



3820 Cypress Drive #11, Petaluma, CA 94954  
T 707.781.2555 | F 707.765.1685

## Point Blue Conservation Science STRAW Project December 2019 - November 2020 Report

### Task 1: In Class Education

*Subtask 1: Educate approximately 600 students representing Marin's diverse communities about their local watersheds and ways in which they can reduce pollution and trash and improve water quality, habitat, and community connections. These lessons will be created, edited and approved by the Contractor and the District (specifically, MCSTOPPP staff) on stormwater pollution prevention practices and will be aligned with the Next Generation Science Standards. The curricula will help satisfy public outreach, education and participation requirements outlined in the Phase II Permit (statewide municipal stormwater discharge permit) and will be presented within the context of the climate smart restoration science education currently delivered to schools in Marin by Contractor.*

In Marin County in the 2019-2020 school year, we did restoration projects with 1,426 students, 38 teachers, and 182 parents/chaperones. These students, teachers, and chaperones came from 14 Marin County schools. The schools are listed in Table 1.1 below. All restoration days were completed between November 2019- March 2020. Our restoration season was cut a little short due to Covid 19 but we were thankfully able to complete most scheduled restoration days prior to shelter in place.

During the school year, we provided pre-restoration lessons for all students who attended a restoration, and additional lessons for students who did not complete a restoration, but still wanted to be involved in our program. In total, we provided pre-restoration lessons and full restoration days integrating stormwater pollution prevention for 2,515 students throughout the Bay Area. Table 1.2 shows all totals throughout the Bay Area for the school year.

All of the lessons and restorations we conducted with students, teachers, and chaperones in table 1.1 were in class lessons done in person, prior to Covid. We were just about to begin our multi-visit lessons (MVP) with Bahia Vista Elementary when Covid happened and shelter in place began. Bahia Vista Elementary is not in the total count in Table 1.1, because our collaboration with them was slated to begin after shelter in place orders began. We did work with their teachers to create MVP lessons that can be taught virtually. Teachers who were not able to introduce those virtual lessons this Spring with all

the chaos of emergency teaching, will hopefully be able to use them this 2020-2021 school year. We will revisit, edit and refine virtual lessons in the 2020-2021 school year.

The virtual lessons we created for Bahia Vista were a fusion of some videos of us and activities students could do to engage them in healthy watersheds. We aimed to keep these lessons broad and positive, caring for students' social and emotional learning in a time when anxiety was very high for students around not going to school and the spread of covid 19. We also increased teacher outreach during the initial months of shelter in place. We checked in with our MVP teachers individually and provided a curated list of resources for environmental education virtual lessons to all STRAW teachers. We had many brainstorming/ consulting calls with teachers to support them with lesson creation and general support.

We had 22 Marin County teachers attend our virtual Watershed Week last week, which explored the intersection between Social and Emotional Learning and Outdoor Learning. We learned the importance of prioritizing Social and Emotional Learning for our students, especially right now, and uncovered ideas and lessons for how to get students outside, even during virtual learning.

All in all, we did more restorations in the 2019-2020 school year than ever before- 65 days! We planted 13,376 plants, worked with 3929 students from a total of 50 different schools across 11 counties.

*Table 1.1 Marin County Classroom Totals for the 2019-2020 school year*

<b>School</b>	<b>Total Students</b>	<b>Total Teachers</b>	<b>Total Chaperones</b>
Bolinas-Stinson Elementary	16	2	6
Brookside Elementary	23	1	6
Edna Maguire	81	3	13
Glenwood Elementary	63	3	18
Hamilton Elementary School	68	3	17
Hidden Valley Elementary School-Marin	73	3	18
Loma Verde Elementary School	177	6	38
Miller Creek Middle School	672	5	0
Old Mill School	48	2	14
Olive Elementary School	48	2	10

Park Elementary School	20	1	6
Rancho Elementary School	24	1	6
Ross Elementary School	7	1	0
San Geronimo Open Classroom	62	3	18
Strawberry Point School	44	2	12
<b>Marin County Totals</b>	<b>1,426 Students</b>	<b>38 Teachers</b>	<b>182 Chaperones</b>

During the school year, we provided climate-smart restoration and conservation science lessons for all students who attended a site with restoration or other conservation efforts taking place. This year, we provided science lessons and restoration and conservation site visits for over 4,000 students throughout the Bay Area. Table 1.2 shows all totals throughout the Bay Area for the school year. This year we were able to work with and service 1,426 Marin County students, almost half of the total students we worked with this year. Table 1.3 shows those totals for Marin County specifically.

*Table 1.2 2019-2020 STRAW Totals*

<b>STRAW-Wide Metrics</b>	
<b>Total Students</b>	4032
<b>Restoration Days (with Schools)</b>	67
<b>Total Volunteers</b>	4657
<b>Total Volunteer hours</b>	19711.5
<b>Total Volunteer Match</b>	\$464,402.94
<b>Unique Schools</b>	52
<b>Total Counties (students)</b>	11
<b>Total Counties (restorations)</b>	7
<b>Total Plants</b>	7572
<b>Total Planting Area (acres)</b>	16.26105326
<b>Total Linear Feet</b>	11260.2

Table 1.3 Restoration Totals Marin County 2019-2020

Restoration Site	Date	Total Plants	Linear Feet	Acreage
Gilardi		249	688	0.42
Miller Creek Middle School T		408	0	0
Millerton		275	568	1.45
Conda		154	2040	6.58
Simmons Property		1000	307	0.5
<b>Grand Total</b>		<b>2,086</b>	<b>3,603</b>	<b>8.95</b>

**Task 2**

*Subtask 2: Contractor shall update (as needed) and continue implementing curricula that meet the District’s MCSTOPPP public outreach, education and participation objectives (outreach objectives). District will provide a list of new MCSTOPPP outreach objectives (if any) to Contractor by January 5, 2020. This task includes the following:*

- a. *Contractor shall deliver the curricula through STRAW’s 2019-2020 school year educational activities.*
  - b. *Contractor shall include the latest information regarding how trash gets into waterways and show the MCSTOPPP PDF on this topic to students and teachers in appropriate lessons.*
  - c. *Contractor shall prioritize outreach around pesticides, trash, pet waste, and sediment in the context of watersheds.*
2. *Contractor shall offer to provide participating Marin County teachers with stormwater pollution prevention medallions (provided by District) to install at storm drains on/ nearby their school campuses.*
- a. *The Contractor shall modify the curriculum assessment as needed.*
  - b. *The Contractor shall assess students in the Multi-visit Program before and after the 2019-2020 school year to evaluate participant learning as a result of exposure to the curriculum.*

STRAW delivered the final curriculum to students, and implemented the effectiveness assessment protocol, as part of STRAW’s school year educational activities between November 2019 and March 2020. Examples of lessons we revised to incorporate MCSTOPPP Public outreach, education and participation objectives are attached to this report as appendix A.

STRAW's Multi-Visit Program (MVP) has become an important component for our STRAW interns experience and practice of environmental education. Two interns were able to further explore environmental education with the students of Bahia Vista Elementary School, working as a team to take the lead in developing and teaching curricula. While this experience was drastically different than usual due to shelter in place orders, interns were still able to create virtual lessons for students and gain lesson planning experience. Our interns created these lessons and translated key portions of the lesson into Spanish and Vietnamese as many students speak Spanish and Vietnamese as their first language. Due to shelter in place, we were unable to assess students in the Multi-visit Program before and after the 2019-2020 school year to evaluate participant learning as a result of exposure to the curriculum. With teachers and students being so overwhelmed with the emergency style virtual teaching they experienced in the Spring, teachers told us it would not work to fully assess students prior and post, rather, just offer what lessons we can and provide positive learning options in that chaotic time.

A critical learning goal for students was to understand the deep connection between water and land, learning that what we do to the land affects all inhabitants of the watershed. Following the success of past years, we emphasized the importance of storm drains in our first lesson when introducing the connectivity of watersheds. One of our main learning goals was that students understood that all storm drains in Marin discharge any trash or pollutants that people litter or dump directly to the nearest creek or bay. Students learned that when we protect the watershed from harm such as pollution, we are also protecting and helping ourselves and the many species that call our watershed home. We shared with students that just as we thrive in a clean home, and that these endangered species that call Pickleweed Park and transition zones home, want to live in a trash-free home with clean water and space.

Many schools we offered stormwater pollution prevention medallions already had them on their campus. While we usually offer medallions and do more focused outreach around the medallions in the springtime, that work was interrupted by Covid.

### **Student Assessments**

**Assessment of Students** (*oral and written assessments were provided in both English and Spanish*):

- Pre and post oral or written assessments during restoration and conservation science lessons
- Pre and post oral or written assessments during restoration site or trash clean-up day
- Oral responses to questions at restoration site or trash clean-up day
- STRAW's MVP students also complete end of program reflections and share out with their peers

We maintained our successful education plan that included different assessment approaches to understand students' learning, reflections, and questions to inform the lessons we provided to the students.

The specific assessment technique we used at the end of students' classroom lesson before their restoration day was to ask students to finish the following three phrases: "I know, I feel, I wonder." This technique was a successful approach across a range of grades and provided valuable information to our educators. This information allowed our educators: to understand concrete themes students understood, the opportunity to clarify any misconceptions or questions students had, and to share this synthesized information with the students' teachers and restoration site project managers.

For restoration site days, we began our restoration with an opening circle that served as a welcome, schedule and site orientation, and as an oral assessment of their classroom lesson by reviewing key themes to ensure a more meaningful day. Similarly, the end of the students restoration day concluded with a closing circle where we ask students to share what they hoped their restoration sites will look like in 20 years; it is a space where students can share their hopes for their work and their highlights of their STRAW experience.

**Our successful collaboration supports these young students to become responsible and informed community members. The reliable and consistent support from MCSTOPPP allows us to continue to expand and address the innate curiosity that many young Marin County residents have about their local environment and how they can help improve it.**

## Appendix

**Appendix A: Sample lessons revised and implemented to incorporate MCSTOPPP outreach objectives, specifically about watersheds, and how storm drains carry trash and pollution to the bay and local creeks. (The lessons below were created to be virtual lessons after shelter in place began).**

### [STRAW Multi-visit Program \(MVP\): Visit 1 Bahia Vista Elementary 5<sup>th</sup>](#)

#### **STRAW Multi-visit Program (MVP): Visit 2 Bahia Vista Elementary 5<sup>th</sup>**

- [Presentation Link](#)
- [Lesson Plan](#)