

## Alameda County Fish and Wildlife Propagation Fund

Annual Report - December 15, 2021

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### Summary

This project currently employs 32 paid high school interns to conduct habitat restoration and community outreach activities in the San Lorenzo and San Leandro watersheds and along their two respective shorelines, Martin Luther King and Hayward Regional shorelines. These two watersheds cover approximately 100 square miles and have 115 miles of open channel. Both regional shorelines are part of the Pacific Flyway and are within 25 miles of San Francisco, a signatory of the Urban Bird Treaty. Project sites provide nesting habitats for endangered bird species, such as the Western Snowy Plover and California Least Tern. Sand erosion, marine debris, single use plastic pollution, cigarette butts, garden pesticides and burnt oil are all threats to these habitats. Project activities will include capacity building at four public high schools, 56 paid yearlong environmental internships serving disadvantaged youth, and a variety of land and wetland restoration, improved management, litter prevention and community outreach tasks.

### Workplan Progress

Project Schedule of Deliverables	July 2021 to December 2023					
	Jul-Sep	Oct-Dec	Jan-Mar	Apr-Jun	Jul-Sep	Oct-Dec
<i>Alameda Coastal Watersheds Restoration Internships</i>						
<b>Color Key</b>	Complete	In Prog	Sched-uled			
<b>TASK 1: Project Planning and Administration (25 days)</b>	6	3	4	3	6	3
Planning meetings with project partners – set up PMO	2 days		2 days		2 days	
Curriculum integration plans/ project schedule	2 days				2 days	
Project Admin – Project Management Office (PMO) coordination	2 days	2 days	2 days	2 days	2 days	2 days
Interim and Final Reports		1 day		1 day		1 day
<b>TASK 2: Project Presentations and Interns/Team Recruitment (32 days)</b>	16				16	
Project presentations at 4 Alameda public high schools campuses	4 days				4 days	
Interviews / final selection of 4 restoration teams (56 interns total)	8 days				8 days	
Pre Surveys, Mid Surveys, and Post Surveys	4 days				4 days	
<b>TASK 3: In-Class Restoration Teams Training (28 days)</b>	6	8			14	
Introduction to restoration work/ ecology, applicable GLOBE wildlife biology protocols	4 days				4 days	
Guest speaker and introduction to endangered fish species in California and Alameda County	2 day				2 day	
Guest speaker and introduction to San Lorenzo and San Leandro Watersheds		2 day			2 day	
Guest speaker and introduction to endangered bird species (California Tern, W. Snowy Plover)		2 day			2 day	
Discussion of watershed history, water pollution issues, plastics, pesticides, dog waste		2 day			2 day	
After school site visit/ tour of habitat sites		2 day			2 day	

<b>TASK 4: Restoration Field Work (48 days)</b>			<b>24</b>	<b>16</b>		<b>8</b>
Water Quality testing using GLOBE protocols			4 day			
Native species installation, riparian vegetation			4 day			
Invasive plant identification and removal/ habitat restoration at project sites			8 days			
Restoration Activities (Bird Sanctuary MLK building out island habitat)			8 days	8 days		4 days
Creek side litter mapping, sourcing and removal (San Leandro, San L)				8 days		4 days
<b>TASK 5: Public Outreach and Education ( 16 days)</b>				<b>8</b>		<b>8</b>
Public event 1: Tabling at schools				4 days		4 days
Public event 2: Attendance of networking event				2 days		2 days
Public event 3: Production and distribution of photos and/or 2 minute video documenting work				2 days		2 days
<b>Task 4: Reporting and Evaluation</b>						
<b>TOTAL estimated workdays (149 days)</b>	<b>28</b>	<b>11</b>	<b>28</b>	<b>27</b>	<b>36</b>	<b>19</b>

## Youth Team Recruitment, Data Collection, Research and Restoration Activities

### 1) Land, wetland restoration – Acres restored

### 2) Removal of invasives – Acres restored

### 3) Riparian Restoration – Miles restored

Four teams spent this reporting period working at various sites throughout San Lorenzo Creek Watershed and San Leandro Creek Watershed, focusing restoration efforts on 13 acres in Cull Canyon Regional Recreation Area, Bay Trees Park, Lake Chabot Regional Park, Carlos Bee Park and Don Castro Regional Recreation Area and along the 7-mile San Lorenzo Creek way. At Cull Canyon and Bay Trees, interns performed extensive litter mapping and removal. In addition to the abundant small litter items such as bottles, cans and cigarette butts, youth were able to remove several large items that had been dumped in the park include tires and pieces of furniture. At Lake Chabot, interns mapped and removed litter and tested water at several sites to quantify nutrient and pollution levels in the lake. At Carlos Bee Park, interns from several schools partnered with Hayward Area Recreation District and Alameda County Clean Water Program to continue to restore creekside habitat. Interns and additional community volunteers spread over 2,000 feet of mulch, cleaned up litter, removed invasive ivy from trees and prepared areas for native plant installation with sheet mulch.

Beginning in January, interns will start to restore lower watershed habitat within the Pacific Flyway. On Martin Luther King Jr. Day of Service, interns will work with HARD and ACCWP to map litter and remove invasive species at the Hayward and San Lorenzo Shorelines. Efforts will continue through Hayward, San Leandro, San Lorenzo and Martin Luther King shorelines to prepare nesting habitat for migratory birds, map and remove litter, remove invasive species, and maintain native habitat.

### 4) Monitoring - # streams/ sites being monitored

During this reporting period, interns monitored several streams using GLOBE hydrosphere protocols to test water. Interns learned how to complete water tests during weekly meetings and began to monitor sites in fall. Water testing was completed at several sites in Lake Chabot and along Sausal Creek. Interns test for parameters including temperature, transparency, dissolved oxygen, phosphates, nitrates, and pH. This information can provide insight into how much life a body of water is capable of supporting, if there is significant local nutrient runoff, and more.

**5) Outreach/Education - #internships**

Earth Team staff implemented intern recruitment during this reporting period. Earth Team staff visited Skyline High School’s campus on August 27<sup>th</sup>, presenting to 7 classes in the Green Energy Pathway and over 300 students. Recruitment for Castro Valley High School, San Lorenzo High School and Arroyo High School was completed virtually. Earth Team staff created application and recruitment materials optimized for social and virtual platforms and partnered with campus administrators and career center staff to reach the majority of students on each campus. Earth Team staff also held several information sessions on Zoom which were well attended by interested applicants from all schools. These info sessions provided an opportunity for prospective interns to ask questions and for Earth Team staff to explain the program in more detail.

Once enough students applied, staff members began the process of interviewing and selecting final teams. All applicants are offered a 15-minute phone interview during which Earth Team staff work to understand individuals’ availability, additional commitments, post-secondary interests, field and technical skills, strengths, weaknesses and more. Once all applicants are interviewed, Earth Team staff use a holistic rubric to select a group of interns likely to work well together and provide a variety of skills.

**6) Building institutional capacity - # of orgs and # teachers reached**

During this reporting period, Earth Team partnered closely with 4 Alameda County schools: Skyline High, Arroyo High, San Lorenzo High and Castro Valley High. At each of these schools, Earth Team staff worked closely with 1 lead teacher or administrator, also partnering with 2-3 additional teachers for recruitment and outreach. In the broader community, interns and staff worked closely with partner organizations including Alameda County Clean Water Program, Hayward Area Recreation District, East Bay Regional Parks, Big City Mountaineers, GLOBE, and WestEd.

**First Semester internship meetings with participating Alameda County Public High Schools (Title 1):**

**San Lorenzo High**

9/30/21	First meeting of the year! Interns participate in team building activities and learn logistics about the internship program. Interns receive instructions for completing waivers via email for parents/guardians to sign.
10/7/21	Interns will learn the difference of climate change and global warming. As well as basic environmental topics such as: climate change effects, greenhouse effect, and sources of major CO2 emitters. Lastly, interns will learn about the IPCC and what it entails.
10/14/21	Interns will be introduced to watershed topics and the importance of the system. Interns will be able to understand the interconnection between human involvement and the environment. Interns will be introduced water pollution and sources of it. Lastly, interns will be introduced to and trained using the Marine Debris Tracker.
10/19/21	Interns will be introduced to Scientific Literacy Concepts. Interns will also be able to describe and analyze infographics to come up with results. Interns will also learn basic data analytics along with the process of scientific literacy.
10/28/21	Interns will be introduced to different materials? lifecycle. Interns will also learn about the degradation timeline for glass, paper, plastic and other miscellaneous materials. Interns will also learn where all trash goes and the journey it takes. Interns also learn about how the debris affects the environment as well as wildlife. Interns will understand what garbage patches are and how they are formed.
10/30/21	Litter Clean Up at Lake Chabot

11/4/21	Interns will learn how to identify characteristics of plants through basic plant structures. Interns will also learn about what species are native, invasive, and introduced to the east bay. Interns will also be introduced to Ecology and Habitat Restoration. Lastly, interns will learn the different levels of an ecosystem and keystone species.
11/10/21	Interns will be introduced to environmental justice and racism. Interns will understand what is considered environmental racism and if they had any experience with that based on given definition. Interns will also be exposed to breakthrough environmental justice cases that are key to the movement. Interns will have a breakout group activity that each group will receive a case and identify the problems, as well as propose solutions to them.
11/18/21	-Interns will be introduced to the history of indigenous tribes in the Bay Area. Interns will learn about how the first explorers came to the Bay Area and colonized the area. Interns also learned about generational trauma and how to help heal from it. Interns will learn about Traditional Ecological Knowledge and the relationship between Native Americans and the land. Lastly, interns will research and present in a group about a tribe in the Bay Area.
11/20/21	Water Quality tests on Lake Chabot. Students will tests the water quality with seven different tests to determine the health of the lake.
12/2/21	Interns will be further learn climate change issues such as the carbon footprint. Interns will learn and define what a carbon footprint is in their own words to retain definition. Interns will learn where the primary sources of carbon emissions come from and learn how every object has a carbon footprint. Interns will work together in groups in breakout rooms to research about carbon footprint and share out altogether. Interns will also be able introduced to the carbon footprint calculator and input their data to determine the size of their individual carbon footprint.
12/4/21	Interns restore open space at Carlos Bee Park with ACRCO, ACCWP, HARD.

### **Castro Valley High**

9/29/21	First meeting of the year! Interns participate in team building activities and learn logistics about the internship program. Interns receive instructions for completing waivers via email for parents/guardians to sign.
10/6/21	Interns are introduced to Climate Change concepts and learn about wildfire in California. Assignment is SEHS
10/13/21	Interns begin learning about watersheds and are trained to use Marine Debris Tracker app. They complete independent litter clean-ups before next week's meeting.
10/23/21	Interns remove and map litter at local regional parks.
10/20/21	Interns are introduced to concepts of scientific literacy, and begin to discuss Covid-19 outreach goals and at-home 3-Bin education
10/27/21	Interns perform a community issue inventory and root cause analysis on issues including water quality, litter, waste contamination and more. Interns learn about waste sorting and are assigned an at-home 3-Bin audit.
11/3/21	Interns perform a root cause analysis on key environmental issues in their community including water quality, litter, waste contamination and more. Interns learn about Indigenous History in the Bay Area to celebrate the start of Indigenous Peoples Heritage Month.
11/10/21	Interns learn how to identify common California native plants and complete a nature journaling activity on their own.

11/13/21	Interns participate in a college and career prep workshop.
11/17/21	Interns practice identifying native plants and learn about concepts of environmental justice.
12/1/21	Interns reflect on environmental and waste impacts of the Holiday season. Interns learn about carbon and GHG emissions and calculate their own carbon and ecological footprints.
12/4/21	Interns restore open space at Carlos Bee Park with ACRCO, ACCWP, HARD
12/8/21	Interns are introduced to GLOBE protocols, and learn how to create observation using GLOBE observer app.

**Arroyo High**

9/28/21	First meeting of the year! Interns participate in team building activities and learn logistics about the internship program. Interns receive instructions for completing waivers via email for parents/guardians to sign.
10/5/21	Interns will learn the difference of climate change and global warming. As well as basic environmental topics such as: climate change effects, greenhouse effect, and sources of major CO2 emitters. Lastly, interns will learn about the IPCC and what it entails.
10/12/21	Interns will be introduced to watershed topics and the importance of the system. Interns will be able to understand the interconnection between human involvement and the environment. Interns will be introduced water pollution and sources of it. Lastly, interns will be introduced to and trained using the Marine Debris Tracker.
10/19/21	Interns will be introduced to Scientific Literacy Concepts. Interns will also be able to describe and analyze infographics to come up with results. Interns will also learn basic data analytics along with the process of scientific literacy.
10/23/21	Interns come together and practice using the marine debris tracker to record materials found on the shoreline of the lake. Interns will then reflect on the debris collected and how it has affected the environment.
10/26/21	Interns will be introduced to different materials? lifecycle. Interns will also learn about the degradation timeline for glass, paper, plastic and other miscellaneous materials. Interns will also learn where all trash goes and the journey it takes. Interns also learn about how the debris affects the environment as well as wildlife. Interns will understand what garbage patches are and how they are formed.
11/2/21	Interns will learn how to identify characteristics of plants through basic plant structures. Interns will also learn about what species are native, invasive, and introduced to the east bay. Interns will also be introduced to Ecology and Habitat Restoration. Lastly, interns will learn the different levels of an ecosystem and keystone species.
11/9/21	Interns will be introduced to environmental justice and racism. Interns will understand what is considered environmental racism and if they had any experience with that based on given definition. Interns will also be exposed to breakthrough environmental justice cases that are key to the movement. Interns will have a breakout group activity that each group will receive a case and identify the problems, as well as propose solutions to them
11/16/21	-Interns will be introduced to the history of indigenous tribes in the Bay Area. Interns will learn about how the first explorers came to the Bay Area and colonized the area. Interns also learned about generational trauma and how to help heal from it. Interns will learn about Traditional Ecological Knowledge and the relationship between Native Americans and the land. Lastly, interns will research and present about a tribe in the Bay Area.

11/20/21	Interns will be separated into groups and will complete the water data sheet as they are conducting different water quality tests. Each group will conduct each test 3 times to receive a more accurate average per test. Interns will test the lake's water quality in an area with little to no algae present. Additionally, interns will move to another location that is more visible with algae to test for water quality. Interns will test for: pH, temperature, turbidity, nitrates, phosphates, dissolved oxygen, and alkalinity.
11/30/21	Interns will further learn climate change issues such as the carbon footprint. Interns will learn and define what a carbon footprint is in their own words to retain definition. Interns will learn where the primary sources of carbon emissions come from and learn how every object has a carbon footprint. Interns will work together in groups in breakout rooms to research about carbon footprint and share out altogether. Interns will also be able introduced to the carbon footprint calculator and input their data to determine the size of their individual carbon footprint.
11/24/21	Make up event for students: Will be beautifying the creek trail and will learn about water testing. Interns will also learn what are native and non-native plant species and restore the creek trail.
12/4/21	Interns restore open space at Carlos Bee Park with ACRCO, ACCWP, HARD.

### Skyline High

9/29/21	First Earth Team Intern meeting of they year. Presented Earth Team introduction slides. Went over how to sign up for Edmodo. Went over code of conduct, and parent waivers.
10/13/21	First in person meeting with Interns. Introductions to climate change and California Wildfires. Explore weather and climate patterns through data analysis and collection.
10/27/21	Introduction to watersheds.
11/3/21	Discussion on native/invasive plant species, habitat restoration, ecology
11/10/21	Indigenous Heritage Month. Discussion on Indigenous History in the bay area, and Traditional Ecological Knowledge (TEK). Mammal Tracker Survey.
11/17/21	Environmental Justice and Bay Area Environmental Justice issues. Environmental Justice for All case study activity.
12/1/21	Visit the garden on campus and brainstorm ideas for plot. Go over roaming the redwoods event background. Go over wildlife volunteer event. Brainstorm GLOBE project ideas and watch how to develop a research question video. Finish Eclipse Pre-survey assessments.
11/20/21	Introduction to nature journaling and identifying plants
11/6/21	Background information on Sausal Creek. Conduct water quality testing on Sausal Creek. Analyze results of water quality on creek
11/13/21	College and Career Workshop.
12/8/21	Submit service project application for next semester. Introduce globe protocols and presentation how to form a research question presentation. Take pictures for 2021-2022 interns. Interns learn to draw inferences from observations through cloud watching activity.

## **Public Education and Outreach Activities**

### **7) Outreach/ Education/ Technical Assistance # students reached**

32 interns trained in environmental monitoring skills

### **8) Outreach/ Education # social media posts**

Earth Team broadly reached over 2,000 students total during recruitment and outreach efforts in fall. These efforts included in-person, on-campus presentations as well as virtual outreach using social media, teacher partnerships and virtual information sessions. Throughout the first semester of the school year, monthly blog posts were shared on Earth Team's website for each participating school.

### **9) Volunteer Participation - # volunteers participating**

Earth Team's Alameda County interns engaged 91 community members during the first semester through on-campus outreach and participation in community restoration events. During the second semester, interns will host events dedicated to engaging broader communities through hands on education. These outreach campaigns will utilize social media and tabling and will encourage volunteers to participate in restoration efforts including Martin Luther King Day of Service and additional restoration events in the lower watersheds.



## Project Outcomes and Measurable Impact Indicators

