


US RAS tilapia farm integrates to survive, but it's lonely

By [Jason Huffman](#) May 3, 2018 17:28 BST



 Live US farm-raised Nile tilapia for sale at an H Mart in Fairfax, Virginia. Copyright: Jason Huffman/Undercurrent News

RIDGEWAY, Virginia – Out here on an industrial 16-acre site in rural southern Virginia, in the foothills of the Blue Ridge Mountains, stands a real oddity, like something from a Ripley's Believe it or Not! museum. It's a 100,000 square foot, US, land-based tilapia farm that's making money.

Blue Ridge Aquaculture delivers almost 2,000 metric tons of live fish per year -- between 10,000 and 20,000 pounds per day -- from its 42 grow-out tanks.

No, that's not anywhere close to as big as the 33,000t per year salmon operation that Atlantic Sapphire ultimately plans to erect in southern Florida

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coast Maine, but those businesses have yet to harvest a single fish.

Blue Ridge, meanwhile, has been in business for 25 years and remains the largest tilapia farm in the US.

It's a feat that Bill Martin, the founder and CEO, chalks up largely to a sound recirculating aquaculture system (RAS) design, some bold investments in his company and a series of lessons learned by hard knocks. But he's not at all happy to be such a lonely figure in the small US land-based tilapia space.



📷 Bill Martin, the founder and CEO of Blue Ridge Aquaculture. Photo by Jason Huffman.

Having more competitors of substantial size, for one, would make Blue Ridge's industry more familiar to funding sources while giving it more leverage with vendors, he told *Undercurrent News* during a tour of his facility.

“We’re a business here. We really don’t have an industry yet,” he said.

As a result, Martin maintains an open invitation to anyone interested in starting or improving upon their business to come visit him.

“We’ll talk to anybody who wants to talk to us,” he said. “We don’t want to be the only ones.”

Martin, like others in his space, still sees tilapia farming as an opportunity. Tilapia is the fourth-most consumed seafood in the US, ranking behind only shrimp, salmon and canned tuna, and the nation’s most consumed white fish, according to the National Fisheries Institute. Americans eat 1.18 lbs of it per year, on average.

Tilapia is a “fish for people who don’t like fish,” Martin said, referring to the species' neutral flavor and lack of smell. It doesn’t have the omega-3s that salmon has, but not all consumers like salmon and may not want to eat salmon all of the time, he adds.

Yet the tilapia consumed in the US is almost exclusively an imported product, with frozen fillets from China owning 75% of the roughly 188,000t annual market, based on National Oceanic and Atmospheric Administration data.



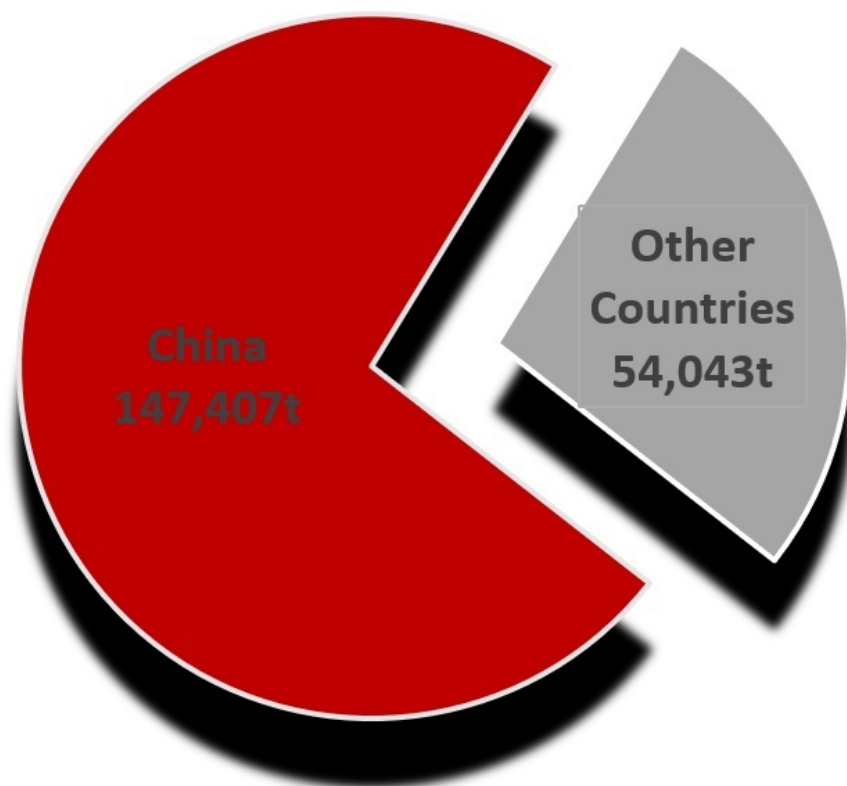
📷 The sign that greets you as you enter the offices of Blue Ridge Aquaculture. Land-based tilapia farmers believe their ability to slap a "Made in the USA" label on their products is a big tactical advantage. Photo by Jason Huffman.

where net pens are also used.

So, by growing their fish in contained, land-based systems, US tilapia farmers can uniquely advertise their product as being "made in the USA" and also make a guarantee of no antibiotics or other chemicals.

"We can beat the Chinese product, hands down. It's not an issue," Martin assured.

US Tilapia Imports 2017 (Metric Tons)



📷 Three-quarters of the tilapia imported in the US comes from China. Chart based on NOAA data.

The 'neonles' fish!

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J. Michael Mogollon, a longtime aquaculture scientist, Tamas Doffek, an angel investor, and Jordan Najjar, a real estate developer – the three founders of American Fresh Fillets, a Clewiston, Florida-based company – see the same opportunity as Martin and want to grow a tilapia farm that's even larger than his. They're looking to raise at least another \$10 million to help them buy 100 acres of land and ultimately build a new 300- or 400-tank aquaculture farm.

“People want to buy a fish with an American flag next to it,” said Doffek, whose other investments include publishing and real estate.

The US Department of Agriculture has yet to establish organic fish standards, but Doffek believes his company will be well positioned to also apply that label one day soon. He envisions the American Fresh Fillet brand becoming a moniker like “Omaha Steaks”.



📷 Fresh tilapia from EarthCare Aquaculture, a farm near Lake Okeechobee, Florida, that serves as the pilot for American Fresh Fillets. Photo courtesy of EarthCare Aquaculture.

The group has a good headstart.

Mogollon, a 33-year aquaculture scientist and professed diligent consumer of organic food, is the owner of EarthCare Aquaculture, a 20-tank facility on five acres near the southwest corner of Lake Okeechobee, about 80 miles from Miami, Florida. He describes EarthCare as a “pilot farm” for American Fresh Fillet, though it has been delivering about 250,000 lbs of fish annually to wholesalers for the past three years.

The company charges \$1.75 to \$2.00 per lb. for its tilapia, which are typically about 1.75 lbs in size, Mogollon said.

Like Martin's business and other US producers, Earthcare must sell its fish into the live market, most often to Asian grocery stores where they are put on display in large aquarium tanks. Customers point to their fish and an employee behind the counter makes the fillet right there.

About two-thirds of EarthCare's fish is sold in Toronto, Canada, using a live haul truck service, Mogollon said. The rest winds up typically in Georgia, Texas and Arkansas.

Producing at a much higher volume will make it more feasible to automate the filleting process while keeping the price low, allowing American Fresh Fillet to go head to head with importers, the investors believe. And, once that



📷 EarthCare Aquaculture's greenhouse-approach to raising tilapia. Photo courtesy of EarthCare Aquaculture.

Another advantage that the company has is its location in Florida, where the warmer temperatures allow it to use outdoor greenhouses. There is no need for heating, like in the northern part of the US, or cooling, as is required by salmon RAS facilities.

American Fresh Fillet will operate so efficiently and at such a low cost that it will be able “to bring a product to market at a cost that the masses can afford,” Mogollon said.

“It's the peoples’ fish.”

The land-based tilapia farm graveyard

Many other entrepreneurs have felt as confident about the tilapia business as Martin and the founders of American Fresh Fillet, if not more so. But few have realized much success, confirmed Brian Vinci, director of engineering services for the Freshwater Institute (FI), a Shepherdstown, West Virginia-based division of the Conservation Fund.

Vinci noted a high rate of interest in the finfish RAS business in the US and also a high rate of failure more than 10 years ago when he started keeping a list of all the land-based farms producing more than 50,000 lbs of fish per year in the country. He hoped to determine one common, reoccurring cause for the failures as well as a solution that could be applied, he told *Undercurrent*.

He found no simple problem or solution.

Vinci identified no less than 82 finfish RAS companies of such size in the US.



📷 Tilapia fingerlings make the water seemingly boil as they jump for feed at Blue Ridge Aquaculture. Photo by Jason Huffman.

them, he confirmed, are out of business or have changed their model so that they no longer raise fish.

And it's likely the number of out-of-business tilapia farms is much higher based on *Undercurrent's* calls to firms on Vinci's list with unknown fates. Several had phone numbers that were disconnected while others have websites that appear to have not been updated in years.



📷 Tilapia imported from China at an H-Mart, in Fairfax, Virginia. Photo by Jason Huffman.

At least one large tilapia operation that recently has faded from the scene is the Southern States Cooperative, once a collection of 15 farms in three states (Georgia, North Carolina and Delaware) that combined to produce about 3m lbs of fish annually, second only to Blue Ridge Aquaculture.

Southern States, better known as a Richmond, Virginia-based seller of land agriculture supports, got into

the tilapia business in 1994 with the ambition of one day working with 100 aquaculture farms across the nation, recounts Dale Pridgen, the owner of DPK, a turkey and tilapia farmer in Snow Hill, North Carolina.

Pridgen, who produces about 250,000 lbs of tilapia per year, joined the network when he began raising the fish in 1999 but left along with three other growers in 2007 after failing to generate the positive outcome Southern States had promoted. The four businesses and one other are now part of Fresh Keepers, a North Carolina-based tilapia cooperative that shares a live haul truck and marketing expenses.

Pridgen said he gets asked a lot if he would get into the tilapia RAS business all over again, if given the choice. His answer is an emphatic "no".

Martin knows many tilapia hardship stories like those belonging to the Southern States' members. A tilapia aquaculture association he helped to form in the early 90s with five companies is down to one member, his own company.

"The formula for this business is DOA," he told *Undercurrent*. "When you start, you're already dead. And believe me, the corpses are mounting and it's not over yet."

“They come back with sugarplums dancing in their heads,” he said.

Many of those getting into the business lack management experience and start as small, one-person operations, Martin said. Oft times the owners are juggling other jobs, too.

“The guy that owns it drives a fish truck and feeds them. He doesn’t have a chance to stop and think about growth,” he said. “He doesn’t have enough income from his fish. He’s just struggling to stay afloat. When we hear that their expansion is planned, that’s a fairy tale for them. Most of them never get out of stage one. They struggle for a long time and lose all of their money.”

Many of the new tilapia farms also don’t have well-designed systems, he said.

Beware of RAS sellers that aren’t in the business themselves, he warned.

“Please, for goodness sake, ask them a couple questions, like, ‘Why are you blessing me with this wonderful technology? Why aren’t you doing it?’” he said. “Show me one of your operations that has operated with a profit for two years. Generally, that ends the conversation.”



📷 A live haul truck shared by members of the Fresh Keepers cooperative, in North Carolina. Photo courtesy of Fresh Keepers.

Also, a new land-based tilapia business needs lots of capital as there are many risks and costs, he said. To build a business of his size would cost about \$25m, he estimated. But companies have only about two years to make a profit before their financing sources lose patience, he added.

“This is not a mom and pop business. It’s important that you know that. This is a commercial facility,” he told *Undercurrent*. “Like with any business, if you go in undercapitalized your first big problem knocks you out, whether it be disease, or feed or water quality.”

Independence is key to combat 'aquashysters'

And then there’s perhaps the most difficult-to-follow suggestion that Martin makes. Tilapia farmers, he said, need to be “vertically integrated” owning all

“My model has always been poultry,” Martin said. “I have watched that industry expand since I was a kid, just from nothing ... They went from barnyard to mass production almost overnight. But now it's a mature industry. They've done all the genetic work. They've got birds that go from egg to a four- or five-pound bird in 30-some days.”



📷 Blue Ridge Aquaculture's hatchery. Photo by Jason Huffman.

Martin said being vertically integrated is the only way to avoid being sunk by “aquashysters,” what he called some of the vendors with which he and other aquaculture farmers have done battle.

Martin said one of his earliest batches of tilapia stock were contaminated with a variation of streptococcus, which he believed was brought in by a live hauler. It caused him to cull his fish and start over in the early 1990s with his own

broodstock program. He also detailed to *Undercurrent* an early disaster confronted when a transportation company called him from making deliveries to say that half of his fish had died in route to a market and the buyers were demanding to pay \$0.20 less per pound, claims he questioned.

Blue Ridge Aquaculture bought the first of its two live-haul trucks in 2005 and hasn't looked back. The company delivers its own fish, hauling 15,000 to 16,000 lbs per load, keeping the trucks on the road at all times, Martin said.

“There's not been [another company's] live haul truck on this lot in 15 years,” he boasts proudly. “And we've not had a disease in 20-something years.”

Martin also recounted how he caught a feed company stuffing its bags with 10% sand to inflate their weight and price. Because so many aquaculture farms use natural, outdoor ponds, they never would detect such a practice, he said. Not true at his facility, where the sand was damaging tanks.



📷 Blue Ridge Aquafeeds a feed mill built by Blue Ridge Aquaculture at a cost of \$5 million. Photo by Jason Huffman.

Blue Ridge recently spent \$5m to [build its own feed mill](#). The new facility is capable of producing as much as 73 metric tons of feed per day, employing double shifts, said Martin Gardner, the company's director of business development.

In terms of cost, Martin said building the feed mill was "a push," as he still has the construction costs to cover. However, he's now saving the \$80/t he spent to have his feed delivered – his fish eat about 10t per day -- and is selling the feed he produces other tilapia producers through a separately created division, Blue Ridge Aquafeeds.

Another big move that Martin credits for his company's independence and related success is the early development of its own broodstock, hatchery and genetics programs. Blue Ridge Aquaculture grows tilapia from egg to 1.75 lb fish in less than nine months, he said.

The company hasn't brought a new fish on to the lot in 22 years, Martin boasts.



📷 Martin Gardner, the VP of business development, walks down the middle of Blue Ridge Aquaculture's brood stock operation. Photo by Jason Huffman.

Also, Blue Ridge's mortality rates are less than 3%, he said.

Martin's strong feelings about being vertically integrated and operating independently aren't just a result of his experience in tilapia. Before Blue Ridge Aquaculture, Martin led the unsuccessful launch, in 1986, of a catfish aquaculture business, Blue Ridge Fisheries, with more than 20 co-investors and \$7m.

Following multiple problems, including several bouts with disease, the catfish enterprise failed and his family was forced to purchase it out of bankruptcy. He concedes now that he lacked the experience needed, having come from a commercial real estate and newspaper background.

"I never grew a fish in my life and it showed," Martin told *Undercurrent* of his early years in aquaculture. "What we learned in the two years that we operated Blue Ridge Fisheries was staggering, the crammed in knowledge that we got in that short period of time. I never accepted the fact that this would fail, and it did, and I was devastated.

and had never grown a fish. How stupid is that?” he continued. “I mean, that was the epitome of arrogance. But from the time I conceived of all this, I never dreamed that it wouldn’t work. I got a big education. But the dream never went away, and it does work, and it is working.”

Martin’s to-do list: processing, shrimp, Africa, retirement

So, what next?

Like American Fresh Fillets, Martin sees processing in his company’s future and hopes to add the necessary equipment at his existing Virginia facility in the next five years.

Part of the problem with tilapia is that it is a relatively small fish, so the processing yield is only about 32%, Gardner estimated. By comparison, he said, salmon has a yield of almost 50% and catfish about 40%. Countries like China are able to employ cheap labor to fillet their fish before sending them to the US, keeping their costs and prices low.



📷 Martin Gardner, the VP of business development at Blue Ridge Aquaculture. Photo by Jason Huffman.

“That’s a big step from here to there,” he said. “To do a full-scale processing plant, you need a million pounds of fillets a month. That makes you a market player against China, Central America, everybody. You’re big enough to swing markets then.”

Martin said he explored adding his [own processing facility](#) in California, as *Undercurrent* reported in early 2016, but gave up on locating either a processing or live market business in California, as it is “not a business-friendly state”.

However, he said, at some point, Blue Ridge will likely consider opening up such an operation, maybe in Nevada. The West Coast is a 10m lb. market that is “way undersupplied”, he said.

Whenever Martin is ready to start processing there will be at least one



📷 A world map in the Blue Ridge Aquaculture lunch room where CEO Bill Martin discusses his plans for expansion into Africa. Photo by Jason Huffman.

Machinery confirmed to *Undercurrent* that it has built a tilapia fillet machine that it sells for about \$160,000.

Martin has other plans, too, including a future shrimp aquaculture facility and also a tilapia farm in South Africa or Uganda. He's not yet purchased the property in Africa where he plans to build an operation, just like the one in Ridgeway, but he and other executives have made several trips to the continent. He said it will take about a year to build and another

six months to start producing fish.

Martin is buoyed, in part, by the opportunity to feed a growing population that loves fish but has lost many of its most common wild species. The population of Africa will more than double to 2.4 billion in 40 years, according to a [recent study](#) by the US Population Reference Bureau.

Martin, who is 70, said he hopes for the Africa facility to be under construction before he crosses another item off his to-do list: his retirement. He's making many of his moves now, he said, with the intention of one day soon handing his business – recently converted to a model that is 51% owned by its 40 employees -- over to a group of younger managers around which he has surrounded himself.



📷 Founder Bill Martin in his office at Blue Ridge Aquaculture. Photo by Jason Huffman.

That includes Gardner and VP James Franklin, who came back to Blue Ridge Aquaculture in 2007 after working earlier for Martin's catfish operation.

Martin points to the parking lot and notes how his office is now the closest room in the building to the exit.

"I've had a more than 20-year run at this thing. I'm done. I'm already in my

He added, however: “Of course, I will stay and hover about and dotter around like most old men do.”

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