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Fish Friendly Farming: Water, Wine, and Fish—Sustainable Agriculture for a Thirsty World

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This case study focuses on Fish Friendly Farming, part of a nonprofit organization, the California Land Stewardship Institute. The FFF program is an example of an innovative model for cooperative public-private environmental collaboration and stewardship. The case provides a history of FFF and its ability to create networks and collaborations between parties that typically find it difficult to work together. This case focuses both on sustainability issues related to land and farming, and on challenges related to scaling up a successful nonprofit organization. (Keywords: Agriculture, Activism, Regulation, Green Marketing, Sustainability, Nonprofit Sector, Networks, Fishing, Farming, Water, Wine)

> "People will do a lot for the environment if you ask nicely, if you provide the reasoning behind it, and you work as a partner in a collaborative way."—Laurel Marcus, Founder, Fish Friendly Farming

In the summer of 2014, Laurel Marcus returned from a visit to Chateau Montelena in the Napa Valley. This was the winery that gained international renown for winning the Chardonnay category of the Judgment of Paris blind tasting wine competition. Since their startling recognition put California and Napa vintners on the map in the 1970s,[1] Chateau Montelena and other forward-looking wineries in northern California have moved on to being environmental leaders as well. As Marcus walked into the humble offices of the California Land Stewardship Institute (CLSI), a nonprofit organization she started nearly a decade earlier in 2004, she reflected on this new direction that she had helped to shape in response to increasing global concerns over climate change, water use, and protection of native species. As the Executive Director of CLSI, Marcus was dedicated to assisting public and private landowners in implementing land management practices and ecological restoration projects for the long-term benefit of the environment.

The full case study version of this article is available through the Berkeley-Haas Case Series at <http://cmr.berkeley.edu/berkeley_haas_cases.html>.

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Marcus had launched CLSI to operate the already-existing Fish Friendly Farming (FFF) Environmental Certification program, a program she started in 1997 to focus on agricultural properties in Northern California that were or could be managed in a way that would help to restore threatened or endangered fish species (such as the Coho salmon and steelhead trout) and the wildlife habitat of songbirds, raptors, frogs, coyotes, and others, as well as to improve water quality.

The FFF program had proved to be an innovative model for cooperative private-public environmental collaboration and stewardship. The program provided an incentive-based method (farmers could distinguish themselves to the consumer and community as environmental land stewards) of creating and sustaining environmental quality and habitat on private land, looking at a comprehensive list of all the issues that could impact aquatic life such as land and water use. By focusing on fish, an indicator of overall environmental health, the FFF program took a comprehensive approach to environmentally friendly land management.

The voluntary program was in compliance with the rigorous standards of state and federal water quality laws and the federal Endangered Species Act. Landowners and land managers enrolled in the program and in the process, learned environmentally beneficial management practices, implemented ecological restoration projects, and became certified by FFF and a group of regulatory agencies.

By 2014, CLSI had a staff of six people and worked with 900 farming sites (large parent companies often owned numerous wineries and numerous vineyards) and had certified 557 sites in Sonoma, Mendocino, Napa, Solano, and El Dorado counties. The program was also expanding further into the Sierra foothills (wineries and diversified agriculture), and into ranchland through a Fish Friendly Ranching (FFR) certification program for livestock ranches.

As Marcus looked out at the dry summer landscape out of her window and recalled nearly 20 years of persistent efforts, she was proud of the FFF program and organization that she had been instrumental in building and growing, as well as its collaborative culture and networks/relationships with both farmers and state and federal regulators. However, as she looked towards the future, she also still had a lot on her plate—for one, the ranching program, FFR was a new program with startup complications, as well as the challenges of working with independent-minded ranchers wary of outside intervention. She also wanted to grow the staff and adapt the program but not grow in bureaucracy or complexity; maintain the collaborative culture that FFF was founded on; adjust the program with new regulations on the horizon; and work more closely with environmental organizations in a more collaborative fashion. This was a lot to handle with just herself and a small staff, but Marcus and her team felt that they were ready for the challenge.

The Problem

Steelhead trout along with Chinook and Coho salmon have a complex lifecycle that involves freshwater streams, rivers, and the ocean; these species are

sensitive indicators of ecosystem health. Chinook salmon and steelhead trout in Northern and Central California rivers were listed as threatened in 1999 and 1997, respectively, and Coho salmon were listed as endangered in 1990. These fish are known as "anadromous" fish because they live in freshwater, migrate downriver to the ocean, and return to freshwater for spawning (laying eggs). Land uses such as urban sprawl, reservoirs, excessive logging, gravel mining, roads and highways, water diversions, grazing, and agriculture have led to severe declines in the populations of these and other fish.

According to FFF, the recovery and conservation of fish "requires that human activities meet high environmental standards. Salmonids [salmon species] are sensitive to changes in water quality and quantity, water temperature, turbidity, and aquatic food webs. The decline of a salmonid population in a creek or river can give an early warning of the decline in the overall health of the environment. Since salmon and trout use both freshwater and ocean ecosystems, their health offers a snapshot of the health of a wide area."[2]

Marcus added: "The idea is that Salmonids are at the top of the ecosystem. And if you can keep your land healthy enough to support them, you are at the top of the environmental scale as a farmer. People really like salmon—that's a symbol people can relate to."

In Napa, Sonoma, and Mendocino Counties, thousands of vineyard acres exist along the Napa, Russian, and Navarro Rivers, and their tributaries, home to threatened and endangered fish. Many vineyards have steep hillsides, highly erodible soils, limited water sources, and sensitive habitats. Some of the creeks and rivers have been polluted by heavy sedimentation, which smothers fish eggs because they need clean oxygenated water to develop.[3]

Regulations

The Clean Water Act was passed in 1972 and is the primary federal law in the U.S. governing water pollution. However, even after decades of federal and state regulations under the Clean Water Act, nonpoint source pollution (caused by rainfall or snowmelt moving over and through the ground, picking up pollutants along the way and depositing them into lakes, rivers, wetlands, coastal waters, and ground waters) is still difficult to control and regulate. Nonpoint source pollution comes from multiple sources and activities such as excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas; sediment from improperly managed construction sites, crop and forest lands, roads, and eroding stream banks; salt from irrigation practices; bacteria and nutrients from livestock, pet wastes, and faulty septic systems, to name just a few.

Nonpoint source pollution has been approached at the state-level through efforts such as the development of voluntary Best Management Practices (BMPs), technical assistance programs, and cost-sharing for implementation and control measures, as well as some enforceable mechanisms like regulation. California, for example, manages its efforts through the State Water Resources Control Board and nine Regional Water Quality Control Boards.

Although the California State Water Resources Control Board had existing plans and programs for controlling nonpoint source pollutions, the EPA and the National Oceanic and Atmospheric Administration felt that states like California were not doing enough.

Thus the EPA and other federal agencies in the 2000s used the federal Clean Water Act to require states to develop and/or improve upon their programs to protect the quality of water from nonpoint source pollution. Michael Napolitano, engineering geologist at the San Francisco Bay Area Regional Water Quality Board explained: "In the early 2000s, the EPA was receiving increasing pressure from environmental groups for not doing enough, so the EPA began to work with states like California that had a state law allowing it to regulate nonpoint sources, and told us to start permitting properties that showed progress and improving conditions—otherwise they would start withholding grant funds available to work on these problems."

Thus in 2004, a section of the California Water Code was updated to include a section about controlling nonpoint source pollution and is gradually being implemented in different regions.[4]

Founding of FFF

Laurel Marcus grew up in the Santa Clara Valley (currently known as Silicon Valley). While her immediate family did not farm (her father was a plumbing contractor), her uncles owned farms and, as a child, Marcus spent a lot of time playing on and visiting the farms. By the time she was 16 years old, "the entire Valley was paved over" and that had a deep impact on her, inspiring her to enter the field of environmental sciences. "It seemed so short-sighted to take the best farmland in the world and pave it without thinking about where your food was going to come from," she said. "The hardest thing for me was that the beauty of it all went away. Culturally, I found it difficult that the people who paved it over didn't care at all about the beauty of the land."

At the time, environmentalism was more about "saving the whales" or "stopping nuclear power plants," said Marcus. "It was a silent misery for me because no one was focused on farmland." Marcus headed to the University of California at Santa Cruz to study natural history (best described as ecology) and biology, working on large experiential research projects in the field.

After graduating, she was employed by the State Coastal Conservancy[5] for 13 years where she worked on grantmaking to do erosion control and creek restoration, and also worked on an enhancement plan for the Russian River. As she was discovering that she wanted to work in the private sector versus in the government, a friend who worked at the Sotoyome Resource Conservation District in Santa Rosa (the Sotoyome RCD was a non-regulatory local agency that assisted landowners with soil, water, and resource conservation projects) had received a grant to develop "a green marketing program for vineyards," and hired Marcus as a contractor to work with her. Marcus' background as a scientist was a key reason for hiring her.

The team met often in 1997 with growers to discuss the program. Marcus recalls that "A lot of the growers wanted a program to help them comply with

all the state and federal environmental regulations related to water quality and threatened and endangered fish species because they didn't know what the regulations meant. That wasn't covered too much by the grant so I took it upon myself to write this workbook with the idea to take into consideration all the regulation, science, and the practices of grape growers."

Marcus brought together a group of 10 "pioneer" vineyard farmers from Mendocino and Sonoma Counties, as well as regulatory agencies such as the Regional Water Quality Control Board, National Marine Fisheries Service, and the California State Department of Fish and Game to collaboratively work together point by point to determine standards to improve the conditions of salmon and trout. Keith Horn, Vice President of Grape Management at Constellation Brands who was involved from the start, said: "At the time, a lot of the agencies weren't talking or listening to each other and everyone said they were in charge, so we invited them to be a part of this program."

On regulatory agencies, Marcus observed, "For the vast majority of farmers that are being regulated, it's the more voluntary and cooperative efforts that usually work best. The representatives from the three agencies that were involved from the beginning understood that they were going to get a lot farther by collaborating with farmers. And even though the people representing these regulatory agencies have changed over time, we still work very closely with the organizations."

Eventually FFF stopped working with the Department of Fish and Game due to scheduling conflicts and differing viewpoints, and replaced them with the County Agricultural Commissioners who regulate pesticide use. "That's been a good addition because they have other expertise," said Marcus. Napolitano elaborated: "Some people at the Department of Fish and Game ('Game' was changed to 'Wildlife' in 2012) felt that some farms received green labels but didn't necessarily deserve it and disagreed with FFF on certain issues so there was conflict."

Based on these discussions, Marcus developed the FFF certification program, which included the Farm Conservation Plan Template and the workbook of Beneficial Management Practices (BMPs) that incorporated all the different laws of the regulatory agencies so that farms didn't have to go through multiple processes with different agencies to be compliant; they could just go through FFF's processes to be fully compliant. The FFF program allowed for voluntary compliance with the Clean Water Act including TMDLs (Total Maximum Daily Load),[6] Endangered Species Act, Fish and Game Code, Water Code, and pesticide and local regulations. The BMPs reflected management measures that were sustainable and benefited the vineyard over the long-term.

The focus of FFF was on the land manager as the central figure in achieving and sustaining environmental quality. Marcus felt that this approach ensured long-term environmental improvements, sustainable agriculture, and implementation of the principles of state and federal environmental regulations. "The program is organized by how a land manager thinks rather than how a bureaucrat thinks, so you rarely see anything about the law in our materials," she noted. "One of the things I learned in college and through research is that you can't leave people out of the fish conservation story. So the idea behind FFF is that we have to reach out and learn

how to work with people that may not have the same viewpoint, those who may not think like environmentalists, but are indeed interested in their land and recovering the fish."

FFF Process

Farmers were motivated to sign-up for the FFF program because they benefited economically from the program, according to Marcus: "In the long-run, keeping your soil in place is a major economic benefit for farmers. All the things we're telling them to do or that they are doing already are the best practices they should be doing to protect their main resource anyway. We also help them with regulations such as those related to water use because the water issues are so difficult and we're able to find grant funds to pay for projects. So that's a definite benefit."

Farmers also signed up "because of peer pressure," said Marcus. "We've been vetted by the community so we can be trusted." Napolitano added: "Farmers are conservative by nature and if they hear that their neighbor or friend went through a FFF process and it wasn't that bad or it helped them, they might be more willing to sign up. If they hear the regulatory agency came out with a positive response, that would also motivate them to sign-up with FFF."

Once a landowner decided to join FFF, they would go through a four step process: enroll the property; attend workshops (a series of three two-hour workshops) in the off-season in January and February; work with the program team to complete their Farm Conservation Plan, which would remain private and kept by the landowner; receive certification through a third-party review of the property and the Plan by regulatory agencies; and implement the Plan.

Farm Conservation Plan

FFF's workshops covered all aspects of land management including existing vineyard/orchard management, new vineyard/orchard design, water and soil conservation, creek and river riparian (banks of a river) corridor management and restoration, revisions to water facilities to increase in-stream flow, and road repair and maintenance. As farmers attended the workshops, they worked with the FFF program staff to complete a Farm Conservation Plan for their properties (typically this only needed to be completed once unless there were significant changes). The farm's extensive inventory was completed by program scientists through a one-on-one consultation with the grower or owner.

The Plan included seven elements (general site features, new vineyard, managing existing vineyard/orchard, major replants, roads, creek/river corridors, and photo-monitoring). For example, element three, managing the existing vineyard, focused on fine sediment, which is a major pollutant in Northern California streams. Program participants focused on inventory and assessment of: soil conservation and erosion control practices; erosion sites from prior land uses; chemical application methods, storage and mixing sites, and pest and disease control practices; water conservation practices in irrigation and frost control; and water supply and sources.

Importantly, farmers inventoried their entire properties, not just the vineyards, because regulations covered the overall properties.

Marcus elaborated on the issue of shade canopy on streams: "One of the reasons why people don't have adequate shade canopy is due to invasive non-native plants, so we have a lot of projects to take out the invasive plants and to plant natives. We encourage farmers to move away from the edges of the streams and to widen the streams. Most of the problems that we have are due to the narrowing of streams and this is due to decades of agricultural policies where the federal government has encouraged farmers to reclaim land. We're going in the opposite direction and encouraging people to open up the stream corridor and let it meander and be more like a stream."[7]

Marcus discussed FFF's focus on water rights and water sources: "This is probably the most controversial part of what we do because the California State water rights system is extremely complicated, but we look at whether farms have a proper fish screen (to prevent fish from being drawn into a pipe), we look at what time of the year they take water, how much water they take, where they store it, and how they use it. And to the degree we can change those things in the context of the water rights system, we change them."[8] Even though wine grapes use extremely low irrigation volumes (a-half-an-acre-foot per acre per year) when compared to other crops, frost control with water can use a lot of water all at once. FFF was engaged with the Natural Resource Conservation Service in Mendocino and Sonoma Counties to build offstream ponds[9] so the farms could slowly fill the ponds during the daytime when there is no frost, and use the stored water in very high volumes during the nighttime when vines freeze.

Because road and creek assessments were technical in nature and too great a burden for the grower to accomplish without assistance, FFF stepped in to help. Marcus said: "In the past, we have tried to have owners do the road assessments, but they just hated it and it didn't get self-assessed correctly. However, due to the need for management in most road systems, the grower takes part in the assessment and in determining the BMP's and repair strategies to be applied." All sediment sources and stream and river riparian corridors and water sources were evaluated by an ecologist or other scientist.

On farmer response to the Plan process, Marcus said: "Though it's a very detailed process and a lot of work at the beginning, the farmers like working on the Plan because it gives them a really good sense of what they need to do. It's hard for them to call up a regulatory agency and ask them what they need to do because that's very frightening. In this regard, they get a sign-off or approval from the agency saying, 'Yes, do what's in the Plan and you will be on the right track.' No one wants to be in trouble with the regulators. It's risk management."

Certification Process

After the Plan development process, FFF program staff worked with the farmer and the agency certification team to make the Plan site review and certification successful. Certification was based on the completeness and accuracy of the site inventory in documenting the natural resources of the site, current practices,

and all needed BMPs. "Our certification is the most robust one out there," said Marcus. "It's meant to provide compliance with water quality laws." On agency certification, Marcus said that in 1997 during the planning process for FFF, they talked to consumers and conducted focus groups, finding that very few consumers had faith in the credibility of certifications if they were done by the industry or through self-certification.

Following the review by the certification team, each regulatory agency issued a letter to the landowner stating that the Farm Conservation Plan was certified. If the Plan was not certified, the agencies provided detailed comments on the steps necessary to become certified. After that, farmers worked on implementation along with FFF. Marcus said: "The fact that we actually work with farmers to implement projects means that in some ways, we are doing the regulators' jobs."

FFF might recommend a number of improvements such as increased winterization and erosion control in the vineyard area, major repair of old roads, and/or re-vegetation and restoration of hillside swales[10] or creek corridors. For larger projects such as road and erosion site repairs and creek corridor restoration, the program allowed 10 years to completely implement the project and provided both technical and permit assistance while also seeking cost share funds for projects. Farmers are required to keep an annual photo record of their practices for the Plan. "We put together this program for large projects with a 10-year time frame specifically due to economic considerations because we didn't want the farms to go bankrupt in the process," said Marcus. Matt Crafton at Chateau Montelena added: "The fantastic thing about FFF is that they focus on the most cost-effective solutions for the farm or ranch. They put forth solutions that make the most sense for your property and for the environment—win-win solutions."

During re-certification every five to seven years, farmers needed to demonstrate that they were still doing the positive things they were doing before, that they had made progress on substantial projects, and that they had done the smaller projects that were specified in the Plan. "If they're doing absolutely nothing, they might not get re-certified," said Marcus.

Jim Klein from Navarro Vineyards said: "We figured we would be proactive and create a Farm Plan through FFF and to become certified back in 1998 so that we could participate in how the rules regulating farming might play out. By taking a proactive approach, we were really able to get an early jump start on trying to improve water quality at Navarro. FFF also helped us to navigate the difficult-to-understand regulations of the State Water Resources Control Board and National Marine Fisheries in terms of mitigating our soil erosion issues." Klein also said that FFF helped them to formulate ideas and execute plans to obtain funding from the federal and state governments for implementation.

Clos du Bois completed a restoration project of Lytton Creek on its property by removing several rows of vineyard and replanting native riparian species like oaks and box elder. Clos du Bois also worked on removing Arundo donax, an invasive non-native plant that had no value to fish and wildlife.

Simi Winery prevented soil erosion by seeding several crop mixes such as meadow barley and yarrow, and created a 350-foot-wide wildlife corridor along

one-half mile of Maacama Creek in Alexander Valley. Simi Winery also planted native trees and shrubs to replace invasive and non-native blue periwinkle and to enhance the creek for steelhead trout and the corridor for other wildlife.

In Sonoma County, 40 percent of the vineyards have been certified by FFF. Tom Gore, director of vineyards for Constellation Vineyards said: "We're spreading straw across the avenues to minimize erosion and to slow down the water as it's flowing across the ranch in storm events. This is part of what we do for erosion control. We take all the crushed grapes from the winery and turn them into compost to use them on our vineyards, and this is good for the soil and part of our commitment to sustainability." Constellation Vineyards also reestablished native plants along riparian corridors and protected streams from harmful sediments. They planted cover crops like peas, clover, and barley between rows to reduce sediment runoff and to add nutrients to the soil, along with flowering plants to attract insects to help control pests, limiting the need to use chemical pesticides in the vineyard.[11]

FFF called its program "incentive-based" because farmers could put their certification on their communication materials such as websites and social media, and in some cases on wine bottle labels. Farmers could also put a sign up on their properties. The idea was that FFF's third-party certification helped to distinguish growers for their environmental stewardship efforts. Marcus said: "Farmers are really proud when they do one of these projects. They love to show everyone and they love to do PR around it. And the more you can encourage that type of feeling that 'I want to do something that I can leave for future generations and that I can be proud of and I want to give something back to the earth,' the better off everyone is."

Evolution of the FFF Program

FFF certified its first five sites in 1999. By 2004, the FFF program served more than 70 property owners and land managers. The program also started in Napa Valley in 2004 through the efforts of the Napa Valley Vintners Association, the Napa County Farm Bureau, the Napa Valley Grapegrowers, and several environmental groups including the Sierra Club. "Because Napa is very cohesive, it has been a really fast growth area," said Marcus. "Mendocino is also very cohesive and supportive, and in many places we have well over 50 percent of the vineyards in the FFF program. Sonoma has been a little harder because they have bought into the self-certification process and try to pretend that it is equal. They leave out the water supply and sources and there's not a lot of science behind their program."

Eventually, Marcus created a nonprofit (The California Land Stewardship Institute in Napa County) and incorporated it in 2004, which was a "really big shift because we could consolidate everything into one working system, it's regional, and we have expanded to many different places," said Marcus. By 2009, the program had over 100,000 acres enrolled in four counties (Napa, Sonoma, Mendocino, and Solano).

On results, Napolitano said: "FFF has definitely had a huge impact on the environment. We don't have the data to show it yet but we hope to show this

in a few years. Personally, I have gone out and seen properties over the years and have seen huge improvements. Gore from Constellation Vineyards said: "I've seen lots of fish come back. I don't know the counts, but if you come down during spawning season, you can see the fish."

Establishing FFF has also led to some big river restoration projects like the Oakville to Oak Knoll project where a nine-mile stretch on the Napa River was going to be restored. Napolitano said: "These are perhaps the biggest impact-type projects that stem from FFF." Joe Dillon, water quality coordinator at the National Oceanic and Atmospheric Administration elaborated: "Once you start getting enough individuals into the FFF program, the power is that you can start getting a concentration in an area where you can do a project of significant size that's meaningful. On the Oakville to Oak Knoll project, 80 percent of the immediate acreage on the river includes farmers in the FFF program, and a few of the property owners that aren't in the program have other properties in the Valley that are in the program already, so we're confident that they are going to come on board too."

Dillon elaborated on the benefits of FFF: "The fact that FFF used their third-party certification process to push other programs around the state and on the West Coast to do independent verification as well, shows a real benefit outside of this immediate part of California."

A Collaborative and Scientific Culture

A key driver of FFF's success was its culture of collaboration and positive reinforcement. Marcus said: "We use a collaborative approach, not a regulatory approach. It's a partnership. What we find is that many farmland owners and managers are willing to go so much farther than regulation would ever force them to because they are working on something voluntarily and collaboratively. They have a say in what happens instead of being told what to do. This is just basic human nature."

Marcus added: "I believe that you get a lot more done by working with people, even if you don't agree on everything, than by fighting with them. Regulations are necessary to draw the bottom line of what can and cannot be done, but they leave a big vacuum when it comes to improving everything, so collaborative processes can be really productive." "You can't have an elitist attitude," she added.

Over time, Marcus has come to appreciate farmers, their work, and their view of the world: "They have a vast amount of knowledge of the land, live and work on the land, and have the best attitudes towards the environment. They aren't against the environment as some people might say. They just sometimes need to change the practices they're using to be the best that they can be."

And in the Farm Conservation Plan Workbook Introduction, a collaborative process was emphasized: "The FFF Program recognizes that improved land stewardship is best accomplished through a cooperative and positive working relationship with landowners and farmers.... The certification process is meant to provide assistance to the farmer and result in a collaborative effort to improve land stewardship."[12]

According to Marcus, Napolitano, and Horn, many others have tried to do what FFF has done, but have not been successful. Napolitano said: "I think Laurel has done a fantastic job with the farmers. Being able to relate to the farmers is key, and being able to understand the regulations and translate those to farmers is essential for success. Specifically, Laurel has been really successful at getting farmers on board and getting the Farm Plans done and really following through where other organizations or agencies have not."

Gore at Constellation Vineyards said: "The collaborative efforts we have done together with FFF have been very helpful. Laurel's expertise in the fisheries and biology areas and our expertise in land management and the labor have been a very good collaboration in how we can have successful farming environments and successful environmental improvements."

On farmers' attitudes, Marcus said: "When you come to someone's land, the condition of the land is often a reflection of the land manager, so you want to be very positive about it. A lot of the reason farmers sign up with us is that they want us to check them out and they want to know what is good and what's not." Horn agreed: "We're first, second, third…generation farmers and we want to protect our soil, to continue this way of life, and to produce great wines. And we're already doing a lot of things to accomplish this. With just a little bit of collaborative effort with Laurel and FFF, we're able to demonstrate these things. And with certification, it shows that other people have looked at this and we're taking care of our environment and our fish."

And as discussed above, even after the certification process had ended, FFF continued working with farmers, which led to continued collaboration and long-term relationships: "A lot of certifications end when they issue the actual certificate," said Marcus. "We continue to work with people and help them implement projects, but it never feels like regulations to the farmers."

Although FFF's collaborative culture and working style was widely embraced, there were some people in the government agencies who felt that FFF should be more regulatory and that the agencies should be able to "go onto some of these properties and write tickets," said Marcus. "That would last about 10 minutes," she laughed. "We provide access to people they can't get to." Napolitano added: "FFF has a relationship with farmers that by nature, regulatory agencies like us can't have."

Marcus and FFF also tried to build positive relationships and networks with regulatory agencies. Napolitano commented: "I think Laurel has done a fairly good job at building relationships with agencies. I think that sometimes though, FFF can work better with some agencies. Laurel definitely has some strong views and energy, which has led to her great successes launching and growing FFF, but sometimes FFF can have strong opinions about what's working or not at agencies. Although FFF has been a huge success, it could be even more successful and widespread if it grows its capacity to work within a wider group that might have different views."

Horn provided his perspective: "We try to build good relationships with the regulatory agencies and they often come out and are amazed at all the things that farmers are doing and have been doing long before FFF. And FFF is great at bringing

us all together and talking." He added: "Some of the regulatory agencies are more interested in ticket writing than in being collaborative. It's not like we don't come with our opinions as well, but we have to be open and listen to everyone."

FFF and Marcus trained people on the FFF team to work in a collaborative and positive-reinforcement way. "We train people on how to make friends. We don't have an 'I beat them' rush; this is for the long-term and we take a long-term view. We're interested in preserving the environment by preserving this huge land base. If these farmers go out of business and the land gets urbanized, we're not going to have anything. Urbanization is ultimately the big bad ugly that we don't want. We train our people that we all have to be patient in this field to succeed."

The FFF certification program was also "recognized favorably by a number of environmental groups" due to its focus on science and the third-party certification completed by regulators (not paid certifiers or the industry), according to Marcus.

Farmers and agencies liked the scientific approach too, lending credibility to FFF. Matt Crafton at Chateau Montelena said: "Laurel and her crew base their work on science. We worked with them on how to assess problems and finding solutions that would bring real long-term lasting positive change for the Napa River. The goal of this is to put together something that isn't a Band-Aid, but something that will have lasting effects for the fish, community, and winery."

Other organizations that have started programs similar to FFF were Trout Unlimited and Salmon Safe in Oregon. "Salmon Safe started out entirely with marketing and with limited substance and it's getting better but there's still not enough science. The person who started it is a business person so his focus is naturally more on marketing," said Marcus. "I'm a scientist so the focus of FFF is science-based. Science can even out everything."

The Future

As Marcus sat in the California Land Stewardship Institute offices and gazed out the window, she reflected on all the accomplishments of her organization, the farmers, and the regulators. She felt proud of what so many people from different backgrounds and organizations could achieve when they worked together collaboratively.

But Marcus still felt that much work needed to be done. In 2009, FFF began its FFR rangeland certification program and was also expanding to other counties. On rangeland, she said: "The animals move around and are very different from plants that stay put. We had to redo everything." FFF made a new workbook and completed its first certifications in 2014 by finding leaders in the communities to participate. Whenever we expand to a new place, people are kind of suspicious and we have to go through that, but eventually we move on and things build and grow," said Marcus.

According to FFR: "The focus of FFR is to validate all the positive contributions that ranching provides for the environment. FFR is a proactive approach for ranchers to look at current management practices in relation to water quality and make changes if needed. If any specific issues are found during the inventory process

(e.g., erosion locations), a practical solution is worked out with a timeline for completion with the rancher. Developing a proactive plan can assist with compliance requirements of future water quality regulations that may impact livestock grazing and ranching operations."[13]

Marcus explained why FFF decided to enter rangelands: "We look at things on a watershed scale and when you look at what's the biggest use of most of these watersheds, it's grazing. While yes, we are involved in improving the environment, we are also involved with keeping farming and ranching alive. We're very concerned about undue regulatory burdens put on farmers that could cause them to go out of business; the ranchers are subject to that because they don't make a lot of money, and they are dependent on the rain to create the grass for the cows and the sheep. The recent drought led some ranchers to quit the business."

FFF also worked with fruit farms and Christmas tree farms, providing a way for those farms to deal with regulations so that "they don't have to bear the brunt of real expensive change and so that they can stay in business too," said Marcus. "The public really doesn't understand this stuff. They see a ranch and think ranchers are wealthy, because they own a large land area, but that's not true. Instead, we need to put some value to proper land use and work with farmers and ranchers to achieve environmental improvements in the context of a working landscape."

Beyond getting into ranchland, Marcus and her team were expanding into the Sierra foothills with wineries and diversified agriculture. She said: "Every time we expand, we have to analyze the practices of the new farms and revamp the workbook. In the Sierra foothills, we have a different workbook because they have different pollutant problems." Marcus also said that FFF received "calls all the time" from people asking FFF to expand to new locations such as Washington State.

In terms of other changes, fresh regulations were on the horizon as the nonpoint source pollution section of the Clean Water Act was changing too, driven by the EPA and the State Water Board. Marcus explained: "Regulations will happen in 2014 or 2015. The nonpoint source chapter of the Clean Water Act requires the creation of TMDLs and these have been created for numerous watersheds in California. Napa River is done and the implementation permit is what the new regulation is. It's a big deal and it's not going to be popular. In the past, agencies responded to complaints and now farmers will have to prove that they are not causing problems." She added: "We expected the changes and that's what FFF was set up for to begin with."

Napolitano of the State Water Resources Control Board explained further: "We're working on a permit program for our vineyards and FFF is the one third-party group so far that we've recognized to have an approach that will meet our needs and conditions. We are going to be in more of an auditor's role and only looking at some properties because we don't have the resources to go to every farm site. FFF will be helping farmers to evaluate their properties to make sure they have effective management practices in place so that discharge and sediment from the properties will satisfy our permit conditions. FFF will help farmers to navigate the permits and help them on their Farm Plans."

Marcus reflected on the regulatory changes: "In the past, farmers all had to do pesticide reports and they sometimes had to do work on water rights. They typically didn't interface with the fish agencies or the regional water board at the time we started the program. But most recently, the Regional Water Quality Control Boards were working through all the sectors of the economy and now agriculture is going to be regulated too."

Finally, other changes were that organizations such as the Napa Resource Conservation District (Napa RCD), a local non-regulatory agency promoting responsible watershed management through voluntary community stewardship and technical assistance, as well as the Sonoma RCD, were in the process of developing a program like FFF. Napolitano said: "Our agency has always believed that having more than one program that is strong and effective is a good thing. I like having a program like FFF that is organization-based and also ones like Napa RCD that are place-based so that all of these efforts can expand to other regions. And FFF is a nonprofit and based on a single individual and so it's good to have more programs beyond just FFF."

As Marcus reflected on all of these changes going forward, she said: "Ultimately, I think the goal is to keep adding people and to adapt the program to work for the regulatory system, but not make it more bureaucratic or difficult—to try to keep it in the same collaborative vein because that seems to work really well. I think we're also going to try to work more closely with the environmental community—they seem to have two tools, media or litigation, and maybe we can work with them on a different style of collaboration. They have trouble leaving their own way of thinking."

And as Marcus entered her 19th year working on FFF efforts, she recognized that she wasn't going to work at FFF forever. "The board and I have talked about a multi-year succession plan," she said. Napolitano added: "Laurel is a strong leader and there are a lot of people below her in a horizontal fashion, so capacity-building should be a focus." In the meantime, however, Marcus and her team had much to ponder and a lengthening list of environmental challenges to address in a world in which the evidence for climate change becomes more compelling with each passing season. At the end of the day, in the midst of California's worst drought in its modern history and a rising chorus of disputes over the use of precious water resources, Marcus wondered whether all that FFF was doing would be enough.

APPENDIX
Concepts and Benefits of the FFF Program

The following concepts guide the Fish Friendly Farming Environmental Certification Program:

1. Cooperative efforts between landowners and interest groups in the watershed will increase the level of success of restoration and recovery efforts for salmon and steelhead.

2. An incentive program that rewards farmers for practicing beneficial management practices (BMPs) will protect fish habitat over the long term.
3. Restoration and recovery of threatened fish populations is an immediate concern. The certification program, by providing incentives, will encourage rapid improvements. Some phasing of improvements is built into the program to recognize the economic needs of the landowner.
4. Beneficial management practices are based on a credible scientific approach to watershed restoration and focus on the needs of the fish and water quality.
5. Recovery of the salmon and steelhead is a long-term endeavor. Changes to support and sustain these fish populations must be integrated into all land uses in each watershed. There are many land uses and facilities not associated with agriculture that have had significant effects on the fish. This program focuses on one land use, farming, and recognizes that changes must be made in other activities and land uses as well if the fish are to recover.
6. This program is entirely voluntary. Landowners choose to participate.

The potential benefits of the Fish Friendly Farming program for the farmer include:

1. Improved soil and water conservation
2. Better roads
3. Lower maintenance creek corridors
4. Advice and assurances from three regulatory agencies regarding the consistency of the actions in the farm conservation plan with regulations
5. Implementation funds and technical assistance for riparian corridor restoration including invasive plant removal and erosion control projects
6. Road and erosion site repair
7. Public recognition as an environmentally conscious farmer
8. Personal satisfaction for assisting in the recovery of the steelhead trout for your children and grandchildren

Source: FFF.

Notes

1. This story is dramatized in the 2008 film *Bottle Shock*.
2. <www.fishfriendlyfarming.org/why.html>.
3. "Fish Friendly Vineyards," *The Osgood File*, January 17, 2006.
4. Regulations took time to implement due to lawsuits by environmental groups like the Living Rivers Council, contending that the Water Board is not doing enough at the local levels.
5. The California Coastal Conservancy was established in 1976 and is a state agency that uses entrepreneurial techniques to purchase, protect, restore, and enhance coastal resources, and to provide access to the shore. They work in partnership with local governments, other public agencies, nonprofit organizations, and private landowners.
6. A TMDL is a regulatory term in the U.S. Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards (sand is just one example).
7. <www.youtube.com/watch?v=WvoiJVxUWCs>.
8. Ibid.
9. Offstream ponds can help to maintain in-stream flow levels for anadromous fish.

10. A low or hollow place, especially a marshy depression between ridges.
11. <www.youtube.com/watch?v=ET5k2Nvqgvo>.
12. FFF website.
13. FFR Flyer.

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