

# **A Brief History of Fish Processing in California and Oregon**

Zeke Grader, Executive Director  
Pacific Coast Federation of Fishermen's Associations

Good morning. I wish to thank the organizers for this opportunity to present a brief history of fish processing along the Pacific Coast of California and Oregon, and allow me to recollect some childhood memories of "laying about" in fish houses and fishing boats in my "home port" of Fort Bragg. As many of you know, the past 25 years of my career have been spent representing commercial fishermen as the executive director and counsel for one of the nation's larger fishing organizations, and much of that time has been dedicated to fish and fish habitat conservation. But my own roots were shoreside, where my father owned or was partners in fish processing plants in northern California and Oregon.

My first recollections of fish processing were from the early 1950s watching fish scraps – from fillet lines cutting sole and rockfish – along with whole sardines and herring being ground and cooked for fish meal. The "flour" made from this process went for fertilizer and animal food – mostly for mink. This was, perhaps, the most vivid memory since a great deal of time as a pre-schooler was spent, to the chagrin of my mother, diving into the mounds of fish flour on the floor of the reduction plant. Fishing ports were fascinating places for young boys. Not only was there the activity of the fishing boats coming and leaving port, unloading their catches and working on the gear, but there were the engine repair shops and the boat builders where hours were spent in fascination watching engines and boats come together.

Much of that boyhood, after school on weekends and during the summer, was spent watching the fish processing – the women on the fillet lines extracting the white meat from the sole and cod to be packed in ice for fresh markets in San Francisco or Los Angeles or to be spread out on racks and individually frozen for some institutional customer. There was the cooking and the picking of Dungeness and pink shrimp where the meat was packed in five-pound tins for either fresh markets or to be frozen. Blackcod were filleted, hard salted and packed in small barrels for the salt cod trade. In the coffee shop I would listen to stories of the older fishermen, those who were too old for service in World War II, talk about fishing basking shark for their livers during the forties, before there were synthetic vitamins.

My first experience working, not just messing about around a fish house, was making fish boxes from white or "piss" fir for shipping iced salmon to the Los Angeles market. The king salmon, and later coho or silvers, as hatcheries on the Columbia and along the coast came into full production, were dressed and headed and iced for overnight shipment by truck into the urban markets. These were troll caught salmon, much of it "day fish", but some "trip fish" from boats that fish further from port and kept the fish on ice in the holds for anywhere from four to ten days prior to delivery. Until the early 1950s most of the troll salmon, as was the gillnet fish landed in the San Francisco Bay Delta fishery and the Columbia River, was delivered in the round. Some of my earliest memories were of my father trying to convince fishermen to dress the fish at sea to improve the quality for both the fresh markets and the mild cure trade. Salmon were prone to "belly burning" particularly when they were feeding on shrimp and it was important, therefore, to clean them soon after being landed. The small, up to eight pounds and medium kings, eight to 11 or 12 pounds, along with most of the silvers, went to the fresh market or were frozen, some for export. The large kings were split and mild cured.

Graduating from making boxes was being put on the "slime table." At my father's plant that meant five or six of us trying to keep pace with Mel Davis. Davis, a giant of a man, started splitting salmon at the age of 18 in 1900 at Pittsburg along the Delta. He had, by the time I encountered him, then in his seventies, worked along the whole of the Pacific Coast, from the Delta to Alaska and was regarded as the one of the best, if not the best, salmon splitters on the coast. A good salmon splitter was not just fast, but could cut a salmon leaving very little meat on the back bone and in such a way that the side of fish would ultimately make a fine presentation and be easily sliced for lox. Fish split and packed by him, with his own seal on the tierce, brought a premium price among the New York smokers where the barrels of mild cure salmon from the Pacific were shipped for the light cooking and smoking process to make lox.

Not only was Davis adept with his knife, he was a stickler for quality. I remember those on the slime line feeling his wrath if all of the loose skin and blood was not removed from a side of fish. And then there was Mel, brandishing his knife, chewing on a fisherman whose salmon was improperly cleaned, its flesh cut, belly burned, or even kept to cold in the hold where it may have partially frozen. Davis was the teacher we all feared, but learned well from. I can still picture him early in the morning fastidiously sharpening his knives and then warming his gnarled arthritic hand under water before wrapping it

around the knife to begin his day. He did not believe in retirement and, other than his love of women and Wild Turkey, his work kept him going into his late eighties when failing eyesight forced him to quit.

By the time I was 16 I was finally entrusted in packing the sides of salmon in the tierces, placing them carefully row by row with salt between each and then filling the barrel with salt brine. Packing the fish also meant coopering the barrels, each holding 800 pounds of sides. Wielding a five pound hammer to adjust the rungs and wrestling the barrels into the cold box, onto box cars or trucks for the trip east was better than working out with weights in a gym.

The salmon that was unfit for mild cure or the fresh market because of cuts, sea lion damage, or belly burns, was cut removing the damaged flesh, salted and cold smoked, Indian style, in the fish plant's smoke house, in a slow four to seven day process over alder wood. It was then sold locally, mostly to bars, where the saltiness assured good beer sales. At the end of the summer, before going back to school, the albacore began arriving, coming off the trollers either iced or frozen whole. Along most of the coast, this meant simply loading these tuna in bulk, with ice, in trailers to go to the canneries on either the Columbia or in southern California. The main canneries at the time were the Columbia River Packers Association's Bumble Bee plant at Astoria, and the StarKist and VanCamp operations in San Pedro.

But enough about a boy's "fish camp." The purpose of this paper is to take at least a cursory look at the history of fish processing in California and Oregon. It is, indeed, a rich history and I will only be able to give a brief look at it here. For those of you looking for more information the best single source I can recommend are the old Reports of the U.S. Commission of Fish and Fisheries and the later Reports of the Commissioner of Fisheries and the Bulletin of the Bureau of Fisheries. For more current information there are the Reports of the Bureau of Commercial Fisheries and NMFS' annual Fisheries of the United States.

Salmon, of course, is the most important of the Pacific Coast fisheries. Salmon have been to the North Pacific what cod was to the North Atlantic. Salmon, as we all know, were important to Native American populations along the Pacific and along those major rivers where the fish spawned in mass. Indeed, first fish processing was the drying and smoking, usually with the fish butterflied and on racks over open fires, done by native peoples to preserve the salmon meat. The non-native salmon fishery began in 1848 on the Sacramento about the same time as gold was discovered in California. The fish provided an inexpensive food stuff, and by the early 1850s there was enough of an industry along the Sacramento and San Joaquin and their tributaries and the Delta that salt cured salmon were being exported to Australia. In 1864 William Hume opened, with some partners, the first salmon cannery on the west coast at Broderick, across the river from Sacramento. The salmon cannery had difficulties since fresh salmon could be readily had by San Franciscans but a market was soon found for the canned fish in Australia. In 1867, Hume moved his operation to the Columbia River. There were later salmon canning operations on the Sacramento, as well as at Requa on the Klamath River. The biggest canning operations, however, in the lower 48 were on the Columbia, and full-scale canning operations for salmon and albacore remaining on the Columbia through the 1960s. By the turn of the century California, where salmon canning had begun, ranked last among the states in canned salmon production. There were only three salmon canneries left in the state – two on the Sacramento River and one on the Klamath.

The salmon used by the canneries were almost exclusively taken by gillnets in the rivers. There were a series of improvements made in the canning operations by the turn of the century, including heading and gutting machines and better soldering processes. Advancements in technology were beginning to change the salmon fishery, most notably better refrigeration methods and the gas engine. Refrigeration made possible mild curing of salmon. Mild curing, as the name implies, is a lighter salting process that does not remove the amount of moisture from the flesh the hard, or traditional, means of salting fish does. It therefore requires some refrigeration. The mild cure method is superior to hard salting for lox. At the turn of the century, even some of the canneries were engaged in the mild curing salmon.

Ocean trolling for salmon had also begun around the turn of the century. Ocean fishing ,for salmon, made possible for small boats by gasoline engines, made it no longer necessary to wait for the fish to arrive in a river on their spawning migration upstream. It also made it possible to get the salmon in prime condition, prior to entering the rivers where the flesh began to darken and discolor and lose fat. The development of trolling, refrigeration and the mild cure and fresh markets went hand-in-hand.

The significant changes in salmon processing since the early 1900s have come about primarily in the past two decades. Salmon gillnetting in the lower 48 is now mostly a tribal fishery, no longer supplying canneries. There are no large-scale salmon canneries left in the lower 48. Mild curing, too, has changed as most of the "smoke" and lox trade has switched to

farmed Atlantic salmon which, while the quality is not as good, are at least a dependable source compared to the highly erratic production of wild salmon in recent years.

Since the 1970s the processing and, in particular, the marketing of salmon in California and Oregon has vastly changed. The decline in wild fish production, attributable to decades of devastation of salmon habitats, had taken its toll. Moreover, the traditional markets for fresh and frozen Pacific salmon in Europe and much of the U.S. had disappeared as farmed Atlantic salmon moved in to fill the demand left by shortfalls in production and erratic supply of wild fish. Japan has remained a regular customer of frozen Pacific salmon. Changes in processing and product form, such as salmon, have been coming out of Alaska, but mostly California and Oregon kings (the coho fishery was stopped in 1993) are coming out of Alaska. The one significant, and hopeful, change has been a great consumer awareness and reaction to farmed fish. That, combined with a recognition that the troll fishery (and Alaskan) for wild salmon is being conducted pursuant to regulation aimed at sustainability, have helped to increase demand and prices, for both fresh and frozen California and Oregon-caught salmon in the last year.

Tuna canning started around 1909, when a sardine canning firm started experimentally packing albacore. By 1914 production had reached 400,000 cases. Albacore were initially used because they were found close to shore, but as vessels were able to travel further yellowfin and skipjack tunas were also packed. The large-scale promotion programs in the 1950s of canned tuna helped to make it a staple in the American diet. Most of the canning operations were centered in either San Pedro, with one cannery in San Diego, or on the Columbia River. The impact of restrictions on the U.S. purse seine fleet to protect porpoise led to a number of U.S. vessels going foreign flag. That, combined with high U.S. wages and incentives offered by U.S. trust territories to locate canneries on their shores, led to a migration of tuna canneries offshore, with only one cannery left now on the U.S. mainland.

Two important changes are now occurring in the tuna fishery. First, there is a growing demand for tuna in the white tablecloth restaurants as a fresh product. Second, canning itself may be on the way out. Recently H.J. Heinz Company, packers of StarKist brand, announced they will begin packing tuna in foil packs.

No report of fish processing would be complete without a discussion of sardines, which, for a period, were a major west coast fishery. The first sardine cannery on the west coast started in 1890 in San Francisco, but by early the next century operations had begun in southern California and Monterey Bay. These canneries packed not only sardines, but also anchovy, mackerel and squid. The heyday of the sardine fishery was in the late 1930s and 1940s. Here I will refer you to the works of John Steinbeck and Ed Ricketts, who were there and are better writers than me. It should be noted, however, that not all of the sardine production went into canning. Indeed, as the fishery expanded an increasing amount was going for reduction – to make fish meal and fish oil by the time the stocks collapsed in the early 1950s. The resurgence in sardine populations, after nearly a fifty year hiatus in that fishery, has led to the establishment of new canning facilities at Monterey Bay. There has also been interest expressed in moving this fishery into fresh markets where prices are higher and it would be possible to employ more vessels, gain a higher economic return from the fishery and keep the catch level down.

The processing of groundfish has principally been fillets, either for the fresh or frozen markets. The advent of otter trawling in the 1930s was the big impetus to the development of the groundfish fishery and pink shrimp fishery off the Pacific Coast. There had been a shrimp fishery conducted by Chinese immigrant fishermen beginning in the 1870s in San Francisco Bay, but there had never been any major fishery for shrimp offshore (the Chinese dried or cooked the shrimp taken in their fishery). Freezing equipment had been developed in the early part of the century, but it was Clarence Birdseye who got food freezing for sale to the public started. With that came, of course, such products as bread sticks, and here on the west coast, as was the case elsewhere, the individually quick frozen (IQF) fillet for both home and institutional use. Other than freezing equipment and advances in technology there, the other significant change in processing of groundfish, including rockfish, has been the use of filleting machines and, in the shrimp fishery, the use of shrimp picking machines replacing labor-intensive hand picking.

As I said at the outset, today's presentation is only a cursory history but I would be remiss in not mentioning herring and squid. While the herring fishery in California is pursued for its roe for the sushi trade (Kozonoko) the processing that occurs stateside is nothing more than bulk freezing. All west coast fishery is bulk frozen in either one-pound or five-pound packs, with some deviation depending on the market or customer. There is some individual freezing of squid pieces for frozen retail sale but, to date, the bulk of squid processing is still bulk frozen, with a large amount of the product going to markets in mainland China.

Fishing and fish processing along the Pacific coast has always had a special fascination for me, and I regret there is not the time here to provide more detail. The changes I see in the future will be aimed at higher-end products, more value added and making fish more consumer-friendly. Thank you again for this opportunity to discuss fish processing, which, aside from fishing and eating fish, is my favorite subject.