STRATEGIES FOR GROWING ENVIRONMENTAL EDUCATION IN LAKE COUNTY, CALIFORNIA

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INTRODUCTION

Environmental education serves many purposes. Educating K-12 and college students, as well as broader members of a community and visitors, about the world around them provides a sense of connection to community, understanding on how to be a good steward to the Earth, and the ability to consider actions one can take to protect nature for today’s generation as well as for future generations. While environmental education programs are often directed toward K-12 students through their science curriculum, they can also be provided through community and youth program projects, college courses, docent-led tours, interpretative kiosks along a self-guided hike, visitor center dioramas, and more. Environmental education can also be an important part of achieving equitable outcomes for all members of society through ensuring that everyone has access to powerful educational opportunities to support career development and lifelong learning.

PURPOSE FOR REVIEW IN LAKE COUNTY

The Socioeconomic Subcommittee of the Blue Ribbon Committee for the Rehabilitation of Clear Lake identified environmental education as one important area affecting the economic as well as ecological vitality of the Clear Lake region. The Subcommittee requested more information about what work is being done in this area, what opportunities and challenges exist, and recommendations for moving forward.

METHODS

The CRC held three virtual focus group meetings in 2021, led by Jonathan London and consisting of stakeholders from various sectors within Lake County as well as several UCD faculty and staff (see Appendix). We created the list of stakeholders after consulting with the BRC Socioeconomic Committee and encouraged those invited to suggest other contacts within their community as well.

The first meeting, held in late January 2021, consisted of introductions and a broad discussion of the current state of environmental education focused on the lake. The second and third meetings, held in March and May 2021, continued the discussion and honed in on environmental education needs within the community and key recommendations for the BRC.
RESULTS: EMERGING KEY THEMES

Community knowledge about Clear Lake is limited
Several focus group participants discussed that local residents often comment that they have never been out on the lake, and that they often mention that the lake is polluted. There seems to exist a lack of appreciation and understanding of the lake’s ecological processes. Use of the lake by the younger generation has also decreased and not many programs exist to engage youth with the lake, whether it be through education or recreation. Currently, the K-12 education system does not have many opportunities for students to engage with lake-oriented science. Engagement of the local residents, including youth, is essential to help foster the values and knowledge needed to protect environmental resources.

Lake County tribes have been exceptional in their leadership in environmental stewardship and education over millennia.

The Tribal communities in Lake County has spent a significant amount of time and resources educating the public about the environmental processes of the lake and they must be the core of environmental education in the region. With two Tribal representatives on the Lake County Board of Supervisors and the BRC, there is a new spirit of leveraging tribal generational and ecological knowledge. Current Tribal environmental education includes air quality and clean water programs, gardening and greenhouse programs, and various community outreach events, such as Earth Day, American Recycle Day, and the Tule Boat Festival.

It is important to include many different avenues for expanding environmental education

Many different avenues exist to facilitate environmental education, including K-12 schools, non-profits, and Tribes. Teachers are often already struggling to fit classroom time to meet state requirements and non-profits lack the necessary staff to implement the needed work; and, finally, all sectors are already stretched thin financially.

Providing assistance in using an inter-disciplinary approach to project-based instruction could open up time for teachers and provide avenues for increased environmental education. Exposing students to experts in the field through in-classroom visits and field trips can allow for a deep dive into a topic. To aid in this process, teacher professional development workshops in project-based instruction would be helpful. The California Education and the Environment Initiative is an example. Additionally, after Expanded
Learning Programs are important avenues for furthering environmental education, especially in the younger grades. Almost every school in the Clear Lake region has an Expanded Learning Program that can be adapted to include environmental education.

**Environmental Education resources exist in Clear Lake, but resources might not be shared evenly across communities**

Many participants in the focus groups discussed environmental education programs that already exist in the area but that are not widely accessible to students, often because of problems of transportation. Nonetheless the region has many resources such as school field trips at Anderson Marsh, docent-led walks by Redbud Audubon Society and Lake County Land Trust, Lake County’s “Field Days in the Creek” and “Trout in the Classroom” programs, and school group tours at the Taylor Observatory and Planetarium. These same organizations offer community-based events focused on environmental education, such as Heron Days, and there exists a couple of small nature centers as well, such as the center at the Rodman Slough and the Clear Lake State Park. Finally, the Lake County Land Trust also owns several properties surrounding the lake as preserves, such as the Rodman Preserve and the Boggs Lake Preserve. These resources and facilities could be put to greater use through improved coordination and marketing.

**RECOMMENDATIONS AND PROMISING PRACTICES**

**Developing new and enhanced environmental education programs should ensure the active engagement of youth and the community to promote values to protect environmental resources**

Much of the focus group discussion centered on ways to engage youth and adults in protecting the lake and the region’s environment. This needs to ensure that Tribal youth and communities are included.

Engagement opportunities should highlight the intersection of environmental and social justice. One example of a social-justice oriented youth engagement resource is the UC Davis project, [Community Futures, Community Lore](#), which uses youth participatory action research (YPAR), community mapping, public data and cultural organizing to share stories that facilitate change.
Another example is to expand environmental literacy by using project- and place-based citizen science programs. These programs help to engage the public by involving them in science-based monitoring, such as collecting & reporting data, interpreting results, and engaging with scientists. This helps to give students and the community tools to advocate for change, and is an approach that can be supported by the UC Davis Center for Community and Citizen Science.

Finally, there was discussion on requiring a youth engagement program for all newly-funded projects related to lake health such as the proposed Lucerne Water Lab.

**Create a comprehensive collection of current environmental education programs related to the lake benefits educators, residents, and visitors alike**

Many participants discussed establishing a clearinghouse for Clear Lake environmental education programs, so that educators, community members, and visitors would have access to and knowledge of the various programs that are already established. This would also help to spread accurate, informative information on the lake’s scientific processes as well as the rich cultural and geologic history of the area. Tuleyome is a regional example of this type of collection of resources. The US Davis Center for Regional Change has also initiated a statewide clearinghouse and map of environmental educations centers in California and the Clear Lake region, which could be used as a template for local and regional environmental education information (see Appendix 1.5.2 for more information).

Another suggestion included building an environmental education website that would house resource packets for teachers by grade and age. The first priority for resources could be directed toward lower grades, to build an early foundation of scientific interest and knowledge. One example of this is Project Learning Tree, which focuses on forestry education.

**Establish or expand an environmental education center that focuses on the lake and history boosts awareness and the desire to protect the natural beauty and culture of the region**

Most participants agreed that a physical center from which environmental education programs could be based is a key component of advancing environmental education in the region. This center could bring together environmental education and Tribal cultural and historical preservation.
Integrating an environmental education component within the proposed Lucerne Water Lab is a logical pathway for exposing students and the community to lake science. The Water Lab could contain a classroom for visiting schools, as well as a student lab where scientists and teachers could lead students in water quality and similar experiments. The Lab could also house a center illustrating the rich cultural history of the Clear Lake region, highlighting the Lake’s importance to area tribes. The County Office of Education’s new expansion at the Taylor Observatory to a full science facility is another promising option.

It was noted that, however, due to the size of the lake and the several Tribal lands surrounding it, having more than one center would be beneficial. Participants discussed that renovating and/or upgrading existing spaces might be most financially viable. A complementary strategy would be creating one or more mobile educational vans with hands-on exhibits and materials for community science projects. Another alternative suggested was the creation of informational kiosks surrounding the lake, perhaps at locations that already exist, such as schools and community organizations. These kiosks could also be constructed as a part of an interpretive trails system that could identify habitat, wildlife, geology and cultural interests, as well as explain the lake’s processes.
Build on a collaborative approach to Environmental Education by developing an on-going Clear Lake Environmental Education Roundtable (CLEER)

Participants noted that there is much to gain by continuing a collaborative approach to environmental education in the Clear Lake region, where members from Tribes, K-12 education, community colleges, State management agencies, environmental non-profits, and others come together on a regular basis to further the recommendations outlined in this brief. It is important to involve youth leadership groups as well, including Tribal youth groups. One idea discussed was a Lake County Environmental Education Summit, spanning several days, which could bring together EPA, State Water Board, Tribes, the Blue Ribbon Committee, and the community. This group can help build connections and relationships across agencies, and develop champions around the community and in schools.

At the final focus group meeting, this idea coalesced into a Clear Lake Environmental Education Roundtable (CLEER). Will Evans of CLERC has volunteered to serve as the initial coordinator. Funding to solidify the creation of the committee, such as the goal of a Clear Lake Education Summit, would be beneficial.
APPENDIX

Focus Group attendees
Organizations and sectors represented from Lake County include the Lake County Office of Education, Big Valley Rancheria, Elem Indian Colony, Middletown Rancheria, Scotts Valley Band, Clear Lake Environmental Research Center, Redbud Audubon Society, Lake County Land Trust, and the Lake County Economic Development Corporation. UC Davis centers represented include the Center for Citizen and Community Science, the Center for Regional Change, Global Affairs, and the Tahoe Environmental Research Center.

Environmental Education in California web map
The UC Davis Center for Regional Change created a web map titled, Environmental Education Programs and Centers in California, to highlight examples of centers and programs around California, including Clear Lake. This web map could also serve a prototype for a larger clearinghouse of Clear Lake environmental education resource information.