

## Not your mother's fish sticks: OSU Seafood Lab focuses on production, quality, safety

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*Christina Mireles DeWitt, director of the Oregon State University Seafood Research and Education Center for nearly five years, gives a tour of the facility Monday, including a seafood processing lab and a brine injector used in research on the shelf life of products.*

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### Seafood experts research under the radar in Astoria.

Unknown to many locals, Astoria is home to the only dedicated seafood experiment center on the West Coast.

Oregon State University's Seafood Research and Education Center — the OSU Seafood Lab — is located in a wood-shingled academic hall on Marine Drive. The center, which held an open house Monday, focuses on how to improve the ocean's bounty.

The center is directed by Christina Mireles-DeWitt, a former research assistant at the lab who moved from Oklahoma to take the helm in 2010 as director and a professor of food science and technology. Mireles-DeWitt said there is often the misconception that the lab is involved in live fish, hatchery or environmental research. The lab is associated with the Coastal Oregon Marine Experiment Station at the Hatfield Marine Science Center in Newport. But it falls under the university's Food Science and Technology department and was established more than 75 years ago to help the fishing and seafood processing industries.

"Most people don't understand that we aren't marine biologists," Mireles-DeWitt said. "We're food scientists."

### All things seafood

The center includes three labs focusing on production, quality and safety of seafood. It averages 10 to 15 graduate and doctoral students who come from around the world, each taking on their

own projects.

In one lab, students work under Jae Park, a world-renowned researcher of surimi, the gelatinous fish protein processed from inexpensive seafood into a wide variety of products, most famously imitation crab meat. An annual surimi school draws hundreds from the global seafood industry.

“Dr. Park is at the top of his field,” said graduate student Kaitlin Junes, an Astoria native back in her hometown to study how to market “sea vegetables,” such as seaweed as she pursues a master’s in food science.

Yuka Kobayashi, from Japan, is a doctoral food science student at OSU researching how to isolate protein from seafood. Hyeonwoo “Howard” Park is a visiting graduate student from Korea testing the texture of surimi made with different fillers, such as salt, egg whites and potato starches.

In the next lab over, students study seafood quality control, from trying to increase the shelf life of products to creating a device to test when the fishy smell means a product has expired.

Doctoral student Jinhwan Lee, also from Korea, said he focuses on a bad enzyme introduced to seafood products during frozen storage that causes the growth of formaldehyde and toughens fish fillets over long periods.

“My goal is to figure out how to block the enzyme” and increase the shelf life of fish fillets, Lee said.

In a third lab, overseen by seafood microbiology and safety professor Yi-Cheng Su, students research how to keep seafood products safe for consumption, with a focus on products eaten raw. Graduate student Xiaoye Shen from China studies how to better remove toxins from raw oysters, using a closed recirculation tank with clean seawater.

Shen said the lab purposely introduces pathogens into oyster samples, before letting them stay in the lab’s recirculation system and adding natural compounds in hopes of making the process more efficient in removing toxins.

### **Industry-focused**

The seafood center started in 1940 as an effort to improve the science of seafood.

“We get a lot of requests from people to come here and study from all over the world,” Mireles-DeWitt said.

All the students at the center are supported through assistantships funded by the university, she said. Getting in is a matter of when one of the seafood center’s three professors are available and have grant funding.

“Just having a cadre of students is really important because they need that kind of support to be successful here at the lab,” Mireles-DeWitt said. “If you’re the only student in a town that’s away from a bunch of other students, it’s kind of lonely.”

The seafood center is advertising for a fourth faculty member, she said, as it tries to help the seafood industry develop markets, particularly in the health industry, for the byproducts of seafood processing.

“What’s happening right now, is the seafood industry is looking at ways to take the product that they’re not utilizing ... and figure out ways to maybe isolate the protein to add value to it.

“Think about what the dairy industry does for whey. Whey we used to just throw down the drain. In cheesemaking, there’s valuable protein, and the industry figured out how to capture that protein, and now whey’s an important ingredient in tons of products. It’s actually more valuable than the cheese now. We want to do the same thing for the seafood industry.”