

Caring for Clear Lake through Environmental Education and Community and Citizen Science

Report to the Blue Ribbon Committee for the Rehabilitation of Clear Lake
March 23, 2023

By Ryan Meyer, Alyssa Nelson, and Sarah Angulo on behalf of the team

Original Plan

Community and
Citizen Science
(CCS)



Environmental
Education (EE)

Original Plan

Community and
Citizen Science
(CCS)

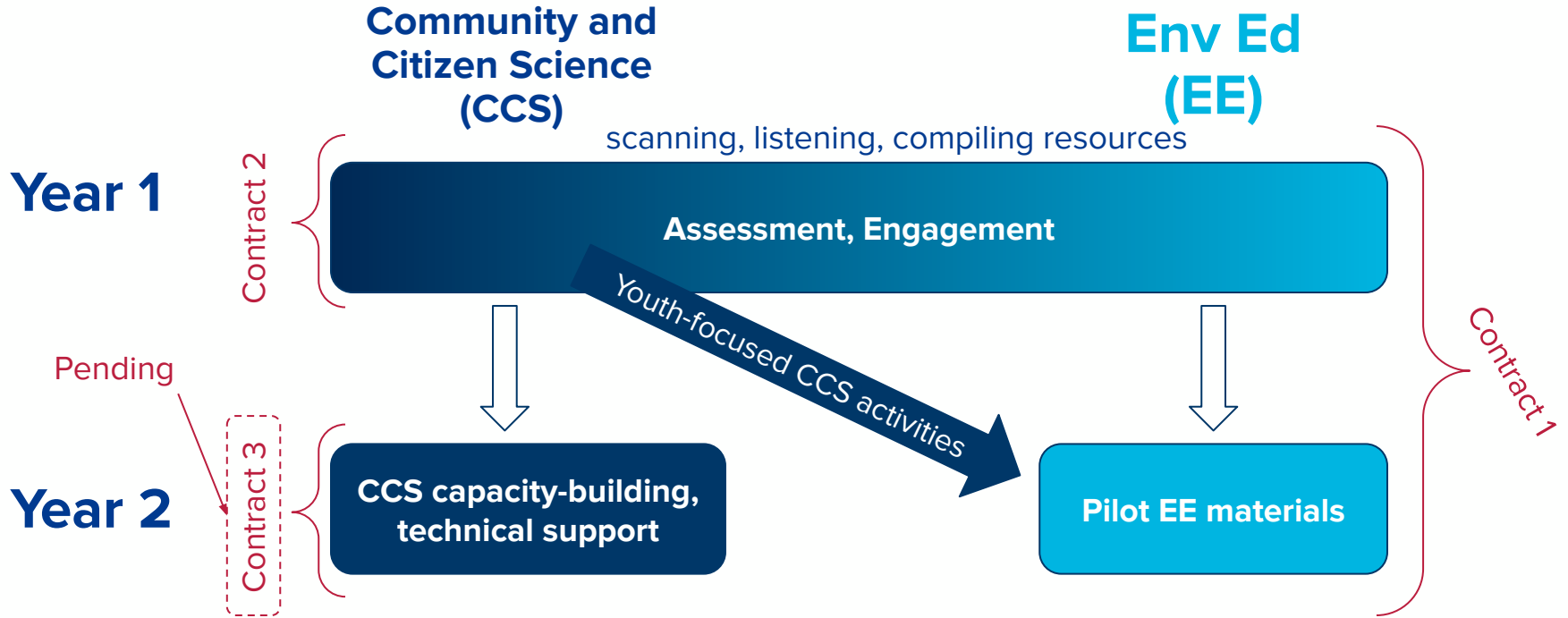
Env Ed
(EE)

scanning, listening, compiling resources

Year 1

Assessment, Engagement

Original Plan



New Plan

CCS

EE

scanning, listening, compiling resources

Year 1

Contract 2



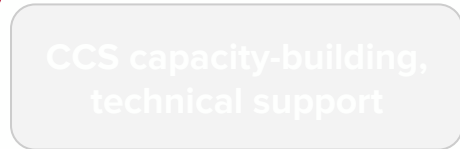
Assessment, Engagement

Youth-focused CCS activities

Funds not available

Year 2

Contract 3



CCS capacity-building,
technical support



Pilot EE materials
+ YCCS

Context

“... In light of the environmental challenges facing Clear Lake and Lake County,” AB 707 was passed in 2017 **“to develop strategies to clean up the Lake and revitalize local economies dependent on the health of the Lake.”**

– BRC Charter (2019)

THE PEOPLE OF THE STATE OF CALIFORNIA DO ENACT AS FOLLOWS:

SECTION 1. Division 14.5 (commencing with Section 22085) is added to the Public Resources Code, to read:

DIVISION 14.5. Blue Ribbon Committee for the Rehabilitation of Clear Lake

22085. The Legislature finds and declares all of the following:

(a) According to California census data, Lake County, among the poorest counties in the State of California, is or

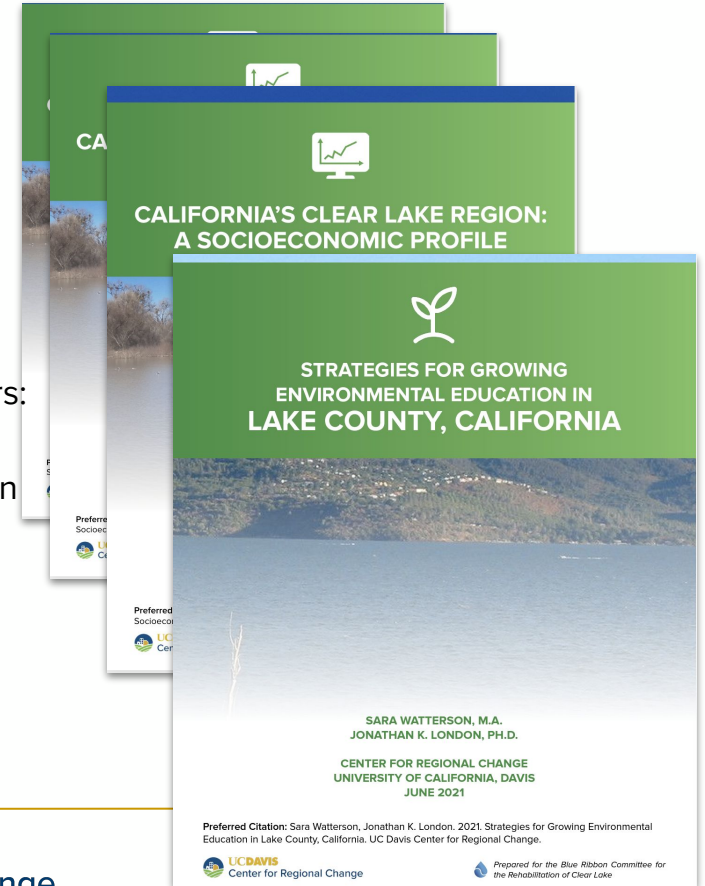
Context

UC Davis Center for Regional Change (CRC):

➤ regionalchange.ucdavis.edu/projects/rehabilitation-clear-lake-ab-707

Series of Reports and Issue Briefs by the CRC for the BRC (2021):

- ❖ California's Clear Lake Region: Introduction
- ❖ California's Clear Lake Region: A Socioeconomic Profile
- ❖ Linking Youth Education and Workforce Development with a Healthy Lake Environment in Lake County, California
- ❖ Five Core Areas to Support and Promote Recovery to Natural Disasters: Insights from Tribal Communities in the Clear Lake Region
- ❖ Promising Practices for Rural Economic Development After Disasters in Lake County, California
- ❖ Improving Rural Broadband Access in Lake County, California
- ❖ Building Opportunities for Enhancing Agritourism and Ecotourism in Lake County, California
- ❖ **Strategies for Growing Environmental Education in Lake County, California**



Context

UC Davis Center for Community and Citizen Science (CCCS):

➤ education.ucdavis.edu/ccs-clear-lake-environmental-education-and-ccs

An updated project overview will be posted online soon that includes the needed changes shared in this report today.

We will also send it to the BRC, CNRA, and community partners.

The screenshot shows the UC Davis School of Education website. At the top, there is a navigation bar with the UC Davis logo and 'SCHOOL OF EDUCATION'. Below this is a search bar and a menu with options like 'ACADEMIC PROGRAMS', 'RESEARCH & EXPERTISE', 'PEOPLE', 'YOUTH PROGRAMS', 'OUR SCHOOL', and 'DONATE'. A secondary dark blue navigation bar contains links for 'Home', 'Our Work', 'Events and Trainings', 'Educator Resources', 'People', 'Publications', 'Blog', 'Engage', and 'Donate'. The main content area features the title 'CLEAR LAKE ENVIRONMENTAL EDUCATION AND COMMUNITY AND CITIZEN SCIENCE'. To the right of the title is a 'PEOPLE' section listing Sarah Angulo, Peggy Harte, Ryan Meyer, and Heidi Ballard with their titles. Below the title, there are sections for 'Project Duration' (2022-2024), 'Location' (Lake County, California), and 'Background'. The background text describes the partnership with the UC Davis Center for Regional Change and lists local partners. A photograph of three people (two women and one man) is shown on the right side of the page.

UC DAVIS
SCHOOL OF EDUCATION

I WANT TO ... SEARCH

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Home | Our Work | Events and Trainings | Educator Resources | People | Publications | Blog | Engage | Donate

CLEAR LAKE ENVIRONMENTAL EDUCATION AND COMMUNITY AND CITIZEN SCIENCE

PEOPLE

- SARAH ANGULO**
Community Education and Outreach Specialist, Center for Community and Citizen Science
- PEGGY HARTE**
Youth Education Program Manager, Center for Community and Citizen Science
- RYAN MEYER**
Executive Director, Center for Community and Citizen Science
- HEIDI BALLARD**
Professor and Chancellor's Fellow

Project Duration
2022-2024

Location
Lake County, California

Background

Starting in 2022, the Center is partnering with the [UC Davis Center for Regional Change](#) to work with key local partners (including Tribal nations and other local governments, non-profit organizations, educators, and others) to identify existing environmental educational (EE) and CCS resources and programs in the region. Our findings will contribute to the development of additional educational materials and pilot

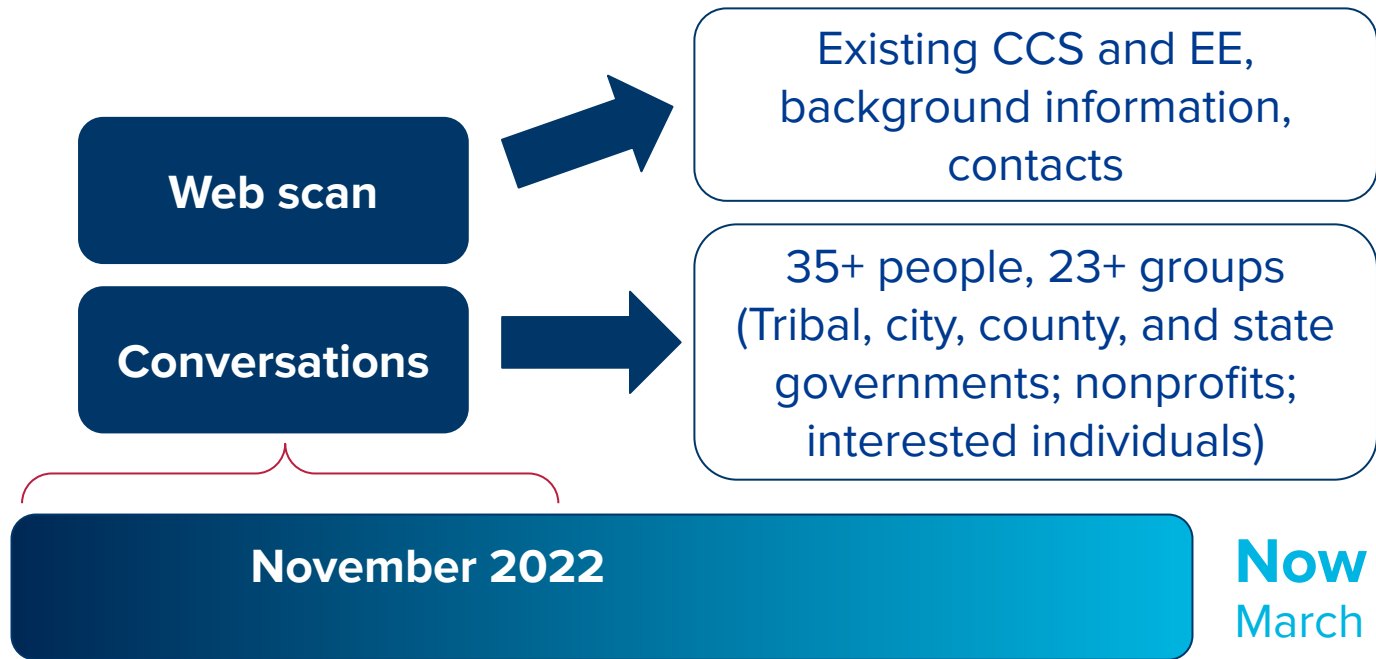
Goals

To support the people of the region in caring for the lake, the watershed, and communities, we are assembling existing environmental education materials thanks to numerous partners who have been contributing to the collection and giving us input and guidance.

We are tying these together by developing materials for Youth-CCS connected to ongoing programs in the region. We know from research that Youth-CCS can promote stewardship, student learning, and youth agency, among many other benefits.

These materials, that will be piloted by some community partners in year two, aim to be inclusive of the whole watershed, accessible lake-wide, and housed within the community long term.

**Project
Start**
July 2022



Existing strengths;
Environmental issues of
community concern;
Challenges;
Hopes for the region



Given all these, what do we
need to include, what's the
framework, and how do we
share findings so the project
will continue to be of service
to the community?



Summary

**Project
Start**
July 2022

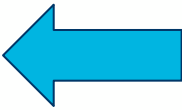
November 2022

January 2023

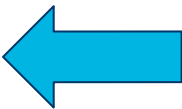
Now
March 2023

Restoration projects;
Events;
Workforce development
opportunities;
Background information;
Programs and field trips;
Ongoing monitoring

YCCS supporting materials



Compiling



Developing



**Project
Start**
July 2022

January 2023

Now
March 2023

Ways to Participate

- Talk with us! Contact us to be added to our list of community members and organizations and/or to ask any questions. Refer others to us.
- Help us gather materials and resources. Give permission for us to use and share your existing educational materials.
- Be involved in the review and development process.
- Sign up to get trained and pilot the educational materials with youth in the Clear Lake region. Give us feedback for revision.

Thank you.

Presented by:

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Alyssa Nelson <aanelson@ucdavis.edu>, CRC

Sarah Angulo <sangulo@ucdavis.edu>, CCCS

UC Davis

Center for Regional Change (CRC) &

Center for Community and Citizen Science (CCCS)

Environmental Education & Community and Citizen Science in Clear Lake

2022-24

with the Blue Ribbon Committee (BRC) for the Rehabilitation of Clear Lake



UC DAVIS

Center for Community
and Citizen Science



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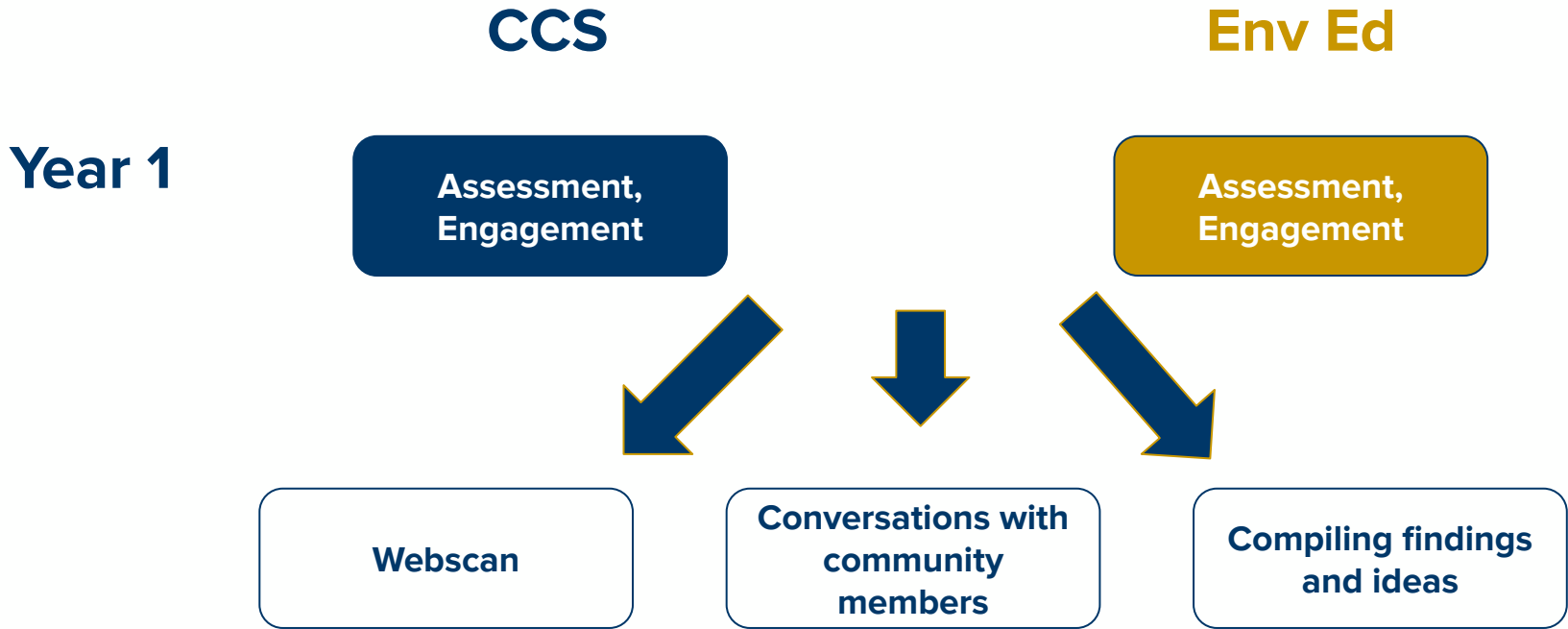
Center for Regional Change

*Note: UCD's Tahoe Environmental Research Center
(TERC) has a separate project*

Project Goal

Assessment and capacity-building for environmental education and community and citizen science in the Clear Lake region surrounding the health and restoration of the Lake and the benefit of its communities.

Approaching Halfway Year 1



Conversations with community members

24 people with 13 organizations

CA Department of Fish and Wildlife

Clear Lake Environmental Research Center (CLERC)

Cobb Area Council

KPFZ 88.1 FM

Lake County Resource Conservation District

Lake County Water Resources Department

Mendocino Community College

Robinson Rancheria of Pomo Indians

Redbud Audubon Society

Sierra Club Lake Group

Tracking California

Tribal EcoRestoration Alliance

UC McLaughlin Reserve, KiDS! Program

Outreach

2 presentations to community groups

Lakeport Economic Development Advisory Council (LEDAC)

Lake County Friends of Mendocino College (LCFMC)

Next steps

EE

- Continue conversations with community members and tribal leaders
- Gather curriculum and materials from existing programs
- Synthesize existing curriculum

CCS

- Continue conversations with community members and tribal leaders
- Organize the information we have to show us where support is needed
- Identify the potential projects and what we need to do to follow up

UC Davis - Clear Lake Projects

Center for Regional Change (CRC)
& Center for Community and Citizen Science (CCCS)

2022-23

&

2023-24

(UCD's Tahoe Environmental Research Center has a separate project)

UC Davis CRC & CCCS - Clear Lake Projects for 2022-23 & 2023-24

... designed in response to expressed community needs and prior approval by the Blue Ribbon Committee (BRC) with the guidance of its Socioeconomic Subcommittee (SES):

UC Davis - Clear Lake Projects

for 2022-23 & 2023-24

... designed in response to expressed community needs and prior approval by the BRC with the guidance of the SES:

- **Community and Citizen Science**
- **Environmental Education**
- **Evaluation of these Projects**

UC Davis - Clear Lake Projects

Who should we be getting to know and talking with?

UC Davis - Clear Lake Projects

Approach grounded in ...

UC Davis - Clear Lake Projects

Approach grounded in ...

respectful Tribal and lake-wide partnerships

...

UC Davis - Clear Lake Projects

Approach grounded in ...

respectful Tribal and lake-wide partnerships
using **community engagement best practices**

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UC Davis - Clear Lake Projects

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respectful Tribal and lake-wide partnerships
using **community engagement best practices**
to **foster collaborative care and rehabilitation**

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UC Davis - Clear Lake Projects

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of **Clear Lake and its communities**

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UC Davis - Clear Lake Projects

Approach grounded in ...

respectful Tribal and lake-wide partnerships
using **community engagement best practices**
to **foster collaborative care and rehabilitation**
of **Clear Lake and its communities**
through **culturally appropriate education and science**

...

UC Davis - Clear Lake Projects

Approach grounded in ...

respectful Tribal and lake-wide partnerships
using **community engagement best practices**
to **foster collaborative care and rehabilitation**
of **Clear Lake and its communities**
through **culturally appropriate education and science**
that **centers traditional & local knowledges, histories, cultures,**
relationships, and current needs and assets.

Project Vision for Community and Citizen Science + Environmental Education

Youth and other residents of the Clear Lake region [will] have the knowledge, skills, and values to become effective environmental stewards and succeed in related education and career pathways.

Project Vision for Community and Citizen Science + Environmental Education

Youth and other residents of the Clear Lake region [will] have the knowledge, skills, and values to become effective environmental stewards and succeed in related education and career pathways.

Local organizations, school systems, and governments –including Tribal governments and residents– are [/will be] collaborating to provide comprehensive environmental education programs that leverage their unique strengths and assets.

What is Community and Citizen Science?

Community Science and Citizen Science engage members of the public to collaborate with professional scientists to conduct research-based investigations, engage in monitoring activities, collect data and interpret results, and produce new knowledge used for natural resource management or basic research.

This includes community science, which is community-driven research or monitoring in partnership with scientists.

education.ucdavis.edu/center-community-and-citizen-science

What is Environmental Education?

In this phase we will be focusing mainly on compiling what *informal* environmental education –broadly defined– exists in the Clear Lake region. This includes projects and programs of Tribal Nations, other community-based organizations, and local government departments, for example.

In a future phase, we may expand to compiling what *formal* environmental education exists (such as in formal preschool, K-12, community college, and university programs) in the region.

Community and Citizen Science + Environmental Education

COORDINATED, INTEGRATED, PARALLEL PROCESSES

UCD applied researchers from the *Center for Regional Change* and the *Center for Community and Citizen Science* collaborate to ...

Community and Citizen Science + Environmental Education

COORDINATED, INTEGRATED, PARALLEL PROCESSES

UCD applied researchers from the *Center for Regional Change* and the *Center for Community and Citizen Science* collaborate to:

- Continue building **relationships** and **partnerships** across the lake communities
- Include **young people** in the **visioning, decision-making, and action** processes
- Conduct a **scan** of existing community and citizen science (CCS) and environmental education (EE) initiatives and resources (**i.e., “asset mapping”**) around Clear Lake, asking which projects and programs would like to be included in a **shareable database** of information, resources, and contacts.
- Work with community partners to **select** a new or existing **project/program to grow in inclusivity and geographic focus**
- **Evaluate** the processes and outcomes

Community and Citizen Science + Environmental Education

Anticipated outcomes

Year 1 (by June 2023): SCAN - PLAN - CHOOSE - CREATE

- ❑ Draft the capacity-building plan (or plans) for CCS + EE
- ❑ Get feedback from partners/stakeholders on:
 - ❑ Capacity-building plan(s)
 - ❑ EE curriculum draft
- ❑ Finalize capacity-building plan(s), with partner agreements for collaborative activities for Year 2

Community and Citizen Science + Environmental Education

Anticipated outcomes, continued

Year 2 (by June 2024): IMPLEMENT & IMAGINE

- ❑ Implement capacity-building plans with community partners
- ❑ Further develop EE curriculum / project / program
 - ❑ Train Partners ... Pilot ... Assess ... Revise
- ❑ Share data, tools, and resources (with consent of contributors)
- ❑ Consider further steps and visions

Deliverables: Environmental Education (EE)

YEAR 1 details for EE (July 2022 - June 2023)

- ❑ **Relationship-building** with Tribal Nations, CBOs, Schools/Districts (*cont.*)
- ❑ Develop methods for **data collection and asset mapping** for EE/CCS scans
 - ❑ Develop **contacts for interviews** regarding EE
 - ❑ # existing/prospective EE project leads interviewed/engaged
 - ❑ Begin outreach to identify current resources and community goals
 - ❑ Develop database of groups engaged in EE/CCS and their focuses
 - ❑ Compile current EE resources in shareable format
- ❑ **Engage youth**: ground-truthing, identifying interests, generating ideas
- ❑ **EE capacity-building plan**:
 - ❑ Identify potential **new or expanded project/program** with partners and **make agreements**
 - ❑ Begin **development of lake-wide EE materials** with partners

Deliverables: Community and Citizen Science (CCS)

YEAR 1 details for CCS (July 2022 - June 2023)

- ❑ Relationship-building with Tribal Nations, CBOs, Schools/Districts (*cont.*)
- ❑ Develop methods for data collection and asset mapping for EE/CCS scans
 - ❑ Begin outreach to identify current resources and community goals
 - ❑ Develop database of groups engaged in CCS/EE and their focuses
 - ❑ Develop contacts for interviews regarding CCS
 - ❑ # existing/prospective CCS project leads interviewed/engaged
 - ❑ # restoration scientists working in Clear Lake interviewed/engaged
 - ❑ Compile current CCS resources in shareable format
- ❑ Youth input on CCS priorities/opportunities
- ❑ CCS capacity-building plan:
 - ❑ Draft plan with input from partners and stakeholders
 - ❑ Finalize plan with partner agreements for Year 2 collaborative activities

Deliverables: Evaluation

- **Mixed methods** design using **developmental, participatory, and culturally responsive evaluation frameworks**
- Conducted **with stakeholders (e.g., Clear Lake residents, Tribal governments and residents, funders, policy makers, program staff, etc.)** as identified by the team
- **Goal: identify the social, economic, and cultural factors affecting the successful implementation of EE and CCS in the Clear Lake region.**

Year 1 (July 2022 - June 2023):

- Develop evaluation methodology
- Collect baseline data
- Develop Year 1 report

Year 2 (July 2023 - June 2024):

- Measure short- and medium-term EE and CCS outcomes
- Develop recommendations for conducting successful community projects in Clear Lake region in the future

UC Davis - Clear Lake Projects

Who should we be getting to know and talking with?

Overview: Environmental Education Strategy

Vision: Innovative and sustainable environmental education to promote environmental stewardship for Clear Lake

Goal:

- Develop environmental education programs that build a stewardship ethic

Year One Objectives:

- Extensive, iterative community engagement to assess existing EE programs and inform year 2 plans.
- Assess priorities and opportunities for existing CCS efforts in Clear Lake.

Overview: Environmental Education Strategy

Goal:

- Offer environmental education programs that actively engage learners in hands-on scientific discovery with pathways to academic and professional achievement.

Year One Objectives:

- Conduct youth focus groups
- Identify opportunities to connect CCS with environmental education programming.

Overview: Environmental Education Strategy

Goal:

- Orient all activities around building local capacity for long-term sustainability.

Year One Objectives:

- With input and guidance, identify priority piloting, technical support and capacity-building activities for year 2, aligned with locally-allocated implementation funds.

Overview: Environmental Education Strategy

Goal:

- Actively engage interested area Tribal governments and residents in the development of environmental education to draw on Indigenous ecological stewardship

Year One Objectives:

- Extensive, iterative Tribal government engagement to assess existing Kinship, TEK, CCS and EE programs and inform year 2 plans.
- Collaborate with Tribal governments to identify opportunities to connect ongoing monitoring efforts with CCS/EE programming.

Overview: Environmental Education Strategy

Goal:

- Ensure that Clear Lake environmental educators have the curriculum and training needed to be effective in their teaching.

Year One Objectives:

- Extensive, iterative community engagement to assess existing EE professional development available (formal and non formal) to inform year 2 plans.
- With input and guidance, identify priority piloting, technical support and capacity-building activities for year 2, aligned with locally-allocated implementation funds.