

Legit Fish planning strategic partnership with Thermagenix's Fast Fish ID

By Chris Chase
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Legit Fish, a Boston, Massachusetts, U.S.A.-based company offering traceability and ERP solutions for the seafood industry, is planning a strategic partnership with Thermagenix – a company that has invented a fast DNA test system for seafood.

The partnership, according to Legit Fish founder and CEO Michael Carroll, will increase the already rigorous traceability the company's system has by adding on a biological component. The goal is to have the same traceability software that tracks species, gear type, amount, catch location, and more include the additional information that's more quickly obtained by Thermagenix's new invention, [Fast Fish ID](#).

"The two tools together are a lot more powerful than they are separated," Carroll told SeafoodSource.

Legit Fish's system offers full-chain traceability that is also synced with official government harvest records, allowing for multiple levels of verification of catch.

The software itself is relatively straightforward to use. Fishermen heading into a particular buyer can quickly – on a smartphone, tablet, or other internet-connected device – hail the buyer with a full account of the species, poundage, size (in the case of species like scallops), gear type used, specific location caught, and more. Those buyers then have a cloud-based client that registers that information, and they can then buy the seafood straight from the fisherman. Throughout the process, the information being recorded gets tied back to the government reporting system.

"Once it's sold, the data travels to the government reporting system, it travels to the processing system, and it also travels to its inventory system," Carroll said.

Legit Fish has also created a similar program for the processor side. Processors within the supply chain buying from someone using the software continue that chain of traceability, with the ability to print out a label that contains a QR code describing exactly who caught the fish and where it was sold. The

technology even allows for separate lots of seafood to be mixed together without breaking the traceability – if a package of scallops has scallops in it from multiple boats, that information isn't lost.

The traceability, however, is only a part of the story, according to Carroll. Legit Fish is also a full ERP system, streamlining the operations of buyers. Currently, the scallop auction at the Buyer's and Sellers Exchange in New Bedford, Massachusetts, uses Legit Fish's system, meaning roughly 40 percent of all scallop sales run through Legit Fish. That is part of why [Butcher Box](#) is now using Legit Fish's system for its scallops, complete with labels indicating the origins of scallops sold to customers across the country.

That ERP component is key for the software's adoption, according to Carroll.

"A lot of people cringe when they think about traceability," he said. "Traceability can be costly, and time-consuming, with sometimes ethereal benefits to the business owner. We're building a dockside ERP system, so it's picking up some of the cost to do this. It's doubling as a business system."

The traceability side, of course, is still important, and Legit Fish expects that as it becomes a bigger concern – whether in the public eye or through government mandate – the company will be in a good position to offer an economical solution.

"For years we've been hearing about issues that have resonated with me about honesty and integrity and seafood fraud, all of these things," Dana Bartholomew, the executive vice president of business development for Legit Fish, told SeafoodSource.

One example Carroll and Bartholomew gave was the [Carlos Rafael scandal](#). Rafael was able to lie in his government reporting of his catch because the amounts weren't tied back to what was being delivered to the market. Legit Fish's system ties the government reporting directly to the market, making that impossible to do.

In addition, the New England Fishery Management Council has given Legit Fish a grant as it and the Mid-Atlantic Fishery Management Council work on creating a form of electronic vessel-trip reporting. Currently, most records are kept on paper, making data streams clunky to interact with. An electronic system, like Legit Fish, would make that information much easier to process, Carroll said.

"The technology for the business is really good, but then the data technology, the data coming out of this system, is so damn powerful. That's where our next big move is," Carroll said.

Now, Thermagenix is coming on board to add an extra layer of traceability to the mix.

The company's fast-fish ID – research partially funded by a Seafood Industry Research Fund grant – was the product of academic and hinges on a number of new scientific processes, including LATE-PCR, invented by Lawrence Wangh, founder of the company.

PCR, or polymerase chain reaction, is a process by which copies of specific DNA segments can be made, which helps allow for the identification of specific strands of DNA. Wangh and his colleague, Aquiles

Sanchez, created LATE-PCR, a method that – in layman’s terms – allows for a more predictable, efficient copying of strands in a way that is easier to identify.

Wangh and Thermagenix made a number of other innovations for fast fish ID as well, he told SeafoodSource – including new methods allowing for the identification of specific strands of DNA much more efficiently. This ability to identify strands is coupled with another relatively recent discovery that the DNA in the mitochondria of cells in living creatures has an easily isolated strand of DNA that is nearly always entirely unique between every species on the planet.

That unique strand has been catalogued across hundreds of thousands of species, including virtually all commercial fish species. In addition, to be absolutely sure of species, Thermagenix had ichthyologists (fish scientists) provide samples of specific species to ensure complete accuracy.

Coupled together, Wangh and Thermagenix created a simple device that can quickly sample the DNA of a fish with a tiny amount of material, then compare the sample to a number of known DNA strands using an algorithm and cloud-based computing. Up to 44 samples can be examined at one time, and instead of the DNA process taking weeks like it currently does, it can be completed in just a few hours or less.

Plus, it has simplified the identification process so that almost anyone can do it, Wangh said.

“If you can poke a fish with a toothpick, you can use this,” Wangh said, adding that even the tiny amount of DNA present in a toothpick is more than enough for Fast Fish ID to determine its species.

Now, the two companies are planning to combine the DNA identification and the traceability software to provide another means of ensuring a particular package of seafood is exactly what it says it is.

“We’re now going to collaborate, come together, and work as a strategic partnership,” Bartholomew said. “We’ll be working together to bring a solution to market.”



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