

AGRARIAN ADVOCATE



GROWING FOOD, GROWING FARMS, GROWING COMMUNITIES



Producers from North Bay Shellfish clean and prepare sustainably-grown oysters for local sale in Humboldt County.

Harvesting the Bay

Oyster Farming Thrives in Humboldt

BY KRISTYNA SOLAWETZ

PHOTOGRAPHS BY E. CHRIS WISNER

Humboldt County farmers make their living by land and by sea.

Nestled among the giant redwoods and coastal mountains and the Pacific Ocean, growers ply their trade on small farms. Just offshore, oyster cultivators in Humboldt Bay make a huge contribution to the local agricultural economy and statewide production of shellfish.

One of a handful of inlets producing oysters along the coastline, Humboldt Bay's temperatures and water quality create the perfect environment for growing shellfish. In these ideal conditions Humboldt Bay is able to produce more than 60 percent of oysters cultivated in California. According to the most recent figures from the U.S. Department of Agriculture's Census of Aquaculture, California oyster farms generated nearly \$103 million in sales in 2005.

Oyster cultivation along California's coast dates back to the mid-19th century, when increasing immigration to the area during the Gold Rush began to tax the limited agricultural resources of the time. San Francisco Bay was once one of the largest oyster producers, but as a result of poor water quality, shellfish cultivation in the Bay Area plummeted and the commercial harvest ceased in 1939.

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MISSION

The Community Alliance with Family Farmers advocates for California family farmers and sustainable agriculture.

MEMBERSHIP

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VOLUME 33, SPRING 2010

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Letter from the Executive Director

No one knows better than farmers that water is essential to life.

The recent drought has reminded all of us how important water is and how limited its supply is in California. There is enough water for urban residents, for farmers and for the environment, but only if we all conserve it.

This edition of the Agrarian Advocate features several examples of the relationship between this precious resource and agriculture. We were inspired by the many ways that our community is adopting innovative and conservation-minded water management projects and techniques, from dry farming to collaborative watershed stewardship projects that bring youth onto the farm to plant hedgerows for water filtration, among other activities.

Happily, the non-farmers among us also have ample opportunity to participate in water-related discussions and activism. The Buy Fresh Buy Local campaign's regional Eater's Guides provide information about sustainable, locally available fish, as well as the restaurants that serve it and markets that sell it. Our Policy program helps you stay well-versed in the latest agricultural water bills and informs you when and how you can participate in the legislative process—Visit www.caff.org/policy to sign up for action alerts.

CAFF's Policy program is also working with several organizations on the California Agricultural Water Stewardship Initiative (CAWSI), which seeks to develop and promote water conservation practices in California agriculture. Visit www.agwaterstewards.org to view the resource center on water conservation that we are creating.

These efforts embody the vision of CAFF—one where family farmers and California communities are united by shared values around food and agriculture and work together in practical, on-the-ground programs resulting in local economic vitality, improved human and environmental health and long-term sustainability. 🌱

Diane Del Signore
 Diane Del Signore
 Executive Director

Revolutionizing Water Management

STORY AND PHOTOGRAPH BY GILBERT MOHTES-CHAN

With a third year of drought on the horizon in the late 1970s, California farmers desperately searched for new ways to stretch their water supplies.

Some explored a fledgling practice widely used on farms in Israel—drip irrigation. Even as growers struggled with the worst drought since the Great Depression, drip had its share of skeptics.

“There wasn’t a lot of (drip irrigation) going on in the state. It didn’t take off,” recalls long-time Yolo County farmer Tony Turkovich, an early adopter of subsurface, or buried, drip irrigation for row crops.

Indeed, growers three decades ago were using drip on less than 100,000 acres—mostly on farmland in Southern California. At the time, cost and reliability were major issues. For example, a University of California Cooperative Extension study in the late ’70s reported the annual operating cost of running a drip system at \$225 an acre. That was 2.2 percent more than running a permanent sprinkler system and anywhere from 17 to 47 percent more expensive than surface irrigation. Moreover, drip systems were encountering problems with plastic emitters clogging and insects and rodents chewing up tubing and drip tape. Still, farmers like Turkovich saw the long-term potential with drip.

“We started with drip irrigation with row crops in the mid-’80s,” Turkovich said. “If it’s efficient, it’s usually more economical over time. It’s better for the environment.”

Water management certainly has changed over the decades. Farmers are using computer controls, soil sensors and data analysis of local weather station information to monitor and manage water usage. Laser land leveling and global satellite positioning technology also are revolutionizing water management.

Today, drip irrigation is a mainstay in California’s \$37 billion farm economy. Drip and micro-sprinkler systems cover almost a third of the irrigated acreage in state—more than 2.3 million acres in 2008, according to the most current statistics from the U.S. Department of Agriculture. That’s up from 12.8 percent of irrigated acreage, or 933,696 acres, in 1994. Nationally, drip irrigation was used on 6.8 percent of U.S. irrigated farmland, up from 3.8 percent in 1994.

Water conservation efforts, higher water costs and improved drip technology and engineering have contributed



to this growth. “The big trend is the adoption of drip. It’s really taking off,” Turkovich said. “Now, we’re using a lot more drip irrigation in the row crops.”

Turkovich joined the Button family farm in 1974 and formed a partnership two years later. Button and Turkovich farm about 6,000 acres in Yolo and Solano counties, growing a diversity of tree and row crops, including prunes, grapes, oranges, corn, alfalfa, grains, organic tomatoes, organic rice and onion seed. Over the years, the farm utilized cover crops, pioneered conservation tillage and integrated pest management practices. It has participated in UC Davis research projects and hosted farm tours, including one for a group of South Korean scientists who inspected one of the operation’s buried drip systems.

Drip irrigated fields require less land preparation, which can save time and fuel costs. In flood-irrigated fields, a tractor may pass through a field six times compared to two with a drip system. Traditional furrow irrigation also can lead to a greater potential for topsoil erosion and fertilizer and pesticide run-off.

In the past five years, sophisticated satellite-based navigation systems have been introduced to keep tractors on the right course in tilling fields and ensuring the buried drip lines remain in the center of the crop beds.

“With tomatoes, you get at least a 20 percent higher yield with drip,” Turkovich said. “Overall, it’s more efficient.” 

DRY TIMES IN HUMBOLDT COUNTY



John La Boyteaux of Eel Canyon Farm harvests a dry farmed melon.

BY **SARA MOSSER**

PHOTOGRAPHS BY **E. CHRIS WISNER**

Note: CAFF is involved with dry farming, particularly in wine grapes (see page 10). Last summer, we held a field day at a dry farmed vineyard in Dry Creek Valley and we expect to hold similar field days in Sonoma, Napa, and Mendocino counties this summer. Many other crops can be dry farmed where there is sufficient rainfall, as this article discusses.

Dry farming has always been a successful agriculture method in arid climates worldwide. By practicing non-irrigated land cultivation, farmers produce their crops during a dry season by using moisture stored in the soil from the rainy season.

In the United States, Native American tribes in the Southwest subsisted for hundreds of years on dry farming. Pioneers routinely dry farmed on the Great Plains, and when settlement migrated west, harsh conditions forced farmers to also employ this method. Although typically known for heavy rainfall during the winter—averaging about 40 inches of rain in the driest areas—Humboldt County normally experiences very dry summers with almost no rainfall from June through August.

Because of these weather patterns, local farmers tout dry farming as a viable, ecologically sustainable and financially smart farming method that yields superior produce.

Ed Cohen of Earthly Edibles farm shared his perspective on how and why dry farming works for the Humboldt County farming community.

“Generally, successful dry farming depends on soil type, use of long season drought-resistant crops, an appropriate tillage system and meticulous weed management,” Cohen said. “Knowledge of the soil is indispensable in successful dry farming. Dry farming works best in alluvial soils; these soils hold water throughout the dry season while sandy soils allow water moisture to recede too quickly.”

Only water safely stored in the soil within reach of the roots can be used during the summer growing season. In Humboldt County, dry farmed crops are direct seeded in the spring months when moisture is abundant. Seed planting depth and timing are critical. The seeds must be at a depth where sufficient moisture exists and will be available in the dry season. During the summer, plants adapt by growing an extensive vertical or lateral root system that follow the receding soil moisture.

“Deep tillage is also needed,” Cohen said. “You want to avoid soil compaction in order to facilitate root growth.” Successful dry farmed crops in Humboldt include beans, corn, potatoes, rye, wheat, oats, tomatoes and produce in

the squash family, including winter and summer squash and melons. “These crops can handle stress,” he said. “And it’s the stress that makes the produce more flavorful.”

For example, dry farming can create a better tasting cantaloupe because the plant concentrates its sugars in the absence of additional water. The melon may be smaller than its irrigated counterpart, but it will lack the extra water that has a tendency to create bland, diluted-tasting fruit. This increased flavor, along with environmental and economic incentives, are factors that encourage Humboldt County producers to dry farm.

Dry farming clearly conserves water and in turn significantly reduces a farmer’s water bill. It also has a positive impact on water quality; some irrigated farming methods increase nutrient runoff into sensitive watersheds. Dry farming reduces energy used to transport or pump irrigation water and herbicides are unnecessary as dry soil discourages weed growth. These ecological benefits align with an environmental ethic shared by most Humboldt County farmers. Dry farming is an historical agriculture technique that requires superior land management practices and place-specific knowledge. In times of uncertain water supply, dry farming can offer a high quality product while encouraging resource conservation. 🌱



Ed Cohen of Earthly Edibles uses dry farming with several crops, including corn.

STUDENTS RESTORING WATERWAYS



Students participate in a field day at Serendipity Farms.

Protecting Monterey Bay habitats

BY KATHRYN SPENCER AND AMY KAPLAN

PHOTOGRAPHS BY CORTLAND JORDAN

Sixth graders, steelhead trout and a historic artichoke field near the Monterey Bay were the main components in a recent Community Alliance with Family Farmers project.

The venture, a collaboration between CAFF's Farm to School and Biological Agriculture programs as well as the Wild Farm Alliance and Serendipity Farms, taught middle school students how the water quality of wildlife habitats adjacent to farmland affects endangered species. Jamie Collins, who runs Serendipity Farms, cultivates the historic Odello Ranch (still owned by state park system) that lies paces away from the Carmel River lagoon—so close to the Pacific Ocean that you can hear the waves hit the beach from the strawberry fields. It was an ideal site for the students to learn about the environment and agriculture, as well as experience conservation planting in sensitive habitats.

Before going to the farm, students visited the Monterey Bay Aquarium's Student Oceanography Club, where they learned about agriculture, water quality and regional biodiversity in preparation for their two field trips to Serendipity Farms.

During the first trip in November, students participated in hands-on activities, such as planting native shrubs and willows along a reclamation ditch that runs into the lagoon,

and learned how to take accurate water quality samples to determine if the restoration plantings were going to affect the steelhead trout—a type of fish that thrive in the lagoon. Students also identified and learned about the abundant flora and fauna surrounding the farm and performed bird counts.

The students returned to the farm in February to learn how to monitor the success of their restoration plantings and remove invasive weeds from the restoration area. The class analyzed the results of the water quality data and how certain parameters affect species (such as the steelhead trout), and how, by restoring their land, farmers improve water quality and help threatened species. The students observed new growth on the willow stakes and other shrubs they had planted in the fall.

During the project's conclusion, several students mentioned that visiting "their" plants and witnessing their meaningful contribution to restoration efforts was their favorite part of the day.

The project highlighted how CAFF's programs work together to teach students about farming and preservation, while assisting farmers with habitat restoration and creating additional on-farm biodiversity.

Project Partners included Serendipity Farms, Wild Farm Alliance, California State Parks and the Monterey Bay Aquarium. Funding for the project came from the National Fish and Wildlife Foundation as part of their Five Star Restoration grant program. 🌱

Improving water quality in the Sacramento Valley

STORY AND PHOTOGRAPH

BY GILBERT MOHTES-CHAN

Hayden Meyers waded through a knee-high thicket of weeds and suddenly spotted a small orange flag fluttering in the breeze.

There, he stuck his shovel into the moist soil, digging a small hole. The teenager gently placed a seedling into the freshly dug hole, scooping up dirt to cover the fledgling shrub.

“One done. Where’s the next one?” he said, squinting in the late-morning sun in search of the next marker along the grassy bank of the bone-dry Salt Creek.

For the next two hours, Hayden and two dozen classmates in Colusa High School’s Environmental Science Academy patrolled the levee of the gravel-bedded creek that cuts across grower Gil Ramos’ blooming almond orchard. Their mission: plant 230 seedlings—from California buckeye to silver bush lupine—and clear away weeds inhibiting the growth of the 400 plants planted two years ago along a 2,000-foot stretch of the creek in Arbuckle.

“It’s hard work. It takes a lot of effort,” said senior Diana Madrigal. “We’re planting trees to keep down the erosion. It keeps the farmers going.”

These students are playing a role in promoting sustainable agriculture and improving water quality in the Sacramento Valley. Habitat restoration is part of the Community Alliance with Farmers’ Colusa Almonds Best Management Practices Project.

Coordinated by CAFF’s Biological Agriculture program, the project helps almond growers implement practices to reduce pesticide use and the

effects of erosion and sedimentation in their orchards. Project partners include the Center for Land-Based Learning and its Students and Landowner Education and Watershed (SLEWS) program, Audubon California, the Colusa Resource Conservation District and the local U.S. Department of Agriculture’s Natural Resources and Conservation District.

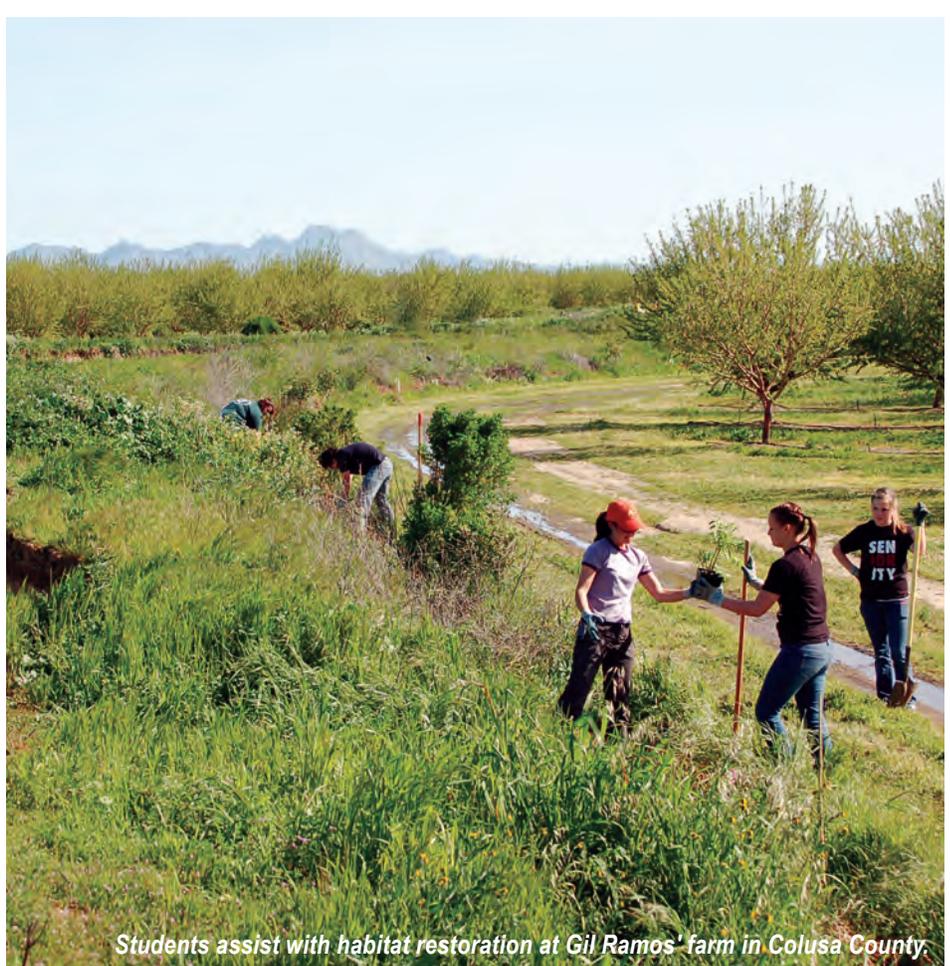
During a March planting, SLEWS program director Nina Suzuki described importance of the restoration work to the group of high school seniors. “Why are we planting?” she asked, pointing to the creek. During the winter storms, she explained, this tranquil creek becomes transformed into a raging waterway crashing against the levee and threatening to flood the almond orchard.

The creek is “taking all of this run-off and soil into the Colusa basin. It’s going to end up in a big river. That affects the wildlife and fish,” Suzuki said.

Craig Richards, coordinator of the Environmental Science Academy, said the project allows his students to apply what they learn in the classroom—everything from native plants and pollinators to the effects of soil erosion and pesticide runoff on the waterways.

“We want to take them on experiences and field trips that go beyond what they are used to. The world opens up to them,” Richards said. “They can’t wait for these field days. They do a good job.” Although the plantings can be tough work, he said the students could feel good that their hands-on learning experience will pay dividends to the farmer, wildlife and environment.

Student Hayden Meyers agrees. “It feels like you’re giving back to the environment. You’re helping someone out in the community.” 🌱



Students assist with habitat restoration at Gil Ramos’ farm in Colusa County.

Living with Less

H₂O

The California Water Policy Update

BY DAVE RUNSTEN

PHOTOGRAPH BY MEGAN SABATO

Last fall, the California legislature passed a package of bills related to water, including one that authorized an \$11 billion water bond that will appear on the November ballot. The following list is information about these bills, the bond measure and their consequences for farmers. CAFF will remain neutral on the bond measure and in the next newsletter, the implications of current water policy and disputes will be discussed.



Bills:

SBx7 1 Delta Governance

- Creates a Delta Stewardship Council (DSC) and Delta Conservancy and reconfigures the existing Delta Protection Commission.
- Requires the DSC to create a management plan for the Delta (incorporating work from existing planning efforts)—The Delta Plan—by January 2012.
- Requires development of water flow criteria for the Delta ecosystem by the State Water Board—but may not be legally enforceable.

SBx7 8 Water Diversion/Rights

- Requires increased reporting of water use and water diversion; requires Delta users to report water usage; increases certain penalties for water rights violations.

SBx7 7 Water Conservation

- Requires a 20 percent reduction in urban per capita water use (and 5 percent overall base reduction, regardless of population) by 2020.

- Requires all agricultural water suppliers serving more than 10,000 irrigated acres to submit water management plans by July 31, 2012. Existing Bureau of Reclamation or Ag Water Management Council plans fulfill this requirement, adding about 20 irrigation districts.
- Two new Efficient Water Management Practices for irrigation districts:
 1. Farm-gate deliveries must be measured within a “reasonable” accuracy.
 2. Adopt a water pricing structure based at least in part on quantity delivered.

SBx7 6 Groundwater

- Requires groundwater elevation monitoring by local agencies (with guidance from the Department of Water Resources).
- Bars counties and certain local agencies that don't comply with reporting from receiving state water grants and loans.



New policies will affect how the Delta is used as a water source.

Pending voter approval:

SBx7 2 Water Bond

- Places an \$11.1 billion legislative bond on the November 2010 ballot (see chart to the right).
- Reactivates California Water Commission (with continuous appropriation authority for new storage projects).
- General obligation bonds: money to pay them comes from the state's general fund and has top priority; general fund currently has a \$20 billion deficit.
- Projected debt service on these water bonds will be \$800 million/year once all bonds are sold after 2015.
- The state now owes \$130 billion and pays \$6 billion a year in debt service. California has the lowest credit rating of all 50 states.
- There are still more than \$3 billion of outstanding water bonds already authorized (e.g. Prop 84, 2006) but not yet sold. 🌱

Allocation of Bond Funds (in billions of dollars)	
Water supply storage	3.0
Delta sustainability	2.25
Conservation and watershed protection	1.785
Regional water supply	1.4
Water recycling and conservations	1.25
Groundwater protection and water quality	1.0
Drought relief	0.455
Total	\$11.14

North Coast Chapter Notes



Dry farmed vineyards are less costly to establish and maintain.

BY **TERRY HARRISON**

PHOTOGRAPH BY **MEGAN SABATO**

The North Coast chapter is planning field days on dry farming in vineyards in Sonoma, Napa and Mendocino counties in July. These field days follow up on the sold out workshop on the subject at Paul Bernier's Dry Creek Valley vineyard last August. Dry farming refers to the practice of growing crops without irrigation, relying on moisture held in the soil. Dry farming takes careful planning and less dense plant spacing than irrigated growing, so it is better planned from the start than applied to existing vineyards. However, dry farmed vineyards are less costly to establish and maintain and offer the ability to obtain the highest quality fruit that is in high demand by winemakers.

We are also planning a seminar for this fall or winter. It will look at dry farming as one possible aspect of an integrated sustainable system that could also involve reduced tillage, perennial cover crops, keyline plowing, hedgerows and other techniques to sequester carbon and help mitigate climate change. Dates for these events will

be posted on the CAFF Web site. The North Coast chapter is also supporting the Gold Ridge Resource Conservation District in a program of installing hedgerows in western Sonoma County. Six pollinator hedgerows have been or will be installed this spring. We are planning a similar collaboration with the Sotoyome RCD in northern Sonoma County while our member Rose Roberts of Farm Stewards is busy installing hedgerows in Napa County at Robert Sinskey Vineyards.

Policy work is unending. In March we sent out a questionnaire on sustainable ag and local food issues to Santa Rosa city and Sonoma County political candidates. CAFF members in other counties who might want to use it may receive a copy by e-mailing terrycar@hughes.net.

Last year we shared an intern with the BFBL program in Berkeley and this year we have added two new members to our Leadership Circle. We meet the first Tuesday of each month at the Environmental Center in Santa Rosa. We encourage chapter members to participate in these exciting projects! 🌱

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Humboldt oyster farmers have learned a lot from this lesson. “Oyster farmers were among the earliest proponents of water quality stewardship,” said Todd Van Herpe, owner of Humboldt Bay Oyster Company.

Today, oyster mariculture is thought to have low impact on the marine environment due to the biology of oysters and farmers’ optimal growing techniques. Oysters are bivalve mollusks, which means they filter water containing sediment, nutrients and algae through their gills to feed. Such filtration helps to maintain water quality in the bay by lowering levels of dissolved oxygen and reducing nitrogen compounds. Most of the oysters produced in Humboldt Bay are grown on long lines or using rack and bag methods, enabling producers to avoid dredging that can be harmful to the tidal ecosystem.

“My farm is respectful of the environment, recognizing that without a healthy ecosystem we are unable to continue farming and enjoying our way of life. Oyster mariculture is fundamentally ecological,” Van Herpe said.

The shellfish industry relies on water quality monitoring and assurance in order to produce healthy oysters. Oyster producers in Humboldt Bay take hundreds of water samples throughout the year. Bay conditions are

of paramount importance—the water significantly impacts the taste, quality, and safety of the oyster meat consumed. Humboldt Bay Oyster Company boasts, “Nothing is added to the environment like feed or fertilizers during the farming process. We rely entirely on our productive natural environment to produce a naturally healthy food.”

California farmed oysters are renowned for their taste and quality. Seafood Watch, perhaps the most prominent seafood guide and advisory organization, ranks farmed oysters as a “Best Choice” for seafood consumption. This category designates resources that are abundant, well managed and farmed using environmentally friendly methods. Oyster meat is lean, nutrient-rich and provides several minerals, including iron, zinc and selenium.

The oyster industry is celebrated each June at the peak of the season’s production. At the Arcata Bay Oyster Festival, area restaurants, chefs and caterers flaunt their skills in competition for the awards of “Best Oyster of the Festival” and “People’s Choice.” The festival brings together small family shellfish producers, local businesses and thousands of visitors who come to taste their share of one of the most sustainable and healthy products of the Humboldt County region. 🌱



California farmed oysters are renowned for their taste and quality.



Eating Seafood Responsibly

BY ARIANE MICHAS

For seafood information that is both seasonally and locally appropriate, read a regional copy of the Eater’s Guide to Local Food, published by CAFF and available for free download at <http://guide.buylocalca.org/localSpotlight.html>. The guides contain a seasonality chart specifically for seafood, so you’ll know just when the crab season begins or when you can expect halibut to be locally sourced.

The Guide also recommends restaurants that prioritize sustainable, local fish. In the East Bay, head to Sea Salt, or if you’re cooking at home, be sure to patronize the Monterey Fish Market. San Francisco boasts Fish & Farm, Ferry Plaza Seafood, the Hog Island Oyster Bar and the newly opened Ebb & Flow. Just over the Golden Gate Bridge in Sausalito you’ll find Fish. In Monterey County, visit Passionfish in Pacific Grove.



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Agrarian Advocate S10

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Water is quickly becoming less available for everyone, including farmers.

CAFF works with the California Agricultural Water Stewardship Initiative, providing innovative solutions to this challenge.

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