

TUNA GOES TO MARKET

EXPERIMENT STATION RESEARCH HELPS LAUNCH NEW MARKETS FOR OREGON SEAFOOD THROUGH THE COMMUNITY SEAFOOD INITIATIVE

BY ALICE CASCORBI

You love tuna, but the news about mercury and seafood has you confused.

If you're about to cross albacore off your shopping list, take heart! New research from Oregon State University shows that albacore tuna caught off the West Coast of the United States is not only low in mercury but also high in healthy oils. But how can you tell where the fish came from once it's in the can?

OSU's Agricultural Experiment Station is helping consumers learn the "who, what, where and how" of albacore caught and canned in Oregon. At the same time, they're helping Oregon fishermen find new and better markets for their seafood. It's part of the Community Seafood Initiative (CSI), a partnership that brings together the research expertise of the experiment station with the financial expertise of ShoreBank Enterprise Pacific, a nonprofit community-development finance institution.

With the help of CSI, at least one brand of Oregon canned albacore already has information on its label with the name of the fishing boat, where the tuna was caught, and what kind of fishing gear was used. Soon

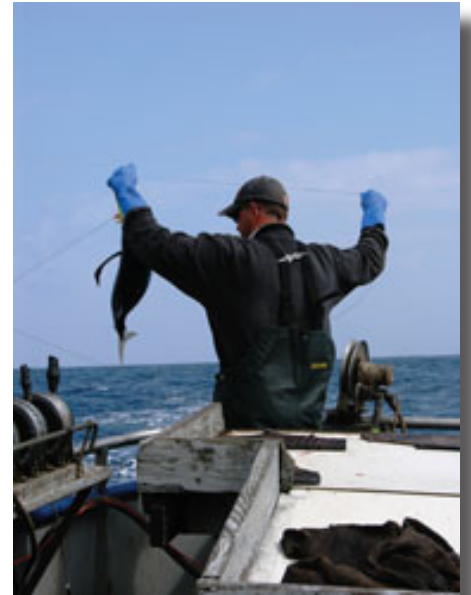


Albacore is barcoded at sea with information tailored to market needs. Photo, M. Thompson

you'll be able to go online, enter a tracking number that's printed on the label, and find out more about the fish you are about to eat—including its omega-3 oil and mercury content. No more anonymous fish in a can.

Oregon's seafood—Pacific oysters, pink shrimp, Dungeness crab, coho and chinook salmon, albacore tuna—ranks among the finest fresh seafood in the world. But isolation and economic downturns have kept Oregon's coastal communities from reaping the full benefit of that acclaim. Historically, much of Oregon's ocean bounty has been sold in bulk to large commercial fish processors. This left fishermen and coastal communities at the mercy of market booms and busts that follow such volatile commodities. For example, sixty years ago, canned sardines put bread and butter on fishermen's tables. But when the sardine population crashed, fishermen and canneries scrambled to find markets for other fish. The salmon boom of the 1970s was followed by a salmon crash in the 1980s and 90s.

In addition to facing unpredictable swings in the availability of fish and the constant challenges of ocean conditions, local fishermen have increasingly had to compete with fisheries from around the world. Until the mid-70s Bumblebee Corporation had their international headquarters in Astoria, Oregon. But over the years, Bumblebee and other large canneries offshore, to American Samoa, Thailand, and other places



Landing an albacore off the Oregon coast, OSU researchers will tag and track the fish from where it is landed to where it eventually will be sold. Photo, M. Thompson.

where labor costs are cheaper. Oregon tuna fishers were left with no corporate market for their albacore.

Through the Consumer Seafood Initiative, OSU researchers hope to provide more markets and opportunities for fishermen and their coastal communities. The initiative's partners connect people to sources of capital for funding new businesses, to scientific expertise for developing new products, and to basic research for finding new and better ways to handle seafood from boat to market.

"Access to venture capital broadens the reach of applied research at OSU, especially in rural communities," says Michael Morrissey, director of OSU's Seafood Laboratory in Astoria, part of the Coastal Oregon Marine Experiment Station. "We're involving entrepreneurs from the beginning—not just presenting them with research."



Fresh chinook is sorted for market at Trident Seafood in Newport. Photo, Lynn Ketchum.

Having the financial expertise of ShoreBank Pacific Enterprise has been a source of strength for the Consumer Seafood Initiative, according to Morrissey. After receiving word that the original proposal to create the initiative had received a \$500,000 grant from the U.S. Department of Agriculture's Funds for Rural America, Morrissey recalls that he and the other scientists "were all sitting around toasting our success. Then the ShoreBank people said we'd really need another half-million dollars to make this work, and our jaws just dropped!" But with Pacific Enterprise's expertise, the CSI was able to secure an additional \$700,000 grant from the Kellogg Foundation.

Another partner in the Consumer Seafood Initiative is the Duncan Law Seafood Consumer Center in Astoria, a facility made possible in part by the energy of former OSU food science professor Duncan Law. With teams of food scientists, market specialists, product developers and a full-time on-site master chef, the Seafood Consumer Center focuses on designing value-added seafood

products through a busy schedule of workshops, demonstrations and seafood cooking classes.

In 2002, research at OSU's Seafood Lab helped CSI launch its first value-added seafood project, developing prepacked oyster shooters and an in-the-shell shucking method to add value to the region's farm-raised oysters. CSI partners are helping to develop business plans for a fishermen's market in Newport, where fishermen can sell their fresh seafood directly to consumers, chefs, and retail markets. In addition, CSI partners have developed a computer simulation to help coastal communities plan cold-storage facilities, essential for marketing fresh seafood.

Now the CSI team has turned its attention to an Oregon seafood product with plenty of untapped potential: albacore tuna.

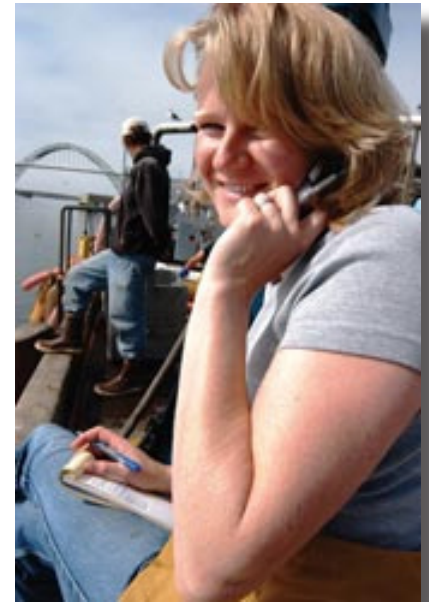
Oregon's albacore has three advantages in the marketplace, according to Gil Sylvia, superintendent of OSU's Coastal Oregon Marine Experiment Station in Newport. It's caught in an environmentally sensitive way; it's high in healthful omega-3 fatty acids; and it's low in mercury.

Oregon's albacore fleet is almost all small-scale, often with family crews, according to Sylvia. The tuna is caught by trolling, pulling multiple lures on multiple lines behind a moving boat. Unlike the purse-seine nets and longlines used to catch most tuna, troll gear catches very few unwanted fish and has no problems with dolphins.

The high levels of omega-3 oils come from the rich diet that migrating albacore find in West Coast waters. As the fish fatten up after their long trek from the western side of the Pacific Ocean, they become full of the natural fatty acids that protect human heart and brain function.

And OSU's research shows that the albacore caught along the

Oregon coast have less mercury in their tissues than most brand-name canned tuna. Mercury enters the environment from both natural and man-made sources and builds up over time in the meat of predatory fish like tuna through a process of bioaccumulation. A 2003 federal government study found relatively high levels of mercury in commercially canned albacore. But those canned fish were older, larger albacore caught in the southern Pacific. Morrissey, along with graduate students Tomoko Okada and Rosalee Rasmussen, found that younger, smaller albacore, like those caught along Oregon's coast, have far less mercury in their meat.



While workers offload salmon at Newport, Laura Anderson of Local Oceans Seafoods works the phone to market the fresh catch to restaurants and retailers around the Northwest. Photo, L. Ketchum

"They're fabulous fish," says Michael Thompson, OSU Extension Sea Grant's new specialist in Astoria who has been working with Morrissey to develop on-board handling techniques for albacore. "The question is, how can we get Oregon albacore into new markets so fishermen don't have to rely on traditional canneries?"

Working 18-hour days side-by-side with fishing crews for up to



OSU faculty research assistant Sean Carroll photographs albacore tuna flesh in a "lightbox" to test different methods of handling fish to maintain the highest quality. Photo, Lynn Ketchum.

two weeks at a time, Thompson is researching the best ways to handle those fabulous fish from hook to market. "Albacore are basically warm-blooded," says Thompson. "They come over the stern of the boat fifteen to twenty degrees warmer than the water." The first hour on board is critical—"a fish that's treated badly on the boat can never improve in quality later," says Thompson. His research is developing a menu of good options that fishermen can use to preserve the quality of their catch, ways of bleeding, cooling, and storing the fish to preserve freshness and flavor. And since fat content is important in the marketing of the fish, Thompson's group is working with other researchers to test electronic methods for measuring the fat levels of each individual fish as it comes on the boat.

"The new methods must be efficient," notes Thompson. "Fishermen just don't have a lot of extra time." So Thompson's team works on board the fishing vessels to test

techniques in the field.

OSU's research is showing how just a little extra time can pay off big when Oregon albacore reach specialty markets, including health-conscious buyers of fresh-frozen fish and Japanese sashimi wholesalers. Part of OSU's initial research proved the worth of on-board super-cold blast freezers to preserve tuna quality while still at sea. "They're a must for the sushi market," explains Thompson.

Laura Anderson agrees. Better than ice or brine at keeping fish



This device determines the body fat in albacore tuna, making it possible to sort fish by fat content for different markets. Photo, Lynn Ketchum

fresh, "with a blast freezer you're really capturing all those intrinsic wild qualities of the fish. At a temperature of minus 40 degrees F, you're really sealing in the integrity and freshness of the tuna," she says.

Anderson is an OSU graduate who says she "jumped ship from academia to entrepreneurship" to start Local Ocean Seafoods, a wholesaler which buys directly from fishermen and markets seafood across the Pacific Northwest. Local Ocean packs Oregon albacore and salmon under its own label, canned by small-scale canneries in Charleston, Oregon.

"Bumblebee and Star-Kist steam

their tuna before canning, which drips away most of the natural oils, including the omega-3s," says Anderson. "Hand-canned fish are cooked in the can, so they retain those oils and all the health benefits." Local Ocean is just one of many firms marketing hand-canned tuna from the West Coast. "It's kind of a neat thing," says Anderson. "Kind of like the Northwest micro-breweries. It's a regional product with many local sources."

But no matter how well handled it is at sea, not every Oregon albacore is created equal. Albacore tuna is something of an oceanic individualist, not spending much time in schools. A challenge to marketers has been inconsistency in the product. In a day of trolling, a single boat might catch lean fish that just arrived from across the ocean and fat fish that have been feeding here for months. There may be younger fish with very low mercury levels and older fish with higher levels. How do you market such a mixed bag?

CSI's newest venture is the



Research by OSU graduate student Rosalee Rasmussen and others at the Seafood Laboratory in Astoria determined that mercury levels in locally caught albacore are much lower than in albacore caught and canned in the South Pacific. Photo, Lynn Ketchum



Some 40 tons of Pacific sardines were processed during one recent night at this cannery in Astoria, reminding old-timers of the sardine boom of the 1930s.
Photo, Lynn Ketchum.

Traceability Project, using computerized barcodes to tag individual fish as they are landed on-board the boat and to track that fish through buyers and processors all the way to the consumer. Thompson is testing the tracking system this fall, hoping to launch an easy-to-use database for consumers by early next year. As each fish is caught, a barcode tag is attached to its tail fin. Each barcode tag has a unique tracking number linked to an online database that records data as the fish journeys from ocean to market. Different markets and stakeholders will be able to enter the tracking number and find information tailored to their needs: where, when and how the fish was caught; its size and fat content; even if any unwanted fish were thrown back as so-called bycatch.

“We look at seafood traceability as a positive marketing tool for fishermen,” says Morrissey. Because of recent news about mercury-contaminated seafood, mad cow disease and the potential for bioterrorism, government agencies and individual consumers are paying more attention to where food comes from.

Besides the local canned albacore, Morrissey, Sylvia and their

food-science colleagues at OSU are working with chefs to develop other products from Oregon tuna. These include sushi-grade albacore belly, an oil-rich pâté marketed to Japanese sashimi brokers, and frozen albacore loin, distributed to many West Coast markets through Eco-Fish, an independent wholesaler of sustainable seafood.

Similar initiatives for Oregon’s pink shrimp and Dungeness crab are in the works. The CSI recently received a grant of \$80,000 to help see Oregon Dungeness crab through certification as a sustainable fishery by the independent Marine Stewardship Council. Once certified, the crab can bear the MSC label and claim a share of the value-added market for sustainable foods.

With the traceability database scheduled to go online in early 2005, the CSI partners hope to see their work with albacore distinguish Oregon tuna in national and international markets. Local Ocean Seafoods already uses the tracking system for its canned salmon and albacore. On every can, you’ll find the name of the boat that caught the fish, the skipper’s name, and the tracking number that will connect to



The Traceability Project makes it possible to tell where, when, how and by whom fish were caught (above and below). Photos, Lynn Ketchum.



CSI’s database.

“Traceability is a guiding principle, part of our mission,” says Laura Anderson. “We want you to know as much as you possibly can about the fish you eat. This connects everyone who buys a can of tuna to the fisherman and to the ocean—to the source of that fish in that can they’re holding in their hand.”