



## Changing perspective: Learning about the Delta

By Luke Price

TOKAY HIGH SCHOOL

I have always wondered what defines Northern California.

Southern California has its incredible beaches, Hollywood, and the second largest city within the United States. Up in Northern California we have farms, the capital, and really big trees.

After going on the Marine Science Institute research trip to the San Francisco Bay, my perception com-

pletely changed.

The most defining feature of Northern California is our water. It singlehandedly makes us the agricultural gem of the world. Northern California soil is incredibly rich thanks to minerals from the Sierras and nutrients from our marshlands.

When testing water for Storm Drain Detectives, it's hard to appreciate the importance of a small little river like the Mokelumne, but as we drove west to San Francisco on the day of our field trip it all started

coming together. You could see mile after mile of verdant farmland and marshes with flocks of birds and cranes littering the landscape. Water coming all the way from the Sierra Nevadas in the east made such a sight possible.

On our research boat in Redwood City, this world view expanded even more. The researchers on the boat who were assisting us with water tests on the water of the Bay brought up a sobering fact. The Delta that allows such wonders as our fertile soil

and biological diversity is on the decline. Pollution is harming our wildlife and ocean acidification is having devastating effects.

Scientists are still having to deal with mistakes of the past. For example, underneath a layer of mud within the San Francisco Bay lies an ecological disaster. In the days of the 1850s Gold Rush, miners stripmined mountainsides, using mercury to separate gold from rock. The mercury ran into the Bay, killing wildlife as it went.

Now it lies in wait ready to poison the fish and waterfowl of the Bay. This made me realize that we cannot take our water for granted in Northern California, for it is more precious than all of the gold found in our hills.

This trip allowed me to see that L.A. can keep its Hollywood starlets and celebrities, and San Diego its beaches. For in Northern California we have been entrusted with one of nature's greatest masterpieces, our incredible Delta.

## All about our trip to the Marine Science Institute

By Heriberto Gomes

HERITAGE ELEMENTARY SCHOOL

On April 5, our class visited the Marine Science Institute. MSI was founded in 1970.

In the first year discovery voyage program served about 4,000 students. Today they serve about 50,000 students and adults annually through all of its programs. They take students on the boat to learn about the sea animals because if they do not teach the students and adults about the animals, they will not care.

First we boarded the bus. It took us over two hours to get to Redwood City from Lodi. When we got there we were on a little patio with picnic tables, where we ate our lunch.

Then we put on life jackets and boarded the ship. One of the leaders talked to us about water safety, and then we went into our groups.

My first station was the hydrology station. First we lowered the Van Dorn Bottle into the bay. Then we put the water in tubes and we examined the temperature and salinity of the water.

The second station we did was called the Benthic station. At this station we lowered a big claw to the bottom of the bay and scooped up mud. We then put the mud on screens to look for shells, rocks, and creatures. At this station we also got to take an oath to protect the environment and put mud on our faces.

At the third station we lowered a bottle that catches plankton into the bay. Then we went to the laboratory to see the plankton closer in a microscope.

**PLEASE SEE MSI, PAGE 5**

## Reese Elementary plants garden that is drought-friendly

By Cassandra Oaxaca

REESE ELEMENTARY SCHOOL

Did you know we're still in a drought even after all the rain we've gotten?

My class and I went on a field trip to Lodi Lake and we were talking about what you're allowed to let go in the storm drain and shouldn't go in the storm drain. As Ms. Grant was talking about this, she mentioned that people have gotten fake grass, desert yards and drought-tolerant plants.

I thought this would be perfect for my school's planters, and so I pitched the idea to student council and they liked it!

Once my teacher heard the word she recommended Curt Juran to help us pick some plants out because nobody had experience. Once he guided us, answered our questions, and recommended some websites to us to give us an idea, we were ready.

We planted some lavender and those are supposed to need very minimal water, attract bees, and need sunlight. Coincidentally our janitor who owns a garden at our school, Mr. Oscar, asked Student Council Planting Committee to take over the garden, so that's on our to-do list.

I want to say a thank you to Ms. Grant, Mr. Juran, Mrs. Martinez and Mrs. Shepherd, and the Planter Committee for helping an idea become real.



JAIRO CARRILLO/HERITAGE ELEMENTARY SCHOOL

## The Mysterious Case of the Lodi Lake Lunch Thief

By Martin Ceja, Miguel Luna, & Henry Rosales

NEEDHAM ELEMENTARY SCHOOL

Hi, my name is Oscar. I am a friendly river otter who lives in the peaceful pond called Pigs

**INSIDE:** Learn more about the leaf pack project on Page 7

Lake, just south at the end of Lodi Lake.

One rainy day, I was looking around for some fish or some delicious aquatic invertebrates, otherwise known as macroinvertebrates. They are delicious and my favorite treat! Suddenly, I noticed some water beetles and scuds moving slowly into something I had never seen. It looked like an object full of colorful, crunchy leaves.

Just when I decided it was time for me to eat my lunch, I saw a big shadow figure approaching in the distance. It was Roger, the bully beaver of Cattail Creek. No otter or other creatures dared to cross him in his territory. So, I was surprised to see him on the south end of Pigs Lake where I

live.

I tried to make myself invisible so Roger wouldn't notice me. But before I knew it, he was in front of my face asking, "Hey Otter, have you seen any twigs or leaves around here? They seem to have disappeared from Cattail Creek."

I wasn't planning on spilling the beans, but my eyes betrayed me when I turned to look at the mysterious leaf pack that I knew for sure was full of scrumptious bugs!

Needless to say, I hadn't even open my mouth when I caught a glimpse of Roger, the bully beaver, running away with my lunch! That day I learned a lesson: Never be patient when eating a delicious treat because you never know when somebody else will snatch it from you!

## Want a job keeping water clean and safe?

How to become one of the people responsible for clean drinking water

By Dylan O'Ryan

LODI HIGH SCHOOL

The majority of Americans turn on the faucet with clean water flowing. However, most of us do not consider what path the water has taken to be available to be used for our personal use.

Who is responsible for treating the water? What are the qualifications that are needed for this profession? Why is there an ever-growing need for people in this profession?

Water treatment operators are the sole group that is responsible for treating the water for a community. These operators run the equipment, control the processes that clean and treat the water, and monitor the plant they work at.

There are four water treatment operators for the City of Lodi who keep a system running 24/7 to keep water flowing to your taps.

Their paths all start at the same place: high school. The minimum requirement for a water treatment operator is a high school diploma or a GED. With that met, you can now start your path to becoming a water treatment operator. Someone straight out of high school can start a sustainable profession without any college.

There are five levels to a water treatment operator: T1, T2, T3, T4 and T5. The various levels all require distinct levels of training, years of experience and education.

Many water treatment operators start as an apprentice, intern or a plant laborer, and assist the more experienced operators. This position can be gained straight out of high school. This assistant job allows a person to gain experience which would be beneficial to becoming an operator.

The first step in becoming a water treatment operator is starting as a T1 level operator. To become a T1 operator, you have to complete the Grade T1 operator examination. This examination is offered two times a year, once in January and another in May.

**PLEASE SEE CAREERS, PAGE 4**

## From toilet to lightbulb: How wastewater powers the city of Lodi

By Hayley Hower

LODI HIGH SCHOOL

Driving towards Stockton from Lodi on Interstate 5, behind the City of Lodi's White Slough wastewater plant, there is a large yard of contraptions with a switchyard and seven cooling towers with fans 30 feet in diameter that reach speeds up to 147 miles per hour!

These towers and pipes bring water from your house to be cleaned and sent back to you — but this time, it is given to you as electricity.

Have you ever wondered how water is turned into electricity? I

took a tour of the Lodi Energy Center, which is full of equipment to clean the city's wastewater to help transform it into energy. The City of Lodi is paid \$1 million a year for 5.2 billion gallons of this cleaned wastewater.

Before reusing this water that is flushed from your toilets then cleaned at White Slough, the Lodi Energy Center goes through four more steps to super-clean the water.

The Lodi Energy Center pumps the water it receives from the White Slough Water Pollution Control Facility into the clarifier.

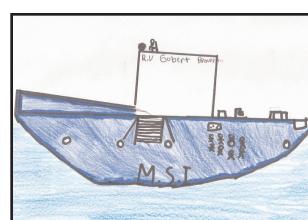


Hayley Hower and Dylan O'Ryan toured the Lodi Energy Center to learn about how Lodi's wastewater is used to generate power for the city.

COURTESY PHOTOGRAPH

### All about recycling

Do you know what you can and can't recycle? Have you ever wondered what the three recycling arrows stand for? Find out more about recycling. **2**



### Wild about the watershed

Students explored Lodi Lake, the Mokelumne River, the Delta and beyond through Storm Drain Detectives, the Marine Science Institute and more. **4 & 5**



### Butterflies and other bugs

Through field trips and a unique set of experiments at Lodi Lake, local students learned about macroinvertebrates, entomology and other buggy topics. **6 & 7**



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