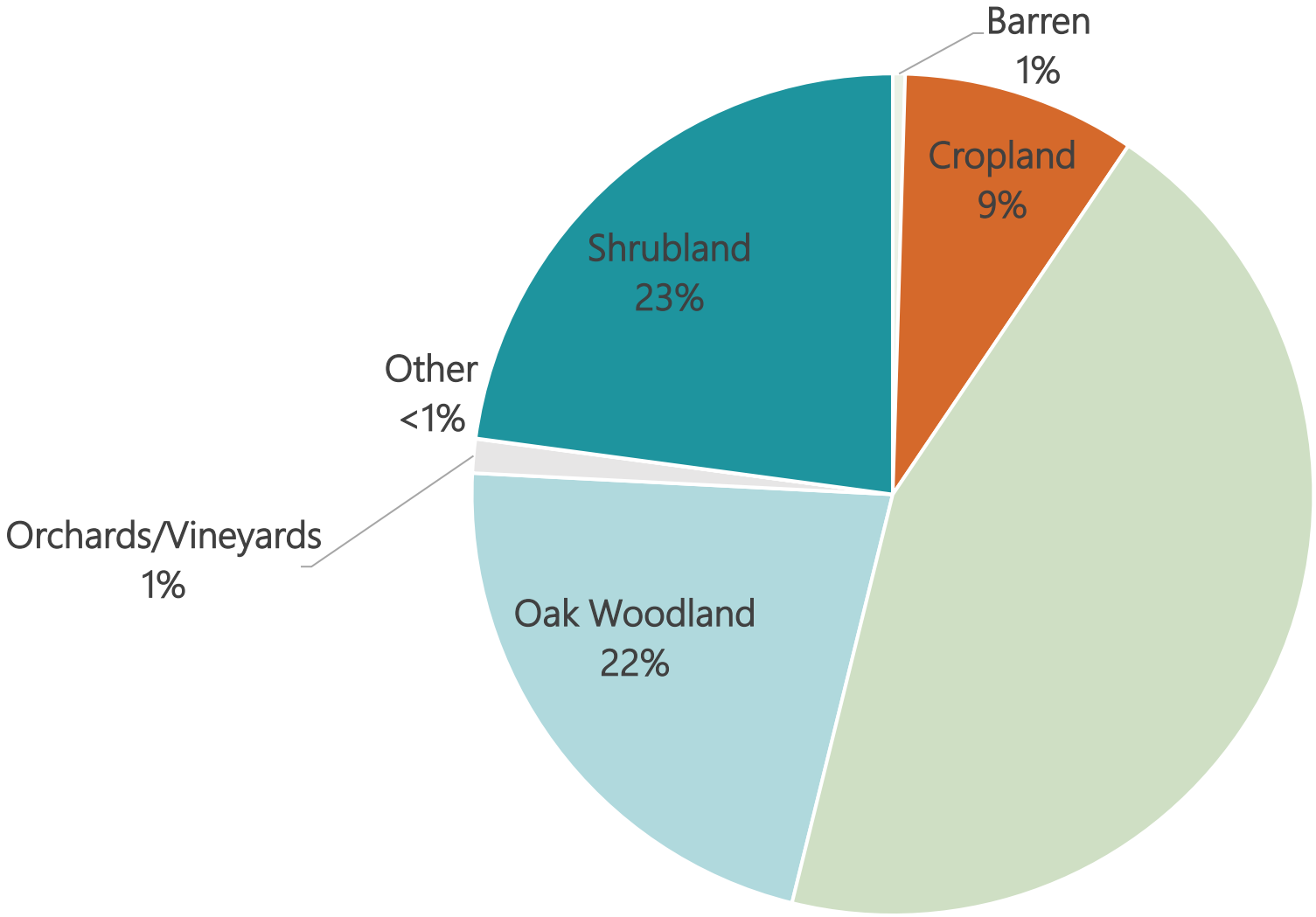


Carbon Stock Inventory Results – Open Space, Conservation, Ag: San Benito County

Land Cover Type	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Barren	6,671	91,884	-	91,884
Cropland	58,435	1,641,166	110,262	1,751,427
Grassland	414,101	8,064,711	586,534	8,651,245
Oak Woodland	149,169	3,026,153	1,254,115	4,280,268
Orchards/Vineyards	7,707	227,767	26,181	253,948
Other	131	2,897	-	2,897
Shrubland	160,857	2,734,776	1,722,884	4,457,659
Total	**797,070**	**12,763,201**	**2,445,860**	**15,209,061**

MT C = metric tons of carbon

Carbon Stock Inventory Results – Open Space, Conservation, Ag: San Benito County

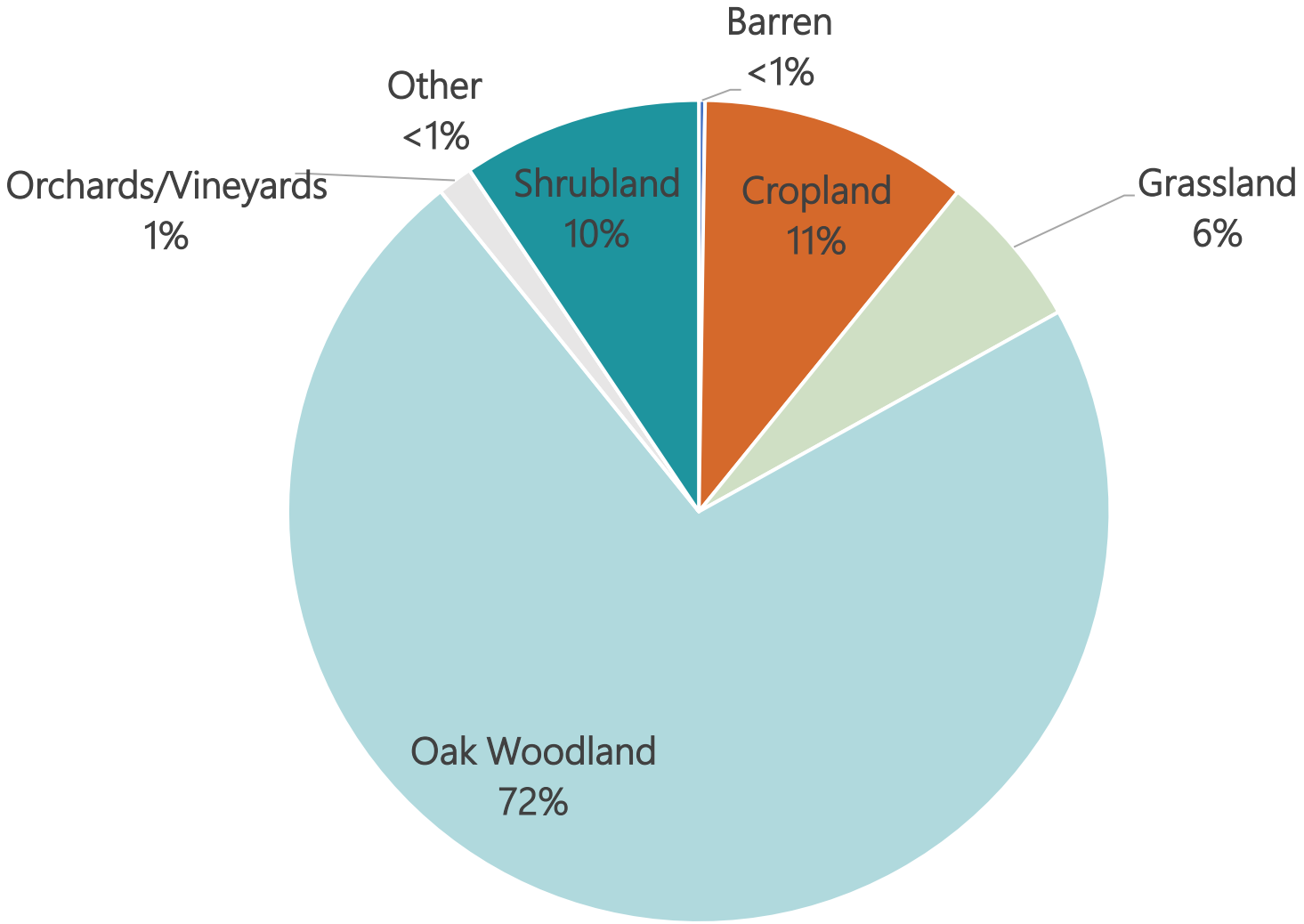


Carbon Stock Inventory Results – Open Space, Conservation, Ag: Santa Cruz County

Land Cover Type	Acres	Soil Carbon (MT C)	Aboveground Carbon (MT C)	Total Carbon (MT C)
Barren	1,104	14,397	-	14,397
Cropland	23,174	591,611	35,873	627,484
Grassland	14,870	340,368	21,062	361,431
Oak Woodland	26,150	3,026,153	1,254,115	4,280,268
Orchards/Vineyards	2,573	70,988	10,953	81,941
Other	28	455	-	455
Shrubland	20,956	400,056	157,564	557,620
Total	**88,854**	**1,417,876**	**225,452**	**1,643,328**

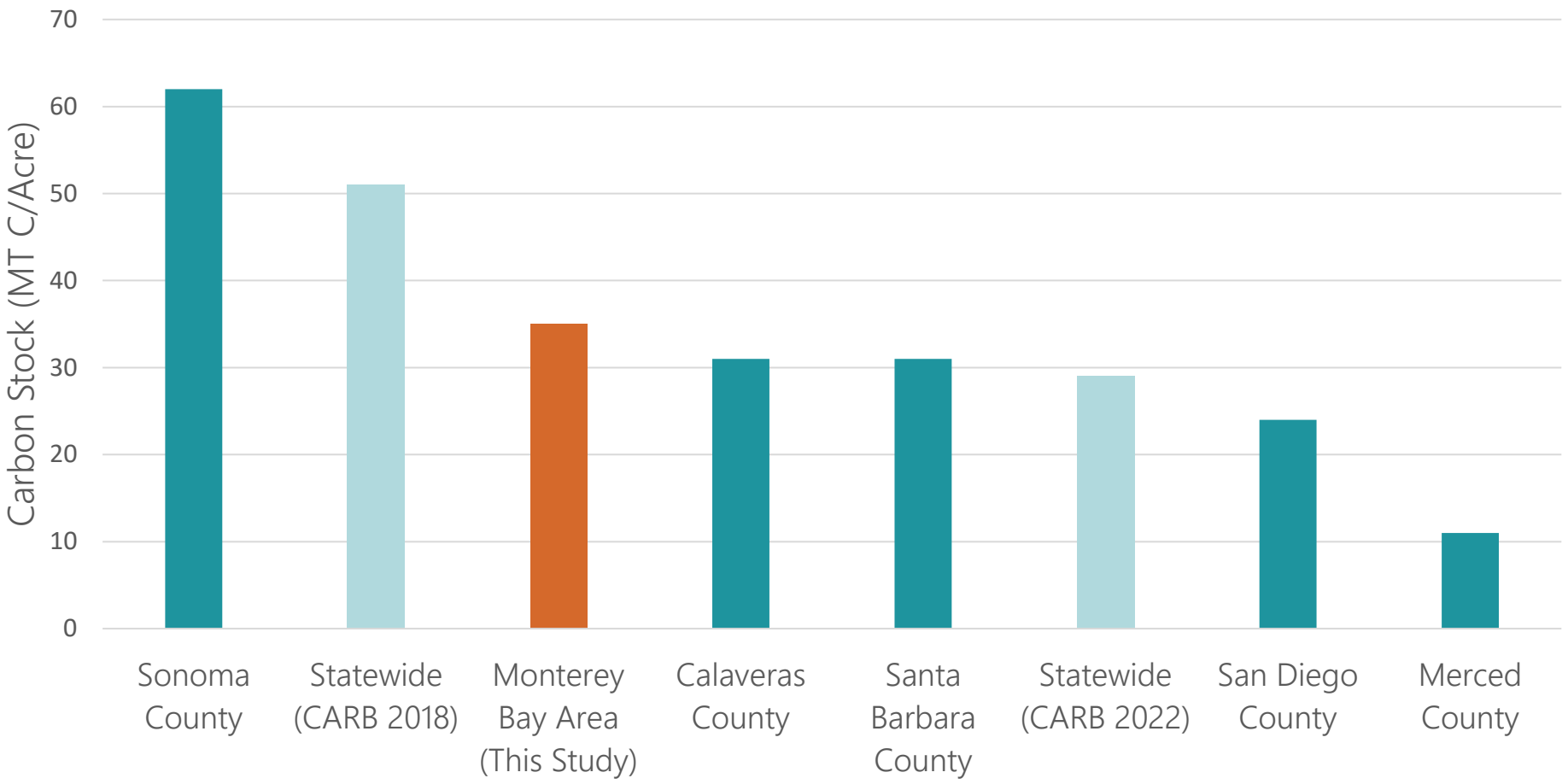
MT C = metric tons of carbon

Carbon Stock Inventory Results – Open Space, Conservation, Ag: Santa Cruz County



Carbon Stock Inventory Results: Comparison Across Regions

Carbon Stock Inventory Rates: Comparison Across Regions



Carbon Stock Inventory Results: Comparison Across Regions

Region	Report Year	Acres	Carbon Stock (MT C/Acre)	Carbon Stock (MMT C)
Monterey Bay Area (This Study)	2023	3,291,989	35	117
Sonoma County	2016	1,016,781	62	63
Santa Barbara County	2020	1,632,162	31	51
Merced County	2019	1,265,303	11	14
San Diego County	2022	2,727,116	24	65
Calaveras County	2021	662,838	31	20
Statewide (CARB)*	2018	105,000,000	51	5,340
Statewide (CARB)*	2022	105,000,000	29	3,117

MMT C = million metric tons of carbon
* Using 2014 data

Refined Methodology

Data Sources: Spatial Data

Aboveground

- Grasslands, Shrublands, Barren
  - CAL FIRE Fire and Resource Assessment Program (FRAP) (2015)
    - Coordination with the CDFW VegCamp program and USDA Forest Service Region 5 Remote Sensing Laboratory data
- Agriculture
  - Department of Water Resources' Statewide Crop Mapping (2016)
    - Based on aerial photography, remote sensing multi-spectral imagery, agronomic analysis and ground verification

Soil

- All soil types
  - NRCS's Soil Survey Geographic Database (SSURGO) (2022)
    - Soil dataset that is updated and maintained through USDA
    - Data compiled by county through land surveying and soil sampling

Data Sources: Carbon Stock Values

Orchard crops (avocados and nut orchards)

- California Air Resources Board Technical GHG appendices (Saah 2016, CARB)
  - California-specific carbon stock values for certain crops

Vineyards

- Ecosystem services in vineyard landscapes: a focus on aboveground carbon storage and accumulation (Williams et. al. 2020)

Miscellaneous crops (e.g., truck crops, Cole crops)

- Baseline and Projected Future Carbon Storage and Greenhouse-Gas Fluxes in Ecosystems of the Western United States (USGS 2012)
  - General cropland value for regions of the United States (Mediterranean California)

Shrubland

- Estimating Biomass in California's Chapparal and Coastal Sage Scrub Shrublands (Bolhman et. al. 2018)
  - California-specific carbon stock values for Chamise chapparal, mixed chapparal, and Coastal Sage Scrub

Grassland

- Baseline Greenhouse Gas Emissions for Forest, Range, and Agricultural Lands in California (Brown et. al. 2004)

Data Sources: Carbon Stock Values

Soil

- Soil organic carbon stock available from USDA NRCS's Soil Survey Geographic Database (SSURGO)
- SSURGO data was downloaded for the Monterey Bay Area
  - Most detailed level of soil geographic data developed by National Cooperative Soil Survey
  - Soil attributes derives from properties/characteristics in National Soil Information System
  - Includes weighted average soil organic carbon
  - Data was intersected with land cover, jurisdiction, etc. for spatially specific soil estimates

Questions?

Type in the chat or raise your hand

Next Steps

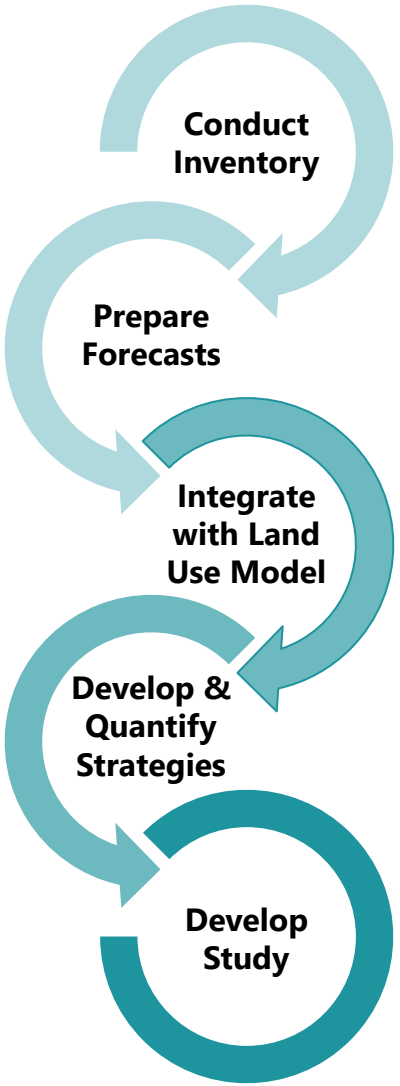
Thanks for joining us today!

End of Deck

Carbon Model Development Approach

Carbon Model Development Approach

- Develop **tool** with spatial baseline of lands with carbon stock
- Scenario forecast modeling using **climate and land use projections**
- Integrate with **Land Use Model**
- Ground-truth spatial analysis using **stakeholder feedback**
- Emphasize strategies that are **quantifiable, scalable, implementable**



Carbon Model Development Approach

Approach

- Estimate baseline stock levels
  - Carbon stock and sequestration
  - Vegetative community
  - Type of carbon storage
  - Land ownership
- Estimate change in carbon stocks
  - Future climate change scenarios
- GIS layer will be brought into AMBAG's Integrated Land Use Model
- AMBAG's Land Use Model will estimate land use change and impacts to carbon stock
- Coordination with stakeholders
  - Key technical insights
  - Ground-truthing spatial analysis
  - Measure identification
- Mitigation and adaptation measure development

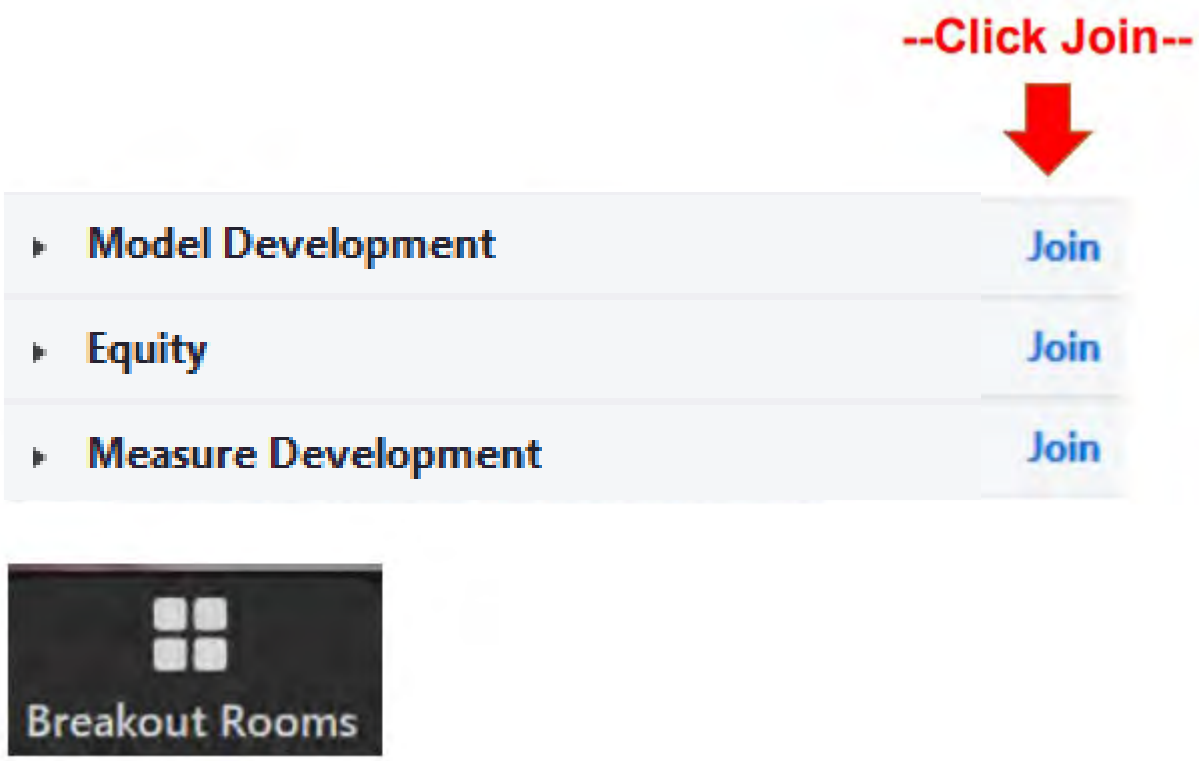
Breakout Groups Ground Rules

- Be here now
- One speaker at a time
- “Step up” to voice your thoughts
- “Step back” to let others speak too
- Be additive, not repetitive
- Listen actively (seek to understand, keep an open mind)
- Help the facilitator to keep things on time

Breakout Group Entry

Join any one of the three rooms to receive an overview of the three topics and provide input or ask questions

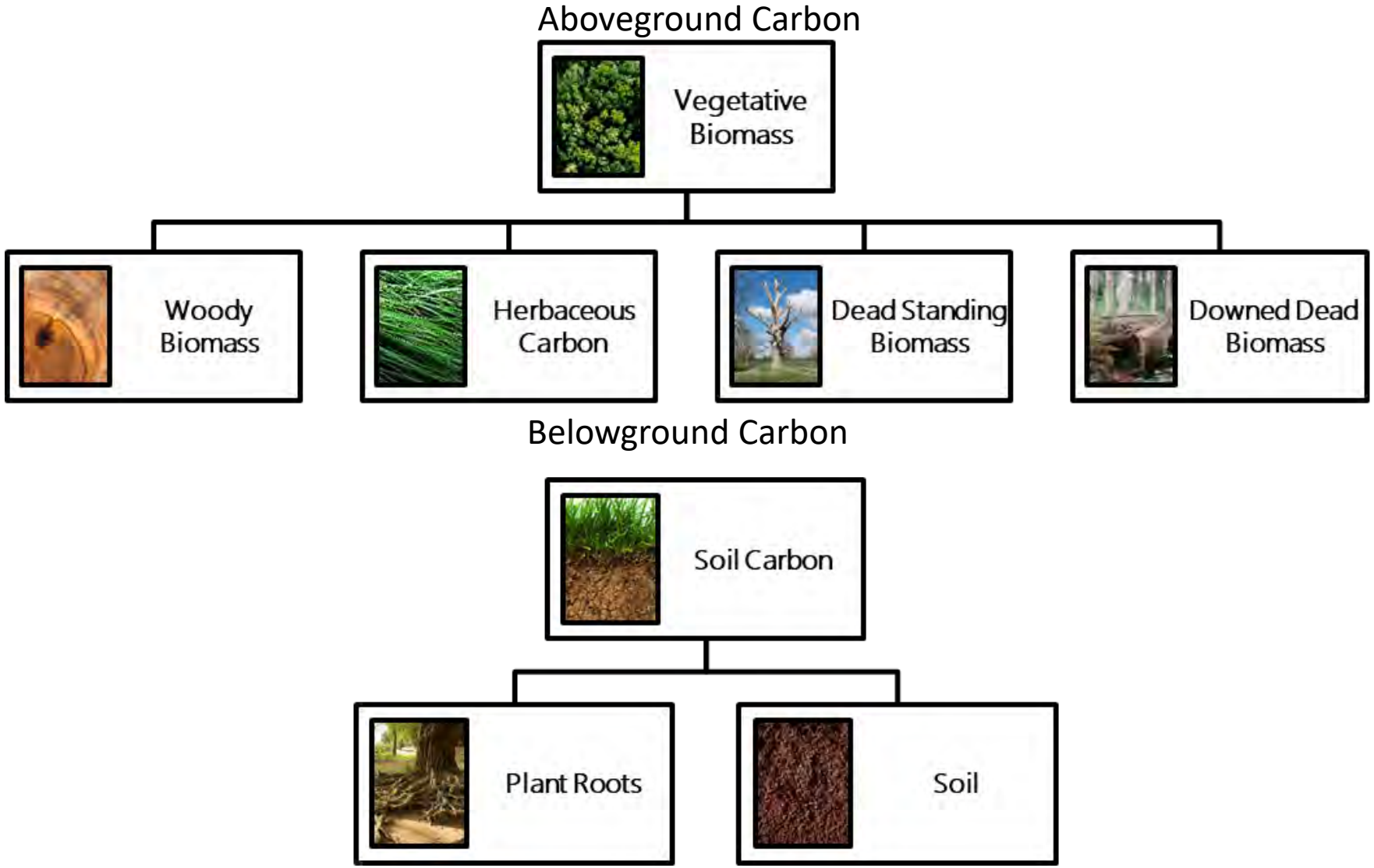
Transition to another Room to join a discussion on another topic(use the Breakout Room icor at the bottom of your screen to bring up the room menu)



Key Terms

- Carbon pool = a system which has the capacity to accumulate or release carbon, considered to be a reservoir
- Carbon sequestration = the process of increasing the content of a carbon pool other than the atmosphere
- Carbon stock = the absolute quantity of carbon held within a pool at a specified time
- Natural Lands = lands consisting of forests, grasslands, deserts, freshwater and riparian systems, wetlands, coastal and estuarine areas, watersheds, wildlands, wildlife habitat, land uses for recreational purposes (e.g., city parks, urban forests)
- Working Lands = lands used for farming, grazing, or the production of forest products

Carbon Stock Inventory Anatomy



Data Gaps/Challenges

- Agriculture
  - Crop carbon stock rates are limited in available scientific literature
  - Discrepancies between the data layers from different agencies (CAL FIRE FRAP vs. DWR Statewide Cropping)
- Lack of Specificity
  - Some carbon values could not be matched to the level of specificity of data layers
  - Carbon stock values often do not reflect current management practices
  - Carbon stock values represent averages and do not include the spatial variability that is representative of carbon stocks in natural areas
- Rapidly Evolving Field of Study
  - New tools being developed by federal and state agencies (e.g., LUCAS from USGS)
  - More specific carbon factors are being published in new scientific literature

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study
Open Space, Conservation, and Agriculture

Focus Group Series 1
July 11, 2023

Barriers

What are the main barriers your organization, agency, or community members experience to implementing carbon sequestration activities?

- Public policy barriers
- Wineries are only crops using compost in Monterey County
- Incentivizing biochar through policy
- CDFA climate smart restrictions to funding (ex. one-time funding)
- Feasibility of conservation agriculture practices
- carbon loss from tillage
- lack of incentives (need sustained financial assistance)
- lack of staff capacity at public agencies
- Lack of funding
- Ability to coordinate across agencies
- need to cut red tape for vegetation removal (regulatory issues)
- fuels management in the coastal zone
- permitting fuel breaks in coastal zone
- EV trucks do not have range appropriate for farmers
- research on biochar
- Ecologically-appropriate methods to promote C sequestration. Balance ecology with manipulation of soil C

Cropland

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for cropland in the Monterey Bay Area?

- Ag Order 4.0
- Use of cover crops to prevent nitrogen runoff and build soil carbon
- Promote use of compost over cover cropping
- Apply for grants through the healthy soil program to apply compost to the soil
- Promoting microbial activity
- Promote research on biochar amendments to crop productivity
- Pajaro Valley compost & biochar project at organic vegetable farm
- Reduce tillage in intensive agriculture
- Incentivize the use of biochar to increase soil carbon
- Local research and trials should inform best practices

Grassland

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for grassland in the Monterey Bay Area?

- Utilize grazing to decrease loss of carbon in a wildfire
- Implement a no net loss policy for grasslands that provide important climate resilience and ecologically valuable grasslands

Orchards & Vineyards

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for orchards and vineyards in the Monterey Bay Area?

- composting and biochar application
- no till (regenerative practices)
- healthy soil practices
- Utilize cover crops to sequester more soil carbon
- Pest management that protect soil carbon
- certifications for wineries and growing sustainably
- More incentives for regenerative practices already being implemented
- local biochar machine
- Promote practices such as reduced tillage and mulching

Shrubland

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for shrubland in the Monterey Bay Area?

- Collaborate with tribal partners to inform prescribed burning plans and healthy shrubland management activities

Oak Woodland

What are appropriate or ongoing measures to enhance carbon sequestration or protect existing carbon stock for oak woodland in the Monterey Bay Area?

- Incentivize small timber-based businesses and foresters to provide thinning and fire prevention services.
- Launch Oak Woodland Ecosystem Restoration Camps- well-organized networks of camps can connect people who know how to restore degraded land with people who want to learn by working at degraded sites.

Additional Stakeholders

Who isn't in the room that we should talk to? Do you know of successful carbon sequestration projects from other regions?

- NRCS
- UCANR
- Coastal Commission representatives
- carbon market representatives
- sequestration academics

Conservation, Open Space, and Agriculture Focus Group Meeting 2

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

MARCH 7, 2024

Agenda

- Welcome
- Preliminary Actions and Feedback Requests
  - Lead Organizations
  - Current Efforts
  - Barriers to Implementation
- Group Exercise/Discussion
- Questions
- Next Steps and Closing Comments

A Note on Proposed Actions in this Presentation

- Actions presented here are in draft form and presented to help:
  - ✓ Gather information
  - ✓ Define problems
  - ✓ Brainstorm possible solutions
  - ✓ Think through methods of collaboration
  - ✗ Decide on near-term actions
  - ✗ Assign tasks

- For each action, your feedback is requested on the following:
  - Who could implement this action or is already working on a similar action?
  - Are you or another organization already implementing this?
  - Are there barriers to implementation of the action?

Conservation, Open Space, and Agriculture (COA) Implementation Strategies and Actions

Themes

- All Actions within the conservation, open space, and agriculture strategies fall under one or more of the following three overarching themes
  - **Collaboration:** Working collectively among local governments, special districts, community-based organizations, industry groups
  - **Funding:** Grants, philanthropy, and other funding source to implement actions
  - **Workforce development:** Training a local workforce to support implementation

Collaboration Funding Workforce Development

Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing state programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces.

COA Strategy 1

COA Strategy 1

- Implementation Actions
  - **Action 1.1** Continue providing education and outreach to landowners and land managers about the benefits of conservation easements.
    - Lead Organization(s): RCDs, land trusts, private landowners, industry groups
  - **Action 1.2** Conduct a feasibility study on developing a local carbon offset program including potential financial benefits and incentives as well as barriers and challenges.
    - Lead Organization(s): RCDs, in collaboration with local governments and CBOs, landowners, and industry groups
    - Current Efforts:
      - The Central Coast Climate Collaborative hosted a carbon sequestration and offset webinar series in 2022
      - leverage existing CDFW programs, such as the Mitigation Credit Agreement

COA Strategy 1 (continued)

- Implementation Actions
  - **Action 1.3** Convene landowners and land managers to learn what climate-smart practices they are already doing on grasslands, what is working, and the barriers they face in implementing those practices.
    - Lead Organization(s): RCDs, land trusts, local governments
    - Current Efforts: Lists of Healthy Soils Program grant recipients are publicly available for 2017-2020 and 2021.

Promote healthy soils practices such as cover cropping, reduced tillage, compost amendment, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.

COA Strategy 2

COA Strategy 2

- Implementation Actions
  - **Action 2.1:** Provide technical assistance to prepare farm-specific carbon plans to position farmers and ranchers for funding opportunities.
    - Lead Organization(s): Local governments, RCDs, land trusts
  - **Action 2.2:** Form a collaborative to share resources and obtain funding for healthy soil practices in the Monterey Bay Area. Consider convening annual meetings for members of the collaborative and interested parties.
    - Lead Organization(s): Local governments, RCDs, land trusts, CBOs, and industry groups
    - Current Efforts:
      - Grant Program like the California Department of Food and Agriculture's (CDFA's) Healthy Soils Program and the Natural Resources Conservation Service's Environmental Quality Incentives Program
      - CDFA list of technical assistance providers and grant application templates

COA Strategy 2 (continued)

- Implementation Actions
  - **Action 2.3** Develop a methodology for prioritizing healthy soils projects when seeking funding in a collaborative regional framework.
    - Lead Organization(s): Local governments, RCDs, land trusts

Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.

COA Strategy 3

COA Strategy 3

- Implementation Actions
  - **Action 3.1:** Prepare a feasibility study to explore the development of community compost banks, with benefits for ranchers or other bulk users.
    - Lead organization(s): RCDs, local governments
    - Current Efforts: CalRecycle has issued guidance on how to start a community-scale composting project.
  - **Action 3.2:** Form a collaborative to share resources and obtain funding for regenerative techniques in the Monterey Bay Area.
    - Lead organization(s): RCDs, local governments
  - **Action 3.3:** Develop a methodology for prioritizing regenerative agricultural projects when seeking funding in a collaborative regional framework.
    - Lead organization(s): Local governments, RCDs, land trusts, industry groups

Group Exercise/Discussion

Strategy Feedback Discussion

- Discuss the proposed actions: 3 strategies, each with 3 preliminary actions.
  - **Lead Organization(s):** Who could implement this action or is already working on a similar action?
  - **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
  - **Barriers to Implementation:** Are there barriers to implementation of action(s)?

Instructions:

Discuss the preliminary actions for each Conservation, Open Space, and Agriculture (COA) Strategy using the guided questions below:

1) **Lead Organization(s):** Who could implement this action or is already working on a similar action? Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so? Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

2) **Current Efforts:** Are there already current efforts to implement these actions in the Monterey Bay Area in some form? If so, who is leading these efforts? Are there existing "success stories" we should be aware of? Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

3) **Barriers to Implementation:** Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

CONSERVATION, OPEN SPACE, AND AGRICULTURE (COA)

COA Strategy 1: Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing state programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces	**Action 1.1:** Continue providing education and outreach to landowners and land managers about the benefits of conservation easements.	**Action 1.2:** Conduct a feasibility study on developing a local carbon offset program including potential financial benefits and incentives as well as barriers and challenges.	**Action 1.3:** Conserve landowners and land managers to learn what climate-smart practices they are already doing on grasslands, what is working, and the barriers they face in implementing those practices.	Other Notes
COA Strategy 2: Promote healthy soils practices such as cover cropping, reduced tillage, compost amendment, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.	**Action 2.1:** Provide technical assistance to prepare farm-specific carbon plans to position farmers and ranchers for funding opportunities.	**Action 2.2:** Form a collaborative to share resources and obtain funding for healthy soil practices in the Monterey Bay Area. Consider convening annual meetings for members of the collaborative and interested parties.	**Action 2.3:** Develop a methodology for prioritizing healthy soils projects when seeking funding in a collaborative regional framework.	Other Notes
COA Strategy 3: Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.	**Action 3.1:** Prepare a feasibility study to explore the development of community compost banks, with benefits for ranchers or other land users.	**Action 3.2:** Form a collaborative to share resources and obtain funding for regenerative techniques in the Monterey Bay Area.	**Action 3.3:** Develop a methodology for prioritizing regenerative agricultural projects when seeking funding in a collaborative regional framework.	Other Notes

Mural Board

- 3.7 Conservation, Open Space, and Ag Strategies Focus Group Meeting 3 • ASCENT (mural.co)

Thank you!

Questions? Please type in the chat or raise your hand.

MONTEREY BAY NATURAL AND WORKING LANDS CLIMATE MITIGATION AND RESILIENCY STUDY

FOCUS GROUP MEETING HANDOUT: CONSERVATION, OPEN SPACE, AND AGRICULTURE (COA)

THURSDAY, MARCH 7, 2024

Purpose: This handout provides a proposed list of specific actions for protecting and increasing the existing carbon stock held in soil and vegetation in the open space and agricultural lands of the Monterey Bay Area (including Monterey, San Benito, and Santa Cruz Counties). The handout poses the following discussion items for each proposed implementation action.

Lead Organization(s)

- Who could implement this action or is already working on a similar action?
- Are there opportunities for coalition building? Are there any specific agencies, non-profits, or stakeholder groups that could work together on implementing an action, but who aren't currently doing so?
    - Who should be members of these coalitions? Cities? Counties? Resource Conservation Districts (RCDs)? Community-based organizations (CBOs)? Industry groups?

Current Efforts

- Are there already current efforts to implement these actions in the Monterey Bay Area in some form?
- If so, who is leading these efforts?
- Are there existing "success stories" we should be aware of?
- Is there interest in highlighting a specific success story or ongoing effort in the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study?

Barriers to Implementation

- Are there barriers to implementation of this action? If so, please identify them (lack of funding, lack of authority, etc.).

Where information was publicly available, draft answers have been provided for each of these items. If no answer could be provided based on publicly available information, the text "feedback requested" appears inline. Please note that both the draft answers and the "feedback requested" text are intended to spark discussion only—your feedback on any of the information presented

here will be fundamental in drafting the Monterey Bay Natural and Working Lands Climate Mitigation and Resiliency Study.

CONSERVATION, OPEN SPACE, AND AGRICULTURE (COA) STRATEGIES

All actions within the strategies fall under one or more of the following three overarching themes, which are defined and denoted as follows:

Theme	Definition	Icon
Collaboration	Working collectively among local governments, special districts, community-based organizations, industry groups	
Funding	Grants, philanthropy, and other funding sources to implement actions	
Workforce Development	Training a local workforce to support implementation	

COA STRATEGY 1.

Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing state programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces.

Implementation Action 1.1

Continue providing education and outreach to landowners and land managers about the benefits of conservation easements.

- **Lead Organization(s):** RCDs, land trusts, private landowners, industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.2

Conduct a feasibility study on developing a local carbon offset program including potential financial benefits and incentives as well as barriers and challenges.

- **Lead Organization(s):** RCDs, in collaboration with local governments, CBOs, landowners, and industry groups
- **Current Efforts:**
  - The Central Coast Climate Collaborative hosted a carbon sequestration and offset webinar series in 2022. This work could be used as a starting point in the formation of a carbon offset program.
  - Can leverage existing CDFW programs, such as the Mitigation Credit Agreement which can only be developed within the boundary of an approved Regional Conservation Investment Strategy.
- **Barriers to Implementation:** Feedback requested

Implementation Action 1.3

Convene landowners and land managers to learn what climate-smart practices they are already doing on grasslands, what is working, and the barriers they face in implementing those practices.

- **Lead Organization(s):** RCDs, land trusts, local governments
- **Current Efforts:** Lists of Healthy Soils Program grant recipients are publicly available for 2017-2020 and 2021.
- **Barriers to Implementation:** Feedback requested

COA STRATEGY 2.

Promote healthy soils practices such as cover cropping, reduced tillage, compost amendment, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.

Implementation Action 2.1

Provide technical assistance to prepare farm-specific carbon plans to position farmers and ranchers for funding opportunities.

- **Lead Organization(s):** Local governments, RCDs, land trusts
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 2.2

Form a collaborative to share resources and obtain funding for healthy soil practices in the Monterey Bay Area. Consider convening annual meetings for members of the collaborative and interested parties.

- **Lead Organization(s):** Various, could consists of a collaboration of local governments, RCDs, land trusts, CBOs, and industry groups
- **Current Efforts:**
  - Existing grant programs such as California Department of Food and Agriculture's (CDFA's) Healthy Soils Program and the Natural Resources Conservation Service's Environmental Quality Incentives Program. CDFA's RePlan tool automatically generates supporting documents for Healthy Soils Program grant applications.
  - CDFA list of technical assistance providers, and grant application templates that RCDs can use to disburse grant money to individual farmers and ranchers.
- **Barriers to Implementation:** Feedback requested

Implementation Action 2.3

Develop a methodology for prioritizing healthy soils projects when seeking funding in a collaborative regional framework.

- **Lead Organization(s):** Local governments, RCDs, land trusts, industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

COA STRATEGY 3.

Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.

Implementation Action 3.1

Prepare a feasbility study to explore the development of community compost banks, with benefits for ranchers or other bulk users.

- **Lead Organization(s):** RCDs, local governments
- **Current Efforts:** CalRecycle has issued guidance on how to start a community-scale composting project.
- **Barriers to Implementation:** Feedback requested

Implementation Action 3.2

Forma collaborative to share resources and obtain funding for regenerative techniques in the Monterey Bay Area.

- **Lead Organization(s):** RCDs, local governments
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

Implementation Action 3.3

Develop a methodology for prioritizing regenerative agricultural projects when seeking funding in a collaborative regional framework.

- **Lead Organization(s):** Local governments, RCDs, land trusts, industry groups
- **Current Efforts:** Feedback requested
- **Barriers to Implementation:** Feedback requested

ASSOCIATION OF MONTEREY BAY AREA GOVERNMENTS

Monterey Bay Natural and Working Lands Climate Mitigation and Resilience Study

Focus Group Series 2
March 7, 2024

CONSERVATION, OPEN SPACE, AND AGRICULTURE (COA)

COA Strategy 1:

Advance the use of conservation easements and carbon offset programs through a locally managed program and maintain continued participation in existing state programs (e.g., Sustainable Agricultural Lands Conservation Program) that protect critical agricultural lands and open spaces.

Action 1.1: Continue providing education and outreach to landowners and land managers about the benefits of conservation easements.

Lead Organization(s)						
Current Efforts	Monterey County Implementing Ag Mitigation Ordinance					
Barriers to Implementation	Bandwidth of land owners & mngrs	High Land Values	Lack of willing sellers	Threat of Williamson Act cancellations	Requires continuation of sequestration practices	

Action 1.2: Conduct a feasibility study on developing a local carbon offset program including potential financial benefits and incentives as well as barriers and challenges.

Lead Organization(s)	Include UC CE experts on sequestration					
Current Efforts	Research into specialty crop carbon sequestration	Carbon Removal Credits & Integrations for Climate Impact (root.core)				
Barriers to Implementation	Funding: who will pay?	Measurement, monitoring and evaluation	Not a barrier - and is someone else already creating a program we can use as a template rather than recreating	Ease and impact of potential changes. Does it make good business sense? focus on ROI		

Action 1.3: Convene landowners and land managers to learn what climate-smart practices they are already doing on grasslands, what is working, and the barriers they face in implementing those practices.

Lead Organization(s)	BLM?					
Current Efforts	UC Cooperative Extension- Devi Rao	Management of rangelands now also include wildfire fuel load suppression	Central Coast Community Energy **Ag Electrification Program - Ace** CCCE is providing incentives to farm owners to electrify all of the farming equipment on their properties, including refrigeration, space conditioning, water heating, irrigation, equipment/tools (leaf blowers, hand tools, lawn mowers) to cleaner all-electric alternatives. The program will be implemented via a PAE-Lishner first (annual)			
Barriers to Implementation	Costs of broad scale implementation over huge acre count		Drawings			

Other Notes

TO the comment about lack of bandwidth - as much as possible - education should come through existing reliable channels	Duplication of efforts by rangeland managers needs to be avoided		
Ag Associations 1.3	UC CE Steve Orloff Tim Tom - Ag Commissioner Natural Resources Bureau Steve Shaffer - Ag Commissioner Christopher Wahl - Natural Resources Conservation Service Jeff Pitcher - Ag Commissioner Jeffrey Lee - Ag Commissioner Chelsea Jordan - UC CE Brian Leahy - UC CE Brad Lundquist - UC CE		

COA Strategy 2:

Promote healthy soils practices such as cover cropping, reduced tillage, compost amendment, biochar, and soil additives. Support farmers in estimating carbon sequestration on their lands and evaluate ways to reward and/or incentivize farmers and ranchers for quantified carbon sequestration on their lands.

Action 2.1: Provide technical assistance to prepare farm-specific carbon plans to position farmers and ranchers for funding opportunities.

Lead Organization(s)	Measure to Improve LLC helps farmers measure and improve sustainability efforts (could have carbon specific plants)	UC Coop.System USDA Research Center				
Current Efforts	There are more cover crops in fields this year	Jackson Family Wines	USDA Research Center?	USDA-ARS Sam Farr U.S. Crop Improvement & Protection Research Center, Salinas - Bill Wintermantel bill.wintermantel@usda.gov		
Barriers to Implementation	Costs to maintain cover crops	Water Use	Conflicts with ILRP			

Action 2.2: Form a collaborative to share resources and obtain funding for healthy soil practices in the Monterey Bay Area. Consider convening annual meetings for members of the collaborative and interested parties.

Lead Organization(s)	Ag Organizations already promote this type of practice					
Current Efforts	Already have a lot of participants in Healthy Soils	The MCVGA already brings together wine growers to talk about different topics like this.	CEU's are a great incentive	State Wine Growing/ Winemaking Sustainability efforts	For more "Wine" information/resources, visit www.montereywinegrowers.org	
Barriers to Implementation	Intensive Ag practices already include healthy soils	Grants come with strings that may not be manageable				

Action 2.3: Develop a methodology for prioritizing healthy soils projects when seeking funding in a collaborative regional framework

Lead Organization(s)	UC CE	CDFA & USDA but may not be localize info				
Current Efforts	Ag community is already figuring this out for each crop					
Barriers to Implementation	Individual crops have different requirements	Need legislative support. This can be a Leg priority in Farm Bill. seen other notes				

Other Notes

https://www.jacksonfamilywines.com/rooted-for-good/race-to-zero-carbon	a lot of research grants have been obtained in partnerships with Universities		
Paul Robbins- MoCo RCD			
USDA-ARS Sam Farr U.S. Crop Improvement & Protection Research Center, Salinas - Bill Wintermantel - bill.wintermantel@usda.gov	For instance - incentives for Biochar are awaiting approval on the Farm Bill		

COA Strategy 3:

Apply compost, additives, and other soil regenerative techniques in ecologically appropriate contexts to grasslands to enhance carbon sequestration and storage, increase water quality and availability, and support the overall health of grazed or historically degraded grasslands.

Action 3.1: Prepare a feasibility study to explore the development of community compost banks, with benefits for ranchers or other bulk users.

Lead Organization(s)	Cal Fire	RCD for erosion management	UC CE			
Current Efforts	Rangelands are now managing for fuel load reductions	SB 1383	City of SF and Marin County partnership?			
Barriers to Implementation	Food Safety!	Heavy metals accumulations	Scale of implementation	The area industry is one of the few industries that can use compost - Food safety...	Quality of final product	Transportation of product through active farmland areas
	Transportation system					

Action 3.2: Form a collaborative to share resources and obtain funding for regenerative techniques in the Monterey Bay Area.

Lead Organization(s)	Industry organizations	UC CE	RCPWG?			
Current Efforts	On-going research and field trials	Lots of early adaptors in tri-county area	Biochar research in grapes			
Barriers to Implementation	Regenerative may be an overuser term - use sustainability so it is better understood	Don't use that word - regenerative - it's a bad word in a lot of Ag.	Regenerative is proving difficult to scale	Also - Regenerative is still being defined by CDFA.		

Action 3.3: Develop a methodology for prioritizing regenerative agricultural projects when seeking funding in a collaborative regional framework.

Lead Organization(s)	UC CE	RCD	NRCS			
Current Efforts	Field trials in Salinas Valley					
Barriers to Implementation	Could be interpreted as prescriptive	Ditto on 3.2 re Regenerative				

Other Notes

Is organic better? - Harvard Gazette Next you follow the evidence, says agriculture and food policy scholar Robert Paarlberg. Harvard			