

# DELTA VOICE

The voice of those who  
live, work and play  
in the Delta.



Winter 2016

printed on recycled paper 

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Top: A Greater Sandhill Crane poses  
for a potential mate, photo courtesy of  
Department of Water Resources.



## Delta Narratives

### “Managing the Garden”

The Delta Narratives project emphasizes the importance of the Delta story in California and national history. Funded by the Commission in 2014, the first phase produced research papers on selected themes, written by noted local scholars. “Managing the Garden” by Philip Garone, Ph.D., of California State University Stanislaus, is briefly summarized here - you can read the entire paper at [www.delta.ca.gov/Delta\\_Narratives.htm](http://www.delta.ca.gov/Delta_Narratives.htm).

### Historical Geography

Geologically speaking, the Delta is a recent phenomenon, created roughly 6,000 years ago when advancing sea levels at the end of the Ice Age backed up the Sacramento and San Joaquin rivers into a maze of sloughs, channels and wetlands that ebbed and flowed with the tides. Natural levees, some fairly high and crowned with riparian forest, some low and thick with willow and grasses, existed, all subject to flooding on a regular basis as the seasons turned. Over the centuries, the vegetation filling these shallow, changeable waters decomposed into rich peat, in some areas sixty feet deep, whose incredible fertility was quite tempting for arriving European settlers.

### Native Americans

Human activity in the area predates the formation of the Delta. At the time of

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European contact, almost half of the native population of California lived in the Sacramento and San Joaquin Valleys, already altering the landscape for their own use. These tribes, while not practicing agriculture as we know it, pruned vegetation to stimulate growth, used nets, harpoons and hook-and-line to trap fish and birds, and used fire to manage desirable food plants and wildlife. It is estimated that Native Americans may have harvested as much or more salmon annually from the rivers as did the fishermen and canneries in the late 1800s, although salmon populations did not suffer until the effects of mining added new stressors to the salmon's environment.

### Fur Traders and Mosquitoes

Although the fur traders interested in beaver and otter pelts did not spend many years in the Delta, their effect was extreme. The first arrived in 1826, and by 1833 not only were the furbearer populations decimated, but malaria had been introduced to the valley. It is estimated that in 1833 alone, 20,000 Native Americans died of the disease, and between 1833 and 1846 as much as 75% of the native population succumbed to subsequent waves of infection. This left the survivors completely unable to resist the waves of settlers arriving with the Gold Rush and forced the collapse of the native cultures.

### Reclamation

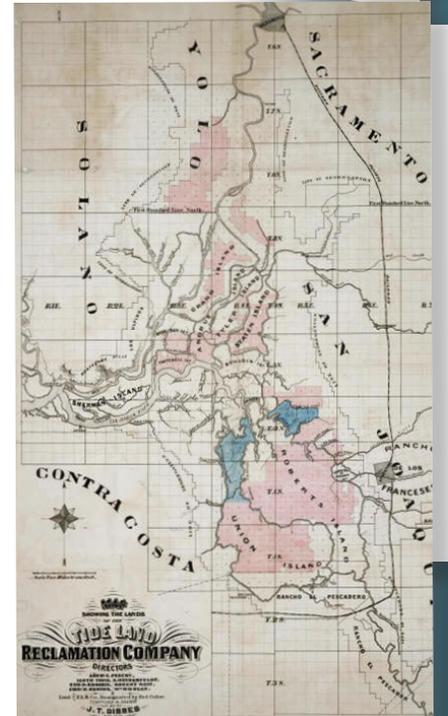
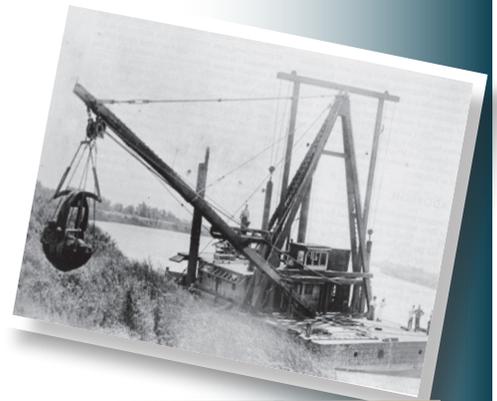
The understanding of the role of mosquitos in malaria, added to the tempting richness of the peat soils, helped fuel the transformation of the Delta from wetland to farmland. More important, however, was the 19th century perception of wetlands as useless "swamps", whose draining

and appropriation for human use was part of Manifest Destiny itself. In 1868, the Green Act encouraged large, capital-intensive companies and individuals to buy unlimited acreage for levee-building, draining and resale. It was a good investment, as land that cost \$1.25 an acre once reclaimed could be sold for \$30 an acre in 1869 and \$75 an acre in 1870, but the speculative profits were short-lived as the hand-built levees were unstable and often breached.

Reclamation improved with the introduction of mechanical dredges, as a bucket at the end of a long boom could dig in a channel a good distance beyond the outside of an existing levee, extracting mineral soils - which made for more stable levees than the interior peat soils - while not undermining the levee itself. By 1920 these had succeeded in reclaiming nearly the entire Delta, paving the way for agriculture.

### Agriculture

The first crops in the Delta reflected the different soils – orchards in the northern elevated soils and potatoes, beans and onions in the peat of the southern islands. Several factors caused waves of change, one being debris from mining, which raised the riverbed of the Sacramento River and caused stone fruit trees to give way to Bartlett pears, which could tolerate the higher water table. Potatoes and asparagus have been signature crops in the Delta, and, together, their widespread cultivation—asparagus gradually replacing potatoes—spans the entire period. These crops also pioneered new marketing techniques and, in the case of asparagus, introduced vegetable canneries to the Delta.



Upper: A clamshell dredge on Ryer Island (photo undated). Lower: The Tide Land Reclamation Company's holdings in 1869 are shown in pink.

For more of the story, including a history of restoration efforts in the Delta once cultural ideas about nature changed in the second half of the 20th century, please visit our website at [www.delta.ca.gov/Delta\\_Narratives.htm](http://www.delta.ca.gov/Delta_Narratives.htm).



# Assessing An Assessment District

## Who Pays for Delta Levees? Everyone Who Benefits Should

Who pays for Delta levees to be maintained and repaired? Right now, the answer is: “It’s complicated.” Some levees are subsidized by the federal government, State bond funds pay for others. Some get help only for repairs but not maintenance...and none have a permanent, sustainable, sufficient funding source to create ideal levels of protection now and in the future.

### Finding a Solution

In the Commission’s 2012 Economic Sustainability Plan (ESP), it was recommended that the Legislature “transfer to a regional agency with fee assessment authority on levee beneficiaries responsibility for allocating funds for the longer-term improvement of Delta levees and the maintenance of regional emergency preparedness, response, and recovery systems developed jointly with the Delta counties and State and federal governments.” (Economic Sustainability Plan for the Sacramento-San Joaquin Delta, Chapter 12, 12.1.4) A similar recommendation was also called for in the Delta Plan.

What this means is that the State should create a system in which everyone who depends on a levee

has to help pay for it. So, utility companies whose pipelines cross the Delta would be assessed. Power companies whose cables and lines would be impacted by a Delta flood would be assessed. Caltrans and the counties, who own the roads and highways protected by Delta levees, would be assessed, and water exporters, who rely on Delta levees to direct fresh water to the pumps, would be assessed. Imagine what the water in the Delta would be like if there were no levees at all and you can see the point. Right now, many entities benefit from Delta levees and do not contribute resources for their upkeep and repair.

### Sharing the Burden

Commission staff are currently conducting a Feasibility Study to develop a beneficiary-pays-based system to meet the recommendation in the ESP and the Delta Plan. The Study will identify the institutions, organizations, and landowners that benefit from Delta levees, and quantify those benefits into a reasonable proportion of the estimated costs. Using case studies, looking at land uses (and different combinations of land uses, such as when electrical infrastructure crosses



Upper Left: A dredge works to shore up a Delta levee in July 2015.  
Above: Sandbagging teams try to prevent a breach in January 1998.

agricultural land) and identifying valuable assets owned by non-residents, like railroads and pipelines, our consultant team is building a database of levee beneficiaries to be analyzed. Once we know “who”, then it will be time to evaluate “how.” The Study will then match those beneficiaries to effective methods of assessment. The goal is to find feasible alternatives to the current funding sources and recommend how to make the best alternative a reality.

The Delta Flood Risk Management Assessment District Feasibility Study will conclude with a Final Report and Recommendations in June 2016.



Arbequina Olives



Arbosana Olives



Koroneiki Olives

# Olive Oil On the Upswing

## Delta Producers at the Forefront of Positive Changes

Just as California’s wine industry set itself apart from the rest of the world in the 1970s, the State’s olive oil industry is breaking new ground with the adoption of olive oil grading and labeling standards specific for California-produced olive oil. Although Americans are latecomers to olive oil – the average Italian consumes more than ten times more olive oil in a year than a typical American – our consumption has skyrocketed, jumping from 23,000 metric tons in 1974 to over 300,000 in 2014. The mission now is to get California olive oil taken seriously by olive oil aficionados worldwide.

The quality of extra-virgin olive oil sold in California has been in doubt since 2010, when the UC Davis Olive Center reported finding that 69% of imported olive oil samples and 10% of California samples labeled as extra-virgin failed to meet international standards. While the findings were controversial, California growers forged ahead to support the sustainability and success of this growing agricultural product. In 2013, Senator Lois Wolk authored legislation to create the Olive Oil Commission of California, funded by California olive farmers and olive oil producers, to address fraudulent practices and help consumers make more informed choices when it comes to the quality and flavor of their olive oil. On the inaugural Board of Directors are representatives from San Joaquin County olive oil producers Lodi Farming and Corto Olive (founded by longtime friend of the Delta, Dino Cortopassi).

Some Delta olive facts:

- Delta total olive acreage reported in the 2012 Economic Sustainability Plan was around 2500 acres, similar to apples and sunflowers.
- The most common varieties harvested in the Delta region are Frontaio, Arbequina, Arbosana and Koroneiki.
- Crop reports for San Joaquin and Contra Costa counties, the Delta’s largest olive growers, show total acreage increasing only minimally between 2009 and 2014, but the *value* of the crop increased 38% in the same time frame!

Showcasing the quality of California (and Delta!) grown olive oil became a lot easier in 2014, when the Olive Oil Commission released their recommendations, and again in August 2015, when Governor Brown signed Senate Bill 65 (again

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**12 Benefits of Olive Oil**

- Type II Diabetes**  
Olive oil diet is rich in monounsaturated fats which helps protect against Type II diabetes.
- Obesity**  
Olive oil can make it easier to control or lose weight due to its high nutrient value.
- Heart Health**  
Helps slow down heart aging process, antioxidants may offer protection against red blood cells damage.
- Blood Pressure**  
Taking olive oil on a daily basis can help reduce hypertension.
- Keeps Bones Healthy**  
Help prevent the loss of calcium related to developing osteoporosis during later years.
- Relieving Earache**  
Olive oil is known as being a natural remedy for earache and for dealing with excess ear wax.

www.HomeTipsWorld.com

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authored by Senator Wolk), strengthening olive oil label restrictions. If it isn't 100% grown in California, the label may not say "California". If a label cites a specific growing area, at least 85% of the oil by weight must be from olives that have actually been grown there, and if a label references a particular estate, 95% of the oil must be sourced from olives grown on that estate. If you'd like to sample olive oil from the Delta region, some of the producers with retail offerings include Corto ([www.corto-olive.com](http://www.corto-olive.com)), Bellindora ([www.bellindora.com](http://www.bellindora.com)), Calivirgin ([www.calivirgin.com](http://www.calivirgin.com)) and McCauley Olive Groves ([www.mccauleyolivegroves.com](http://www.mccauleyolivegroves.com)).

California producers are proud to be at the forefront of improving olive oil quality for consumers, and it's time to support that effort by buying local olive oil. Be certain that what you are getting is 100% real extra virgin olive oil and support your Delta area olive growers at the same time!



## CARE TIPS FOR OLIVE OIL

- Freshness diminishes with time, so look for a harvest or "use by" date within a year to 15 months.
- Despite the pretty picture above, extra-virgin oil should be packaged in dark glass or a metal tin to protect it from exposure to light.
- Light, air and heat all hasten oxidation - use your oil within six months of opening.

## HOW EXTRA VIRGIN OLIVE OIL IS MADE

After picking, olives are washed with water and separated from leaves and branches. The clean olives head to a crusher where they are ground into a paste. The paste is continually mixed, without heat (cold-pressed), until the oil begins to separate from the paste (the remaining solids are known as pomace). The separated oil is spun in a centrifuge to remove water from the oil and - VOILA! - extra-virgin olive oil.

## Olive Oil Muffins

a recipe from The Food Network's Giada de Laurentiis

### Ingredients

1 3/4 cups all-purpose flour  
 2 teaspoons baking powder  
 1/2 teaspoon salt  
 1 cup sugar  
 4 large eggs  
 2 teaspoons orange zest  
 2 teaspoons lemon zest  
 2 tablespoons balsamic vinegar  
 2 tablespoons whole milk  
 3/4 cup extra-virgin olive oil  
 2/3 cup sliced almonds, toasted  
 Powdered sugar, for sifting



**Directions** - Preheat the oven to 350° F. Place paper liners in a 12-muffin tin. Blend together the flour, baking powder, and salt in a medium bowl. Using an electric mixer, beat the sugar, eggs, and zests in a large bowl until pale and fluffy, about 3 minutes. Beat in the vinegar and milk, then gradually beat in the oil.

Add the flour mixture and stir just until blended. Crush the almonds with your hands as you add them to the batter and stir until mixed. Fill the muffin tin almost to the top of the paper liners.

Bake until golden on top and a toothpick inserted into the center of the cake comes out with moist crumbs attached, about 20 to 25 minutes. Transfer to a wire rack and cool for 10 minutes. Remove the muffins onto a platter and let cool for 5 more minutes. Sift powdered sugar over the muffins and serve.

reprinted from [FoodNetwork.com](http://FoodNetwork.com)

# El Niño or La Nada?

## Either way, Delta flood risk is real



Montezuma Slough on February 25, 2008.

During Flood Preparedness Week in October, Californians were exhorted to do all manner of smart things to get ready for a flood. That was months ago...so, what have YOU done? If the answer is “nothing”, you’re not alone. A recent survey showed that only 13% of residents at risk for flooding in one Delta community had taken “precautionary measures”.

Although those of us without an emergency plan or a survival kit may have lots of company, in the Delta we all must commit to changing our mindset and getting our emergency readiness DONE.

A recently published study from UC Berkeley shows that there are many reasons why people living behind levees tend to ignore or underestimate their risk of flood. One is a lack of awareness, and another is an assumption that if there IS risk, “the government” would not allow development. Another issue is misunderstood levee terminology – what, exactly, IS a 100-year flood? According to research the Berkeley team conducted in Stockton in a levee-protected community of mostly high-earning college graduates, only 2.6% of respondents could correctly define a 100-year flood, and 52% simply didn’t know. 60% were “not informed” of any risk of flooding, and 30% reported “never” hearing about floods.

A 100-year flood does not mean a flood that only happens every one hundred years. To insurers, it means a flood that has a ONE percent chance of happening each and every year. The National Flood Insurance Program does not account for risk from a flood larger than the 1% chance flood – but the combined likelihood of a 1% or larger flood is 26% over the life of a 30-year mortgage. A “200 year” flood is just a flood with a *one-half* percent chance of happening each year - and a combined likelihood (.5% or larger) of 14% over 30 years. Contrast that with the assumptions built into levee standards in Holland - where levees are routinely designed and built for 1,000-year and 10,000-year flood events and include subsidence and wave damage calculations. The Dutch standards are relevant for Delta dwellers because in Holland, as in the Delta, levees hold back water constantly - not just during extreme storm events or times of extraordinarily high water levels.

Risk should be viewed as an equation: risk equals probability *multiplied by* consequences. Behind a “100 year” or “200 year” levee, the “probability” of a flood may be calculated as only 1% or less each year – but if there are hundreds (or thousands) of homes behind that levee, the consequences would be enormous, and the risk is still high.

The bottom line? If you live in or near the Delta or one of its sloughs or channels, and are near or below sea level, you are at risk for flood – whether or not you can see a levee from your home, and regardless of what you may have been told. This winter is the time to look into flood insurance, make your emergency plan, and create your Survival Kit. Refer to your Flood Preparedness Calendar for tips (if you are outside the Primary Zone and would like one mailed to you, call 916-375-4800 or email [dpc@delta.ca.gov](mailto:dpc@delta.ca.gov)) or go to [delta.ca.gov/beprepared.htm](http://delta.ca.gov/beprepared.htm) for a list of great online resources.

Sources: “Comparison of Dutch and American Levee Safety Approach”, FUGRO, 2009 and “Risk Perception and 100-Year Levees”, UC Berkeley, 2012.

## What is a King Tide?

“King” tides occur at specific times of the year when both the sun and moon are closest to the Earth. As ocean levels rise, King Tides may be indicators of what may be the “new normal” in terms of water levels in the future. Residents of the Delta take note: there will be a King Tide in January on the 21st and 22nd, 2016. For more information, visit [www.california.kingtides.net](http://www.california.kingtides.net).



The San Francisco Embarcadero and an Arcata farm during a 2014 King Tide.

# Delta Museums

Big Break Regional Shoreline in Oakley offers a fascinating look at the Delta ecosystem

The Big Break Regional Shoreline in Oakley is a must for residents and visitors who want to learn about the natural resources of the Delta. The name “Big Break” traces back to a levee break in 1928 that quickly inundated an asparagus farm. With the onset of the economic turmoil of the Great Depression, the property owners were unable to make repairs and the San Joaquin River took over the land permanently. The East Bay Regional Park District established the Regional Shoreline in the early 2000s.

The Visitor Center, completed in 2012, is part natural history museum, part history museum and part science lab, with educational displays on Delta agriculture, history, nature, and recreation, interactive exhibits, and activities for adults and children. You can “sketch a critter” using a tracing light box, examine plankton with a microscope, or touch and learn about wood chewed by beavers. A 150-gallon tank holds fish that are found in the Delta, and an interactive map identifies the federal and state water projects. A life-size wetlands diorama includes a great



blue heron, mink, and turtles. The Center offers naturalist programs, including children’s craft projects where kids can fold an origami pelican, build a bird feeder, and identify animal tracks while their parents learn about water testing and share in discussions of Delta science issues.

Just outside the Visitor Center is the Delta Discovery Experience, a 1,200 square foot scale topographical model of the Delta. You can stand on Mount Diablo and survey the land from Pleasanton to Sacramento and Tracy, and then pour a glass of water on the peak and see how rainwater flows through the Delta.

After you and the family check out the Visitor Center and Delta Discovery Experience, you can take a tour of the rest of the Shoreline, which provides a variety of activities such as bird watching, canoeing and kayaking, fishing, hiking on the Big Break Regional Trail, and picnicking.



Upper: The scale map of the Delta is an impressive visual aid.

Left: Kayaking past an abandoned dredge.

Right: The Visitor Center, with Mount Diablo in silhouette.

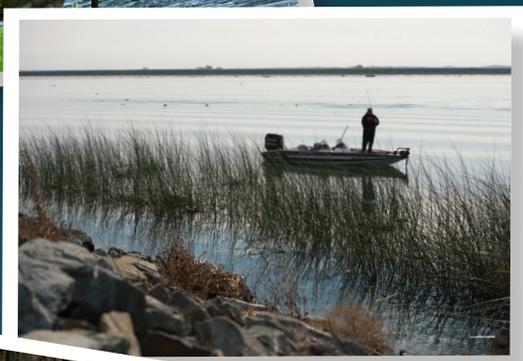
A 100-foot fishing and observation pier provides spectacular views of the Delta, including the massive hulk of a retired dredge. The park is home to 70 different species of birds, including black rails, northern harriers, white-tailed kites, great blue herons, great egrets, snowy egrets and green herons, and other fun-to-spot creatures such as Western pond turtles, beavers, muskrats, and river otters.

Park hours vary by time of year and are available at:

[www.ebparcs.org/parks/big\\_break](http://www.ebparcs.org/parks/big_break).

The Visitor Center is open from 10:00 am to 4:00 pm, Wednesdays through Sundays. There are no fees for entry or parking and dogs are welcome on the outdoor trails.

# DELTA EVENTS



## January

Weekends: *Sandhill Crane Tours*, Isenberg Crane Reserve, Woodbridge.

[www.wildlife.ca.gov/Regions/3/Crane-Tour](http://www.wildlife.ca.gov/Regions/3/Crane-Tour)

9<sup>th</sup>: *Delta Days Art Walk*, Old Sugar Mill, Clarksburg.

[www.oldsugarmill.com](http://www.oldsugarmill.com)

21<sup>st</sup>: *Delta Protection Commission Meeting*, Sacramento.

[www.delta.ca.gov](http://www.delta.ca.gov)

21-22<sup>nd</sup>: *King Tide*, Delta. [www.california.kingtides.net](http://www.california.kingtides.net)

## February

Weekends: *Sandhill Crane Tours*, Isenberg Crane Reserve, Woodbridge.

[www.wildlife.ca.gov/Regions/3/Crane-Tour](http://www.wildlife.ca.gov/Regions/3/Crane-Tour)

6-7<sup>th</sup>: *Original Sturgeon Derby*, Foundation Sports Club, Bay Point. [www.originalsturgeonderby.com](http://www.originalsturgeonderby.com)

12-15<sup>th</sup>: *Great Backyard Bird Count*, nationwide.

[www.birdcount.org](http://www.birdcount.org)

13<sup>th</sup>: *Delta Days Art Walk*, Old Sugar Mill, Clarksburg.

[www.oldsugarmill.com](http://www.oldsugarmill.com)

## March

5<sup>th</sup>: *Delta Blues Festival Benefit Concert*, Antioch.

[www.deltabluesfestival.net/benefit-concert.html](http://www.deltabluesfestival.net/benefit-concert.html)

12<sup>th</sup>: *Delta Days Art Walk*, Old Sugar Mill, Clarksburg.

[www.oldsugarmill.com](http://www.oldsugarmill.com)

17<sup>th</sup>: *Delta Protection Commission Meeting*, Ryde.

[www.delta.ca.gov](http://www.delta.ca.gov)

## Sweet Farewell to 2015



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The Delta Protection Commission was proud to join the Delta Conservancy and the Delta Stewardship Council to support Angels of the Fields, a worthy organization that brings holiday cheer to farm worker families and others in need in the Delta, with donated gifts, clothing and a Holiday Carnival for the children. For more information about AOTF, see <http://www.sacshoc.org/2015?09/10/angels-of-the-fields/> or contact Yolanda Chavez at [yolagrad@yahoo.com](mailto:yolagrad@yahoo.com).