KIDS for the BAY

Report to the Alameda County Fish and Game Commission
December 15, 2020

Introduction
In the 2019 - 2020 school year, KIDS for the BAY (KftB) delivered the Watershed Action Program (WAP) to seven classes in four elementary schools. This included 208 students and seven teachers. Partner classes and schools included:

- Three fourth grade classes at Green Leaf Elementary School
- Two third grade classes and one fourth/fifth grade special education class at Manzanita Community School
- One third grade class at New Highland Academy
- One fourth/fifth grade class at R.I.S.E. Academy.

Students participating in the WAP included more than 90% under-resourced, low-income students, 99% students of color and more than 40% English Language Learner students.

KftB partnered with teachers, students and families to deliver the WAP at the partner schools listed above. KftB Educators brought all the necessary educational equipment and supplies to each classroom and taught the lessons and activities in collaboration with the classroom teachers. This provided the unique opportunity for students to engage in exciting, hands-on, interactive environmental education lessons and for teachers to learn alongside their students. The WAP included a series of two-hour classroom lessons both inside the classroom and outside in the local watershed. It also included a special Environmental Action Project for each class, led by the student environmentalists.

The WAP also includes a nature-based Field Trip to a special creek, bay or ocean habitat. Unfortunately, due to the Covid-19 pandemic and school campus closures, we were not able to lead any in-person Field Trips last school year. We did, however, lead online virtual Field Trips to local habitats and we continued to deliver and complete the WAP online using distance learning.

Program Highlights

<u>Classroom Lesson Highlights</u>
The San Francisco Bay Estuary Watershed
Fourth grade students at Greenleaf Elementary School in Oakland were excited for their first class with KftB Educator Laurel Sebastian. In preparation for the lesson, fourth grade teacher Ms. Monson designated “watershed” as the class word-of-the-day. Ms. Laurel provided a colorful poster of a watershed and students observed how rain, rivers, mountains, and other

natural spaces all come together to create the San Francisco Bay watershed. Students noticed how large the bay was and were amazed to see that their school was also a part of this watershed!

The student scientists investigated a satellite map of the San Francisco Bay and identified a variety of landmarks including islands and bridges. They were very excited to find Oakland, their hometown. Using Oakland as a landmark, students identified other cities around it, and found the Pacific Ocean, the San Francisco Bay, and the Sacramento and San Joaquin Rivers. Third grader Wendy observed that the Pacific Ocean was very dark blue, and that the SF Bay was a lighter blue. "That must be because the ocean is so much deeper than the bay," she hypothesized.

During their Estuary in a Bag experiment, students learned about brackish water, which is a mixture of fresh and saltwater, and created models to see how the fresh and saltwater interact in the San Francisco Bay estuary. Students made blue salt water in one half of the bag and used clear, fresh water in the other half. Groups of curious scientists worked together to raise their bags slowly. They watched how the blue salt water mostly stayed at the bottom of the bag and the fresh water mostly stayed at the top as the two types of water began to mix. "The saltwater is heavier than the freshwater so it sinks to the bottom!" Christopher noted. He then gently shook his bag and observed, "It's mixing like how the waves and wind in the bay mix the water to make brackish water!"

Students were excited to build on their observations and create Bay Models to see how fresh and saltwater mix in a simulated bay estuary model. They outlined the bay and rivers with clay and placed different animals in the habitats of their models. Two students poured clear freshwater into the rivers and another poured dark blue saltwater into the ocean. They were amazed to see how the different water bodies mixed. "The Pacific Ocean stays completely salty and the rivers are all clear, but the San Francisco Bay water is mixing and swirling around and becoming light blue!" exclaimed Emily.

Scientist groups then placed a drop of red dye to simulate pollution in their models. "Just like the salt and freshwater mixed, the pollution is mixing in all around the bay," Jesus noticed. "It's getting all over the animals in the bay!" Students observed how pollution, like plastic trash, can get into the bay and harm real animals, and they were eager to learn more about how they can help to prevent pollution!

Action Project Highlights

Schoolwide Assemblies

At Manzanita Community Elementary School in Oakland, third through fifth grade students performed school wide Assemblies to teach their entire school about marine plastic pollution and how to prevent it! The students in all three fourth grade classes did a wonderful job engaging their audience with call and response questions and with their dramatic theatrics! Students in the audience gasped in horror at the large posters of trash-filled natural habitats and animals injured by marine plastic pollution. The audience applauded loudly when student leaders on the stage explained how to use the Five Rs (Reduce, Reuse, Recycle, Rot and Refuse) to reduce trash and waste, and modeled a school campus trash cleanup.

After the Assemblies, parents in the audience celebrated their students and took pictures. Student actors took a moment to reflect on the success of their presentation and to complement each other. King shared, “We were so confident!”

“We really brought the drama! I think they learned from us,” Elizabeth exclaimed. Chloe, the news anchor, added, “This was so fun! I want to act more in the future! My mom came to see me!”

Chloe’s mom shared, “I’m so proud of my kids! Both my daughter Chloe and son Chris did so well! Chris has been out sick the past week but woke up this morning and said, ‘Mom, I have to go to school. Today’s our Assembly. I don’t want to miss it!’”

The entire school of students as well as teachers and parents learned about how to keep the creek-bay-ocean watershed ecosystem cleaner and healthier through these student-led Assemblies.

Creek, Bay and Ocean Field Trips

KftB usually leads creek, bay, delta and ocean Field Trips every spring. In Creek Field Trips students identify aquatic invertebrates, investigate creek-side plants, create environmental art, and learn how everything in the creek watershed is interconnected. Bay Field Trips consist of students exploring the rocky shore and dock habitats, observing bay organisms, and discovering the unique characteristics of our local estuary. On Ocean Field Trips students explore the ocean shoreline, discover tide pools, study the special adaptations of green sea anemones, blue mussels and shoreline crabs, identify a variety of ocean seaweed species and create beach nature art. On all Field Trips, students complete trash cleanup projects.

Due to Covid-19 shelter-in-place orders and school district closures, in spring 2020 KftB was not able to deliver in-person Field Trips. Instead, we designed and offered distance learning resources and Zoom lessons to our partner teachers and students to mirror the Field Trip curriculum and experience.

Virtual Field Trip to Muir Beach

KftB Educators collaborated with teachers to create a virtual Field Trip best suited to each school and class. At Manzanita Community School in Oakland teachers requested a Zoom Classroom Field Trip to Muir Beach and additional ‘close-out’ activities.

KIDS for the BAY Educator Sienna Kuykendall created and provided an exciting virtual Field Trip to Muir Beach for third through fifth grade special education students at Manzanita Community School in Oakland. Many students had never been to Muir Beach, so Ms. Sienna encouraged students to share any other beach visits they had experienced. Anderson shared, “I went to the beach with my mom and uncle and saw lots of animals!” Students were able to connect Anderson’s experience with beach organisms to their Classroom Lesson investigations with fish, crabs and seaweed.

Students then traced the route from Manzanita Community School to Muir Beach on a satellite map of the San Francisco Bay. They had used the map during a previous lesson and were excited

to share their map knowledge from the scavenger hunt where they identified bridges, islands, cities and more! “We could take the Bay Bridge and then the Golden Gate Bridge to get to Muir Beach!” Chris discovered.

The class listened to sounds of the ocean, watched videos of rocky shore organism investigations, and learned about animals at the beach and how they are connected in food webs. They also went “bird watching” by discussing tools that they would use including binoculars. Student Camilla shared her own pair of binoculars and her experiences using them. Ms. Sienna provided bird guides that included information about the adaptations of seabirds including herring gulls, brown pelicans, western sandpipers, and double crested cormorants. Students used this information to play a game to identify birds based on their bird calls. “That’s the cormorant because it sounds like a toad!” exclaimed Camilla.

Students then played beach-themed Pictionary. They took turns sharing screens and drawing beach scenes and activities, while others guessed what they were drawing. Angelo drew students doing a clean-up at the beach to protect marine life. Ms. Barnes drew seaweed, fish with seaweed inside it, and a shark with a fish inside it. Students guessed, “That’s an ocean food chain!” Ms. Sienna drew a bird diving under the waves, “That must be the cormorant! We learned that it dives to catch its food!” Camilla noticed.

Ms. Sienna also shared the KftB At Home Activities, which are posted on our website and are available for anyone to use. She sent pertinent lessons like the nature art activity and other follow-up science and environmental resources to the class.

The class ended their virtual Field Trip by sharing gratitudes. “I’m grateful for all the crabs, big and small, all sizes, shapes and colors!” shared Angelo. “I’m grateful for the bay fish that we can eat!” added William. “I’m grateful for the sound of the waves and the water,” shared Ms. Barnes. “Thank you so much, Ms. Sienna, this was awesome! I am excited to continue working with you and KIDS for the BAY!”

Resilience During Covid-19 and School District Closures

Unfortunately, due to Covid-19, in March 2020 the elementary schools in the East Bay closed and transitioned to distance learning for the remainder of the school year. Before schools closed KftB completed most of our programs, including hands-on environmental science classroom lessons, and engaging Environmental Action Projects that transformed students into empowered environmentalists. We were unable to perform any in-person Field Trips, but instead we provided distance learning virtual Field Trip experiences, which were well received by our partner teachers and students. Distance learning resources offered by KftB for our partner teachers and students included lesson plans adapted for online distribution, example videos, and live Zoom lessons with KftB Educators.

When school closures were initially announced, KftB quickly transitioned to supporting our students, teachers and families through our new At-Home Activities. These are posted on our website homepage and provide a variety of hands-on lessons that engage students in environmental education and action and provide a variety of outdoor activities and experiments that can easily be done at home. The lessons are fun, free and accessible. We have distributed

these activity sets to our teachers, students and families through email campaigns. In addition, our school district and Clean Water Program partners have shared them on their websites and through social media as resources for their entire communities. We also provided activity demonstration videos and Read With Us! environmental science education story book videos in English and Spanish on our website.

2020 - 2021 School Year
Schools in our area are continuing with distance learning this fall and KftB continues to support teachers and students, especially in under-resourced schools, by delivering our programs online. Our distance learning programs use Zoom video lessons, Google Classroom, SeeSaw, JamBoard and other online platforms and include:

- Activities that get students outside in their local watershed environment
- Hands-on science experiments and investigations with materials easily found at home
- Environmental Action Projects at home and in the local neighborhood
- Virtual Field Trips to creek, bay and ocean habitats.

Whenever it becomes possible, we will be ready to deliver our programs in person again to our students and teachers. Our online programs will continue to provide our teachers with professional development and support as they deliver KftB programs themselves to future classes of students with the resources we provide. We are currently exploring the possibility to increase the impact of our work and reach more teachers throughout the San Francisco Bay Area and beyond with our new online programs.

Quotations from WAP Participants

> "I am so disappointed that the school year ended so abruptly and we couldn't finish all of our sessions in-person. Despite the bittersweet ending, I have to say, the opportunities we did have to learn with you were some of our favorite days of the school year! Thank you so much for your enthusiasm and for sharing your knowledge with us! I really appreciate the distance learning resources you've provided."
> Elizabeth Noone, Third Grade Teacher, RISE Community School, Oakland

> "I so appreciate your efforts to keep the kids getting the content virtually for the end of the unit!"
> Caitlin Monson, Fourth Grade Teacher, Greenleaf Elementary School, Oakland