

Fully Tested Tuna

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There is an awful lot of disagreement on the subject of mercury in fish and shellfish and how harmful it might be to people. That's especially true for tuna, which are top predators that accumulate mercury from all the fish they eat over their long lives. Many countries, including the USA, offer guidelines about how much tuna it is "safe" to eat, but there are problems with that. First, not all tuna is tested for mercury. And second, some individual fish contain way more mercury than others. Safe Catch is a relative newcomer to canned tuna, with a unique selling point: it tests every single fish, and to a standard 10 times more stringent than the level at which the FDA might take action.

Sean Wittenberg started working towards Safe Catch as a student at the University of California Davis in the early 2000s, after an occasion when he came back home and noticed that his mother wasn't doing too well.

Sean: A variety of symptoms and issues, mostly cognitive. She had memory issues. She was having some motor skill issues, numbness in her hands and feet. She was just off like and just not getting better.

Jeremy: Doctors were baffled by Sean's mom's condition. A battery of cancer tests all came back negative, and then they started investigating auto immune diseases. And that's when things became a little clearer.

Sean: So what happened? As we were going down the autoimmune path, the nutritionist asked my mom, Have you ever had your heavy metals tested? None of us knew anything about it. And so, sure enough, my mom got her heavy metals tested and her mercury level was about ten times higher than what the FDA said was safe. And it was in that moment that we realised that my mom had started a point-based diet system. Little did we know that she started eating albacore tuna nearly daily, because albacore tuna was one point and

then she didn't like the other items on the menu. So she started to stick to albacore tuna, thinking, What's what's going to happen there? I'll just start eating that.

Jeremy: And that started Wittenberg on a path that sees him now running Safe Catch in Thailand, where half of the world's shelf stable fish is processed.

As Sean said, the FDA, the Food and Drug Administration, advises on safe limits for mercury in tuna, lower for pregnant women and small children, higher for adults and the elderly. But it doesn't actually test the fish. And tuna are important because they absorb all the mercury that's been eaten by the fish they eat, who absorb mercury from the smaller fish and plankton they eat. So there's naturally more mercury in tuna than in, say, sardines. But here's one difficulty.

Sean: In simple terms, as we go testing through schools of fish, two fish that are identical, same size, same school, same everything, are swimming side by side: they can vary in mercury concentration by over ten X. So in this school of fish, you have one fish that would be a great choice for, say, a pregnant woman and another fish that would not be a good choice for that pregnant woman or small kid. And so unless you have the technology to be able to test each fish one by one, you do not have the capability of carving out that population of fish that would be ideally suited for those ... for our vulnerable consumers.

Jeremy: The problem is that existing methods are expensive — maybe \$100 per test — and they can take a week to deliver results.

Sean: So what we did is we started over and us, with a group of physicists and some pretty bright engineers, we pioneered a technology that can take a tissue sample, a biopsy about the size of a grain of rice, and you can put that tissue sample into our machine, and in about 30 seconds, I can tell you the exact mercury concentration to the part per billion. So we took a process that was days. We turn into seconds. We took a process that required a laboratory and we built a machine that could be integrated into the seafood supply chain. Whether you go to the hot, humid docks of the Philippines or cold rooms inside of Thailand or the United States, the technology works in nearly any environment. And it can be operated by unskilled labour. What made our technology such a breakthrough is we were able to skip all of these sample prep steps and all these other things to get

the sample ready to be tested. And we can go straight from from the fish body itself directly into the machine and boom, the result in less than a minute.

Jeremy: But you'd think that ... I mean, okay, you started off inventing the machine to solve a problem for the tuna industry. You'd think the tuna industry would have beaten a path to your door. Why didn't they?

Sean: We thought the same thing. When I first got started. I thought, Oh, this is a technology gap. If we get the technology, we can provide this to the government and to the big seafood industry and to the tuna companies, and we can give them the tools to protect consumers and further drive consumption of their products. But the tuna industry did not want us to launch these products at all.

This was an issue that they said was a non-issue. The seafood industry, the tuna industry, when I first brought this technology to them either told me, number one, mercury was not a problem and go away. And, you know, this is just the trend. It will go away. It came out in the seventies. There was some noise about it and it disappeared. And here it is again, it's going to disappear. Or they wanted me to test to such a loose standard so that everything passed. And would use our technology to kind of wash away this potential commercial problem for them. But in both of those instances, my mom still gets sick, right? So whether I go away or whether I test to some loose standard, I'm not providing the protection to take care of moms and kids, which is really our mandate as a company; how do we protect our most vulnerable consumers.

And we spent nearly seven years, six to seven years, trying to get these companies to work with us and just doing everything we could. And then in 2013, after all these years of trying to get the industry to work with us and to adopt this technology, we decided enough's enough. Let's just launch our own brand that thoroughly encapsulates all of our values. So at its core is food, purity and tested safe. But then we also look for social responsibility, environmental responsibility, ways to be sustainable, plastic neutral. We're on a path to being carbon neutral. All of these things are things that are important to us and the people that we feel gravitate to our products and to our brand.

Jeremy: So your standard, I think I remember reading is one-tenth the FDA allowed limit. Do you not trust the FDA, or why not just test to the FDA permitted limits?

Sean: Well, first of all, the FDA limit has changed over the years. It started off at 0.5 parts per million and it was later moved to one part per million. But what the FDA is saying is that that's not a good-for-you, bad-for-you limit. That's a limit that they have the right to take action on your product to remove from the shelves at that level. So instead of that, they have a maximum action limit, which is one part per million, and then they give recommendations through various channels to try to guide consumers to the right seafood choice depending on where you are in your life.

Jeremy: Of all the fish you test, what happens to the ... How many don't pass your limits and what happens to them?

Sean: Yeah. I mean, it's obviously ... It's ... You know what? We should back up a little bit, but I'll first answer this question for you. About a fourth of the fish that we test don't meet our certification standards, and our agreement with our fishing partners is saying that we will ... Everything that meets our complete standard of sustainability and quality and purity or mercury, we'll buy that fish from you on the spot. And if it doesn't, we just won't buy it. It's not illegal for sale. It's not a bad fish. It just doesn't meet our standards. And today we're set up in Thailand, where roughly half the world shelf-stable tuna is packed, over \$6 billion worth of tuna is packed in this region of Thailand. So for us, there are hundreds, if not a thousand different customers here that are ready to buy fish that don't have the same criteria around mercury. And they'll buy all the fish. So we are a drop in a very big bucket, but we're able to get access to a large amount of raw material here, a large amount of fish, so that we can find a suitable amount that would meet our standards for our customers.

Jeremy: Do you pay a premium for your fish?

Sean: Today, we don't. Today we don't. But the seafood companies know that we are fast payers. So when they come in, what meets our standards, we buy it on the spot. There's no bargaining. They come in with a raw material price from sea. We agree to it before it's even landed and we'll test through it. And they know that we want to buy everything that passes our test because the fish that we test that doesn't meet our standards still costs us money to perform that test.

And we have to return that fish back to them. So we're incurring additional costs to do what we're doing, but we don't have to yet pay a premium compared to the other suppliers in the marketplace.

Jeremy: But customers who want your fish do pay a premium. I mean, it's quite a bit more expensive than other ...

Sean: Yeah. I mean, we do. We we have to test each fish one by one.

Jeremy: So basically, you're selecting what you might call a better quality fish.

Sean: Yes. And it's that screening process and all of the work that goes into it, the technology and all of that effort, that's where that additional cost comes from. Some who buys fish straight from the fish port, they can put it right into the can. We have all these additional steps to qualify and ensure that that our standards are being met. Not only do we test the fish, we test the finished product, we test product off the shelves, we send it to third party labs. Food purity is everything to us.

Jeremy: You also ... You also sell sardines. I can't believe you test every sardine.

Sean: We do not test every sardine. That is correct. So the way the sardines work — and that's a great question — the way ... Because the sardines have a different life cycle, right? They're born, they grow, they die or get consumed traditionally in the same waters. They're not highly migratory species like a tuna is. They don't live as long as the tuna does. They're not at the same place on the food chain that the tuna is. For all these reasons, what we've found is inside the sardines, mackerel, herring, anchovies, we're able to apply a statistical algorithm to those and test somewhere between 100 to 500 sardines or herring or mackerel within that catch. And if in those 500 results they're underneath our certified standard for those items, we can then certify that catch.

Jeremy: Okay, So it's more of a batch process for them.

Sean: Yes, it is.

Jeremy: The other thing that fascinated me was that you do mercury tested cat food. Is that just the bits that didn't make it into the human process, or are you specially making cat food?

Sean: We're specially making cat food. What we've ... What we feel and what we know from our customers and who we deal with is, that people's pets, their dogs and their cats particular, their birds too, their pets are more than just pets. They're not accessories. They're part of the family. And we want to be able to provide the same quality products to every family member, regardless of whether that's a family member on two legs or four. So what we set out to do is look at that category and see what was happening. We realised that when it came to cats in particular, dogs as well, the heavy metal levels inside the cat food and the dog food can be up to between eight ... up to 600 times higher than you see in human food, because there's no regulation of the heavy metals and pet food. It's just kind of a free for all type of situation. So we tried to set out to meet even more stringent standards in a cat food than we do even in our human food. But we use the same quality fish. We don't use byproducts or second class ingredients. We use the same fish, the same quality and the same philosophy towards our cat food under the name Pure Cravings where Safe Catch is the human food.

Jeremy: I just want to come back to this price differential because I understand that it costs you more. But doesn't this mean that the benefits of having a higher quality product are restricted to the people who can afford to pay? I mean, it seems to me that you're sort of leaving behind a large number of people who would benefit, and maybe a large number of cats too.

Sean: Yeah. And we are ... We're hoping to continue to reduce the cost of our testing technology, where we're aspiring to do more for more consumers. We've only been in the canned tuna, or the seafood and pet foods. We've only been in the seafood space for about seven years. We've only been in the cat food space for about ten months. And so we're working to reduce the cost of our testing technology and try to provide this service to more customers.

Jeremy: You described yourself earlier as a drop in the ocean. And I'm sure that you're right. But do you see now any interest from other seafood brands?

Sean: We don't necessarily see some other interests from other seafood brands, but we do see some interest from other large retailers who are interested in using our certification and our technology and our seal on their store brands or their private label

brands. We see those collaborations as a key way for us to unlock the value of our technology and a better price point to help more people broadly.

Jeremy: And is your technology only valid for mercury or are there other contaminants of food that it might be applied to?

Sean: So our technology right now is geared to test for heavy metals. So the first heavy metal for us was mercury, because it was personal for me. But next on the list right now that we're working on is arsenic. Arsenic, then cadmium, then lead. These are the metals that we're working through. The reason we're so focused on arsenic is really for the rice and grain category. Traditionally, for infants and toddlers, their first meal after formula or breast milk is a rice-based formula. So when you look at a small baby or a toddler, they're going to be more susceptible to the negative impacts of heavy metal exposure than an adult would. So we're focused on arsenic because we feel like that would be the next greatest good we could apply our technology to.

Jeremy: And the technology. I mean, you've been very cagey about what it actually is. And it's not patented. It's a trade secret, I guess. Are you worried that other people are just going to find the same way of doing things?

Sean: Oh, well, you know, any good business encourages competition, that's for sure. But the tragedy with patenting a technology is most of the places that we do business don't honor USPTO trademark law or patent protection. So they could go onto that website and just get the blueprints of how we do it and just make it anywhere. So we have kept the technology trade secret and we've worked with groups like the AOC and others to ...

Jeremy: What's that?

Sean: The AOC is a certification body. They certified our technology for its accuracy ... to such that it meets our claims. And so that is something that someone could look up and see the AOC, look up our company and see our technology listed there as being validated, and we would be able to show it. So that's how we had to prove our the integrity of our results and the robustness of our platform.

Jeremy: And where do you see the technology in, say, ten years time?

Sean: Well, in ten years time, our technology, we hope to be fully automated. So one of the key cost drivers for our machines is it's still very labor intensive in that we have to bring the fish to the machine, test it by hand, carry the fish to either purchase or return bucket. All of that is done by hand. That's a huge part of our costs. We feel that if we can get to a fully automated system, we should be able to do this for single digit pennies as opposed to what we pay today. And that would be a reduction in a ten-x magnitude. And then this technology and the services is available broadly. It would not be cost prohibitive to anybody.

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