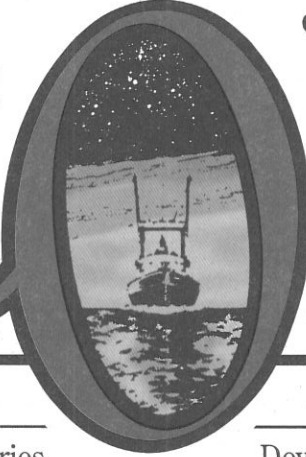


the **LODE** **STAR**



Charting the course of fisheries development today

Alaska Fisheries

Development Foundation, Inc.

Volume XIV Issue I, Winter 1997

APPASSIONATA OF POSSIBILITIES

"My taste buds are shot," said Bob Arnold as he set down his last salmon-soaked toothpick, hitched up his apron, and reached for a tall bubbling beer. "But I'll tell you, that was an impressive array of products."

Arnold, who heads up Marriott's corporate purchasing and knows his fish, was one of six judges who assented to barrage his palate with 36 different products — ranging from salmon corn dogs to a baked pocket sandwich — for the Fourth Annual Symphony of Salmon contest in Anchorage in January.

In the past four years, the contest has grown to become the nation's biggest showcase for new value-added products made from Alaska salmon. It's open to producers worldwide — this year entries came from seven U.S. states, Thailand and Canada — who are creating new ways to use Alaska wild salmon. The popular event not only spreads the word about new Alaska salmon products entering the market, it also gives producers important feedback about the flavor, texture, desirability, presentation, packaging and overall marketability of their new products from chefs, restaurateurs, food editors and food service buyers.

Arnold was joined on the judges' panel by famed chef Anne Willan, National Fisheries Institute executive v.p. Lee Weddig, Tom Hassenauer of Food Services of America, Applebee's International product development manager Pam Brittendall, and Food Arts Magazine writer Jackie Lees. Along with a crowd of sponsors, organizers, contestants, paparazzi, waiters in "Symphony of Salmon" tee-shirts and everyday restaurant customers, they gathered at the Glacier BrewHouse, a downtown Anchorage brewery and restaurant, amidst brightly colored banners, posters, ceramic fish lamps, the Borealis String Quartet and a roaring fire in the stone hearth.

The judges sniffed, tasted, inspected packages, sipped water, stepped over TV camera cords and bore the penetrating glances of a couple hundred onlookers for two hours through three categories of entries: retail, food service and gift/specialty items. Their scores were tabulated by computer while the thronging public were invited to sample what was left of the hundreds of pounds of product samples that were submitted.

The winners

Grand prize honors went to the tureen of Smoked Salmon Chowder, made by Trapper's Creek Smoking Company of Anchorage, winner of the retail category of the contest. The chowder blends smoked red salmon, corn, potatoes, carrots and onion in a cream base, lightly seasoned with dill. Judges rated the chowder highest for flavor, texture and overall eating experience. "Good mix of ingredients," commented one. Another: "Good luck, lots of competition!"

First prize in the food service category went to 49th Star Alaska Salmon Pouch, a trademarked idea that North Pacific Seafoods has pioneered, and which has been on the market for 18 months. It's a skinless, boneless flaked salmon with a texture similar to tuna's, is packaged in a foil retort pouch, and is shelf-stable up to five years.

Judges gave the Alaska Salmon Pouch high marks for taste, texture, packaging and market potential. "Excellent alternative to canned," wrote one.

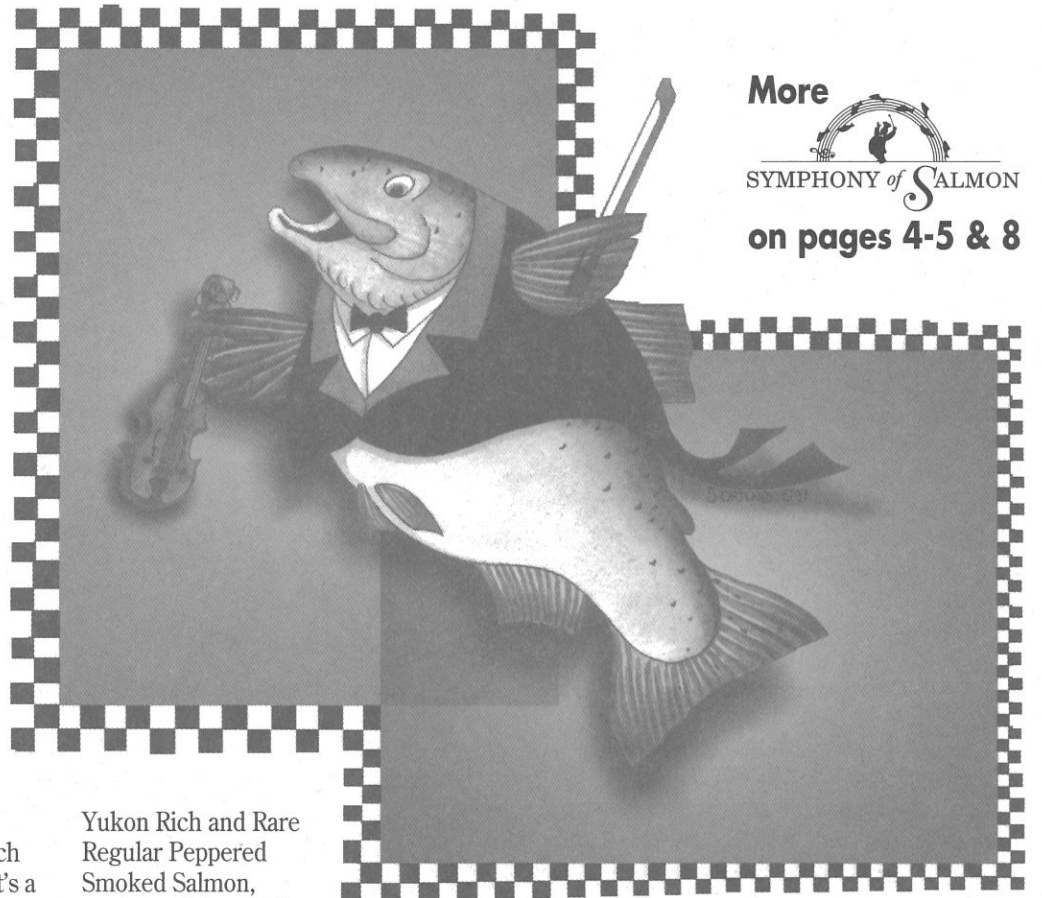
In the gift/specialty category, Honey Glazed Smoked Salmon won first prize for Northern Discovery Seafoods of Grapeview, Wash. Of the various smoked salmon items submitted, judges rated this one highest on its visual appeal, "lovely color," and pleasant flavor. "Nice cure," wrote one.


All three winners will receive transportation and free booth space at the International Boston Seafood Show, and booth space at Japan's FOODEX. Trapper's Creek, the grand prize winner, also gets extra cash for marketing. And the enthusiastic BrewHouse, where the Symphony found a happy home this year, gave the winners and the whole contest a lot of great free publicity.

AquaFoods, Inc. won second place in the retail category for their Boneless Alaska Pink Salmon Pocket Meal, and a Salmon Teriyaki made by The Fishin' Place won third place.

Second place in the food service category went to Ocean Beauty Seafoods, Inc. for Salmon Fajita Strips, and third place to Iceland Seafood Corp. for Salmon Sensations: Salmon with Citrus Pepper Glaze.

In the gift/specialty category, Portstix Salmon Jerky, made by Port Chatham Smoked Seafoods, took second place, and



More 
SYMPHONY of SALMON
on pages 4-5 & 8

Yukon Rich and Rare Regular Peppered Smoked Salmon, made by Yukon Delta Products, Inc., won third prize.

What an array!

"I see a new level of quality of these products over previous years," said Arnold, whose Marriott Corp. buys \$125 million worth of seafood each year, including \$2 million to \$3.5 million worth of Alaska salmon products. "And what an array! I was impressed with how far the Alaska salmon industry has progressed in just a couple of years as far as new-product development."

Food Services of America's Tom Hassenauer said some contest entrants paid more attention to packaging than others. "Window dressing counts," he said. "I scored lower for plain white boxes, because they're too easy to lose in the freezer."

Lee Weddig of NFI found some of the products "really impressive," but he said the overall marketability of new Alaska salmon products depends entirely on the muscle behind the punch.

"These days, breaking into retail is harder than ever," he said. "You have to be able to buy your way into major retail chains. You're basically buying shelf space. Then if your product doesn't sell you might have to buy it back at retail price. How many of these smaller producers can even consider these costs?"

When the judges were finished tasting all entries in each category, the marauding throngs were allowed to have their way with the remaining food. "I don't even like salmon and I like this!" called out one spec-

tator with a mouthful of Molly's Salmon Roll Hors D'oeuvres.

"The everlasting stamp of approval for value-added salmon products: I don't like fish but I like this," Weddig chuckled.

Meanwhile, BrewHouse owner Chris Anderson, a former Symphony judge and a chef himself, grinned ear to ear. "I want to be the kind of businessman who does something more than make money," is how he explained his restaurant's investment in the Symphony. "This is my way of supporting Alaskan fishermen and processors, letting them know we're in the trenches with them. We're in a war for market share. Let's kick some butt!"

The string quartet played on. Drams of beer were quaffed. Eighteen hundred servings of value-added Alaska wild salmon dishes disappeared faster than ice in a potter's kiln. Anderson watched the frenzy with a kid's enthusiasm. "After all," he said, "when this product is handled right, it's so good it's scary."

PROUD TO BE THE CONDUCTOR

AFDF is proud to be the conductor of the Symphony of Salmon. If you want more information about the Symphony, or want to sponsor or enter next year's contest, please call me at (907) 276-7315.

— Loretta Lure
Program Director

Salmon quality: How to make it last longer

by Tom Jones and Krysl Holmes

When a salmon buyer rejects product because of flavor, odor or color deterioration, look to oxidation for your culprit. Consumers judge the quality and value of salmon by their sensory perceptions — the taste, look and smell of the fish — all of which deteriorate as oxidation progresses. Salmon flesh, with its highly unsaturated lipids, is particularly vulnerable to oxidation damage. Salmon producers who want to deliver product of higher, more consistent quality are beginning to work with various antioxidant treatments to help extend the shelf-life of their products.

What is oxidation, and how does it work? In salmon, lipid oxidation is launched and accelerated by several factors: heat during retorting or cooking, chlorophyll from ground spices, over-exposure to intense light in retail seafood display cases, contact with oxygen, processors' salt and water used to formulate brines and marinades, and the trace metals (copper, iron) inherent in salmon tissue itself.

Figure 1 shows the oxidation process through its three phases of activity: initiation, propagation and termination.

In the initiation phase, oxidation produces free radicals and peroxides, which silently trigger lipid deterioration undetectable to the nose or palate. Chemical tests, done easily in a lab, measure lipid damage in terms of "peroxide value" — the higher the PVs, the more progressive the oxidation during the early phases.

During propagation, oxidation proceeds irreversibly as free radicals and peroxides react with oxygen to form aldehydes, organic acids, ketones and alcohols. At this point, off-odor and off-flavor are detectable. When seafood tastes a little off, it's letting you know its shelf life is rapidly fading. Food technologists measure the secondary oxidation process using TBA analysis. (TBA, or thiobarbuturic acid, reacts with the secondary oxidation products and forms a red-colored chemical complex. TBA analysis measures the reddening effect using a spectrophotometer.)

The third phase of oxidation is termination. At this stage the salmon is inedible.

Peroxide values and TBA analyses are two widely used methods for determining seafood quality; a few other tests are available if these don't fill the bill. There are limitations and idiosyncrasies to each test, and it's best for the quality assurance person at each plant to decide which test is most appropriate.

Effective oxidation management means curbing development of objectionable flavors and odors during the expected shelf-life of the product. You can't prevent oxidation — all seafood processing is a race against the clock. But you can retard deterioration with an effective oxidation management program that includes the highest quality raw material, early addition of oxidation inhibitors, and strict adherence to good manufacturing practices.

Shop around

Oxidation inhibitors can be synthetic or natural; they can come in liquid or powdered form; they can be applied by dipping, glazing, injecting or direct addition into mixers for mince, ground or restructured products. Each form has its advantages and disadvantages. Synthetic antioxidants are economical, effective and available in various forms to meet processing requirements; they are also prohibited in some international markets. Natural forms, based on a rosemary extract standardized for its inherent antioxidant activity, are equally effective in many tests and are widely accepted in many markets.

Depending on your product and your processing line, you can add antioxidants at several different stages in processing or reprocessing. The earlier it's added the better, research shows. Tests done at the Fishery Industrial Technology Center (FITC) in Kodiak, Alaska over the past couple of years demonstrated the advantages of adding oxidation inhibitors early in processing. Dr. Chuck Crapo tested salmon fillet and mince blocks with two different kinds of antioxidants (natural and synthetic) and compared the rancidity progression with blocks treated with a conventional glaze that contained no antioxidants. Then the blocks were frozen. Every few months, samples were taken out and tested for oxidation activity.

To show the value of antioxidants in reprocessing,

glazed H&G salmon were frozen for six months, thawed, filleted and dipped in an antioxidant solution before reprocessing into mince and fillet blocks. Another batch of salmon went through the same process without the addition of antioxidants. In this case also, the use of oxidation inhibitors substantially improved the quality of salmon during extended frozen storage.

In fact, in early February Crapo hauled out some of those samples for use in a class. After a year and a half in frozen storage, Crapo said, "I was surprised that they were in such good shape. The color was pinker than I had expected."

Who uses antioxidants?

"Our plant works with fresh and frozen fish and process year-round," said Chip Bissell of Arctic Alaska Seafoods. "We buy an awful lot of fish in the summer and

process them in the winter, so as we pull those fish out we want them to be in as good condition as possible."

Arctic Alaska Seafoods licenses North Pacific Processors to produce 49th Star Pouched Salmon, a flaked salmon meat in a soft retort pouch that won the top food

service award in this year's Symphony of Salmon contest. Their pouches are used in restaurants and in the federal school lunch program, so consistency in their product is essential, Bissell said.

"We can't have any taste differential between fresh and frozen product, because they're marketed the same," he said. "We've been using antioxidants since the summer of 1994. If you're going to be freezing fish longer than six months, not to use antioxidants is a mistake."

Bissell said they've experimented with different varieties of antioxidants because the early versions of the natural forms had a strong rosemary component to them, which is not acceptable in some uses. The profiles have become more refined in samples he's worked with, he said, allowing processors to use them in more products, particularly in value-added frozen entrees.

"It's hard to put a dollar value on the benefits," he said. "By using antioxidants, we're able to process for many more weeks out of the year than we could otherwise, unless we had much more expensive freezing techniques."

Greg Small is director of technical services at Signature Seafoods in Seattle. One of his projects is to produce a twice-frozen skinless, boneless chum salmon block that is "higher in quality than any once-frozen product coming out of Alaska right now." To produce a salmon block with the longest possible shelf-life, Signature takes two important steps: bleeding the fish immediately, and treating it with antioxidants. They are experimenting with different applications including glazing H&G salmon and dipping thawed fillets before they go into blocks. Researchers at the University of Washington will run quality tests on the samples they produced last fall, Small said, so before salmon season begins this summer Signature will know what process benefits them the most.

"I'm optimistic that antioxidants are going to help us out," Small said. "The market is leery about salmon. There's a perception question about what it can do. Especially in the frozen market, you need to be able to sell it year round. Bleeding is a proven benefit, and antioxidants are additional insurance."

Small said salmon producers can't afford to just deliver product that is in good shape; they must deliver product that still has significant shelf-life left. "A freezer case in a typical grocery chain will freeze and thaw all the time," he said. "It's an inherent problem with freezer-case products. Even deep-skinned salmon is going to be at risk, because of the fat content. So we have two different problems: how to get salmon from Alaska to the plant in good shape, and then how to reprocess them and deliver a product that still has good shelf life."

Small estimated the cost at about a penny a pound. "But it depends on how much we have to use," he said. "We're not sure about that yet."

Cleanliness is next to ...

Antioxidants are great, but sanitation of the product is even more important, says Pat Manning, who has brought food science expertise to the seafood industry for ten years. Manning works for The Fishin' Place (formerly Oceanrawl) where she conducted numerous experiments to improve their products' quality and shelf-life. In one test, they compared two groups of salmon fillets, with and without antioxidants, under sanitary plant conditions and under conditions less sanitary.

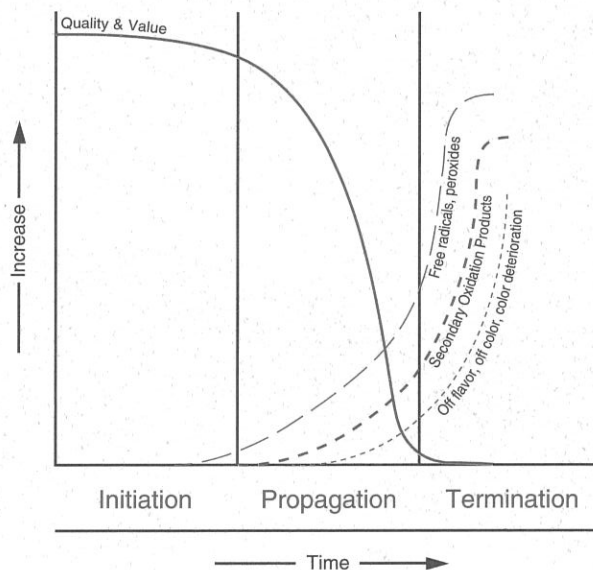
"With a dirty operation, with or without antioxidants, you couldn't eat the fish six months later," Manning said. "With a clean operation, with or without antioxidants, we saw a significantly increased shelf life, with perhaps some oxidation going on. With antioxidants added to fish in a sanitized operation, bingo bango, you've got a shelf life of at least 12 months for sure."

Manning said her tests showed that, with product that was clean to begin with, 12-month old sockeye fillets treated with antioxidants were in the same condition as 5 to 6-month-old untreated fillets. The cleaner the opera-

"It's important to remember that what God produces is the value-added product."

The god, Poseidon, holds the trident, a fishing spear, not to be thrown but for stabbing into the water. Over his shoulders he wears a net. The god, Poseidon, holds the trident, a fishing spear, not to be thrown but for stabbing into the water. Over his shoulders he wears a net.

"If you're going to be freezing fish longer than six months, not to use antioxidants is a mistake."



tion, and the sooner the antioxidants can be added, the better, she said.

"When you think about it, oxidation is a byproduct of decomposition. Antioxidants don't stop decomposition, but they retard nature's way of letting you know it's happening: smell, change in color, things like that. Antioxidants slow the process down. It's not a preservative, it just makes decomposition take longer, so you have a longer window of eating it with safety. Cleanliness must go hand in hand with that."

One thing Manning noticed in their experiments was that antioxidants — and she was only interested in working with natural formulas — helped the fillets maintain water-holding capacity.

"That could be one of the reasons the shelf-life was enhanced," she said. "It didn't dehydrate. The texture was still there because it retained the moisture, so it was perceived as fresh 11 or 12 months after harvest. We were surprised by that! Some people objected to the moisture, but everyone commented on it."

Which brings us back to cleanliness: "If your operation isn't clean, then your product's holding more of this gunky water," she said.

An opportunity?

Producers seem to hold differing attitudes about antioxidants. Some, like Bissell, will take on the cost because they see the benefit down the line. Others take the more pragmatic view: if the customer doesn't request it, and isn't willing to pay more for it, we can't afford to do it.

Don Chiavetta of Bristol Seafoods, is an international broker who has seen millions of pounds of fish, good and bad, come across the transom. "Producers," he said, "look strictly at recoveries. How much does it cost [to add antioxidants]? And will it increase my yields? The end-user looks at the inherent quality characteristics that might help the product achieve better flavor, better odor, better color. If I were running a restaurant, I would go after product with antioxidants."

The Fishin' Place, which, by the way, also won an

TIPS FOR USING ANTIOXIDANTS

- Use freshest quality fish for further processing
- Maintain cold thawing "tempering" temperatures prior to processing previously frozen fish
- Maintain cold temperatures (35-40°F) of dipping and injecting solutions
- Maintain fresh dipping and injecting solutions
- Identify and monitor critical stages of processing

award at this year's Symphony of Salmon contest, has embraced natural antioxidants wholeheartedly.

"I don't know why more fish processors don't go for using antioxidants across the board," Manning said.

"How can cost be a factor? It's unreasonable for a primary processor to say, 'Well, if the guy that's buying product from me isn't going to pay for it, I'm not going to do it.' If he doesn't know any better, and isn't presented with a product to compare it with, how's he going to require it? It's hard to put a price tag on shelf life."

Still, some customers might be leery, including one of the largest buyers in the U.S. "It's important to remember that what God produces is the value-added product,"

said Bob Arnold, corporate purchasing agent for Marriott Corp. "In a reprocessed product, whatever you can do to naturally enhance the quality, you should do it carefully, questioning each step of the way. But you should be careful adding chemicals to a fillet. Some buyers won't like it."

There's a lot to learn about antioxidants, when they should be used — perhaps when they shouldn't — and what form is best for what markets. For salmon producers looking into new opportunities and new ways to guarantee the quality of their salmon, now is a good time to do some homework.

Editor's Note: We offer a big thank-you to Alaska Science & Technology Foundation, who acknowledged that AFDF's project with Dr. Crapo to study salmon shelf-life significantly benefitted the Alaskan seafood industry. In recognition, they awarded AFDF a special grant of \$11,500 for additional salmon development research.

Tom Jones is product manager for technical sales with Kalsec, maker of the natural antioxidant blend used in the FITC study of antioxidants in chum salmon blocks.

There's a lot of information available now about antioxidants and how they may enhance your product or your profitability. If you're interested, give them a call:

Dr. Chuck Crapo, Fishery Industrial Technology Center (907) 486-1515; fax (907) 486-1540

Tom Jones, Kalsec (616) 349-9711; fax (616) 382-3060 (Supplier of Duralox)

Peter Fox, Newlywed Foods (206) 584-9270; fax (206) 584-9246 (Supplier of L-900)

Copies of "Pink Salmon Block Stability Trials" final report, by Dr. Chuck Crapo, are available from AFDF by calling (907) 276-7315.

AYK CHUMS

make a name for themselves

The ice holds the Yukon and Kuskokwim rivers in its grip. Perfect time, this winter of preparation, to lay groundwork for next season's salmon runs. The Arctic-Yukon-Kuskokwim Salmon Marketing Project is in full swing in the hands of marketing director Cheryl Cummings, who manages the project from AFDF's office, with the guidance of the 10-person AYK Salmon Marketing Council.

Project activities to date: The four processors that operate in the AYK region together have agreed to commit about 1.1 million lbs. of high-quality chums from the 1997 season for use in the project. These fish will be inspected to ensure they adhere to the project's quality standards, given the AYK "Quality seal of approval," and then reprocessed into about 500,000 lbs. of finished product — probably a premium vacuum-packed fillet.

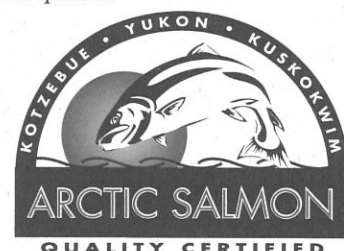
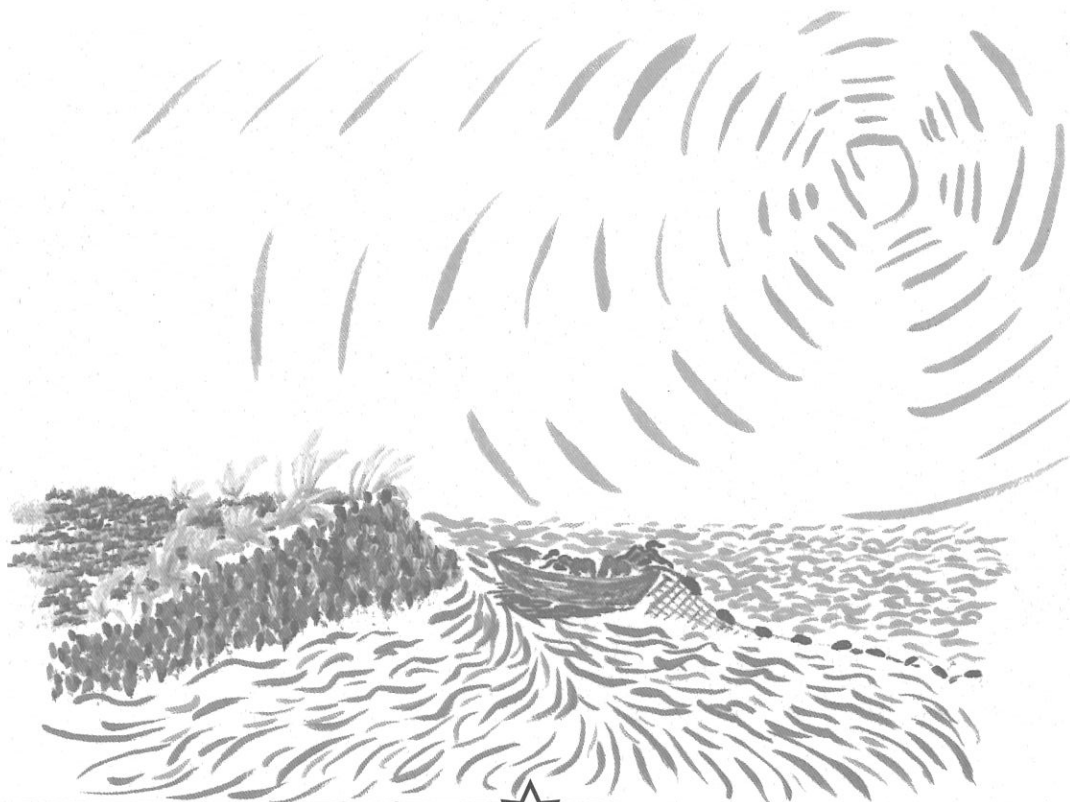
In the meantime, Cummings and marketing consultant Pat Shanahan are working with potential buyers and developing a promotional program to boost sales of the special product. Part of this job is designing and strategizing a name for the special AYK salmon pack. Shanahan recommends Arctic Keta Salmon for the product name because, she said, "it capitalizes on the equity processors have built using the name Arctic; we want to use the name Keta instead of chum; and we wanted to use a name similar to the Yukon River Drainage Association so we all [in the region] appear to be working together."

Still to come: a brand name that can be trademarked, and that will help pro-

ducers participating in the project to establish their product as a cut above the rest. Only project participants whose product stands up to the quality specifications will be allowed to use the brand name. "It's the only way to establish an identity for the AYK chum product," said AFDF's Chris Mitchell. "The goal of this project is to create demand for AYK chums based on the quality and unique flesh characteristics of this region's salmon."

In another AYK salmon project task, Dr. Chuck Crapo of FITC is studying those flesh characteristics of the region's chums to determine exactly what sets them apart from salmon of other regions (see back page).

The AYK salmon project is a cooperative effort among the region's harvesters, producers, coastal communities, state agencies, legislators and AFDF. The advisory council, appointed by the governor, meets by teleconference once a month under the leadership of Karl Ohls of the Alaska Department of Commerce and Economic Development.



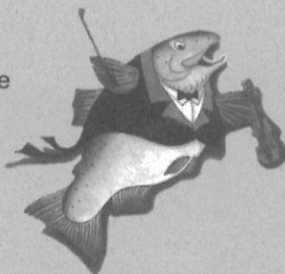
For more information, please call
AYK Marketing Director
Cheryl Cummings
at the AFDF office.

Symphony Sponsors take a bow

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Trident Seafoods Corporation
Wards Cove Packing Company
49th Star Salmon Pouch

Symphony winner tells a good fish tale

The latté truck stops at Trapper's Creek Smoking Company every day. A couple of cappuccinos, a couple of mochas, a double-shot for the boss. Not that the employees have trouble staying awake. There's only one chair in the 4,000 square-foot processing outfit; these folks don't sit around. You could say Trapper's Creek and the latté truck are in the same business: Both are small companies doing a few things well, with a bull's-eye marketing approach, delivering a hot product that makes their customers sit up straight.

"We're a small company," said owner Andrea Wahry. "We just want to focus on doing a few things very well."

Trapper's Creek started out, in 1988, with a small processing area in the warehouse district of Anchorage. They made sausage and smoked salmon, and also processed game meat and fish brought in by Anchorage hunters and anglers. "We baby your fish," read Trapper's Creek's first ad, showing a picture of a nurse holding a salmon in a baby bonnet with a pacifier in its mouth. The ad brought in hoards of customers, and Wahry found herself head-to-head against the larger smoking and processing companies in town.

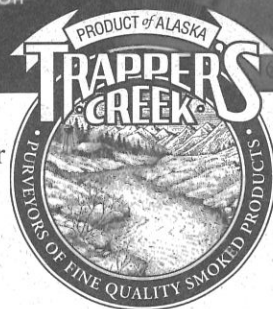
Nine years later, after a gutting fire, a total remodel and a slight shift in corporate priorities, the 15 employees at Trapper's Creek now produce, package and market several varieties of smoked salmon and halibut, lox, salmon jerky, smoked salmon spread, and this year's Symphony of Salmon grand prize winner, smoked salmon chowder.

"We have a ten-year plan for bringing out new products," Wahry said. "Two years ago, we came out with the smoked salmon spread. It takes about two years to get a product really on the market, and now the spread is doing great. This year we introduced the chowder. And we're now working on the next product, to introduce next year."

They chose chowder because "it's not too far off



Trapper's Creek owner Andrea Wahry shows off a smoker full of Alaskan sockeye



the beaten path." Chowder is closer to mainstream America than most other salmon products, the employees felt, and it can be produced in a reasonable price range. (It sells for about \$2 per serving.) Another plus: the chowder uses

byproducts — salmon tail meat, for example — from the company's processing lines. The chowder comes in a package of two 16-oz. plastic tubs, and is sold through Costco and convenience store chains as a ready-to-heat meal. Wahry has heard some interest among institutional buyers, but felt the price, which is higher than clam chowder, would probably restrict institutional buys.

The recipe for the chowder was four or five years in development. "It's not like we have an R&D department," she said. "We get to it when we have time."

Trapper's Creek buys their kings from Togiak and Nushagak and most of their sockeyes from the Kenai Peninsula and Valdez. They buy through a broker rather than trying to make their own deals.

"In a sense, we shouldn't portray ourselves as a salmon business," Wahry said. "It's a secondary processing business.

We're not affected as much by imports and farm-raised salmon as average salmon producers are. We haven't suffered the roller-coaster that people in the pink and chum business have."

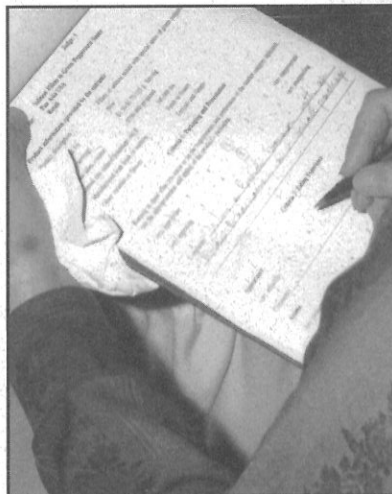
Just then a plant employee poked his head through the processing-room door. "The latté truck is here," he said. "Want a coffee?" While they transacted their deal, I scanned the freezer case in Trapper's Creek's tiny retail office, in which the svelte secretary has to slide sideways into her cubbyhole. In the freezer a stack FedEx boxes full of fish, addressed to Texas, Illinois and Colorado, awaited pick-up. I asked Andrea why she wasn't at the Symphony of Salmon contest to pick up their award.

"Unfortunately, I was at the Fancy Foods Show in San Francisco," she said, and let go that sigh tinged with wistful irony so neatly parlayed by Alaskans when talking about warm, beautiful cities Outside in January.

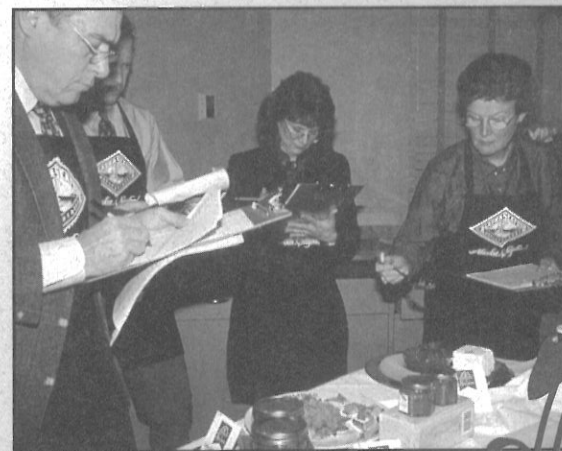
"Yeah, we're just little guys trying to make a living," she said.



After the judging ended, the...



Over the shoulder of a busy judge



Judges Lee Weddig (l.), Tom Hassenauer, Pam Brittrandall & Anne Willan sample gift/specialty entries



The Borealis String Quartet

SYMPHONY

...and the winners, please!

OVERALL GRAND PRIZE

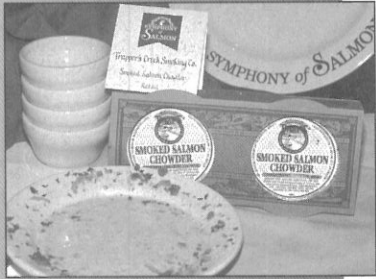
Trappers Creek Smoking Company
Smoked Salmon Chowder



RETAIL

1st place

Trapper's Creek
Smoking Company
Smoked Salmon
Chowder



2nd place

AquaFoods Corp.
Seafood Pockets:
Boneless Alaska
Pink Salmon &
Lemon Herb Sauce



3rd place

The Fishin' Place
Salmon Teriyaki



FOOD SERVICE

1st place

North Pacific
Seafoods, Inc.
49th Star
Alaska Salmon Pouch



2nd place

Ocean Beauty
Seafoods, Inc.
Salmon Fajita Strips



3rd place

Iceland Seafood Corp
Salmon Senseations:
Salmon With
Citrus Pepper Glaze



GIFT/SPECIALTY

1st place

Northern Discovery/
Lady Anne Seafoods
Honey Glazed
Smoked Salmon



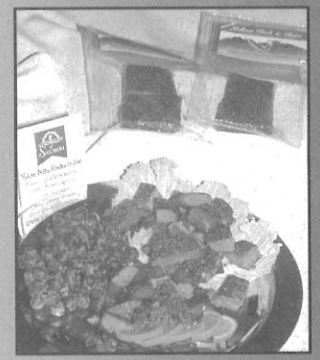
2nd place

Port Chatham
Smoked Seafoods
Portstix Salmon Jerky



3rd place

Yukon Delta
Products, Inc.
Peppered Yukon
Rich & Rare Regular
Smoked Salmon



Where are they now? *How last year's Symphony winners are doing*

Last year, Morey's Fish Company took the third annual Symphony of Salmon contest by storm with their Sun-dried Tomato & Basil Salmon Fillet Portion, a 4.5-oz. wood-roasted chum fillet flavored with sun-dried tomato, basil and a blend of spices. Morey's won both the retail category and the grand prize at the 1996 Symphony.

At contest time, the fillet portions had been on the market just a few months. Now, marketing director Michelle Pape reports, the fillet portion ranks

second in Morey's portion line of products, and is solely responsible for 50% of their sales growth last year. The fillet portions now sell in New England, Florida, Chicago, Denver, San Antonio, Phoenix and Salt Lake City. Pape told AFDF contest coordinator Loretta Lure that since Morey's is a medium-sized company with a small marketing budget, the Symphony of Salmon was a "great jump start" for their new product.

Northern Discovery Seafoods, winner of this year's gift/specialty category, also took home the same award last year with a delightful pickled salmon relish called SeaGarden, a blend of sockeye salmon with onions, garlic, carrots, bell peppers and spices, packed in an octagonal jar with a ribbon and a willow stick. They gleaned some great ideas from last year's Symphony and the International Boston Seafood Show, and they now produce six SeaGarden varieties, according to presi-

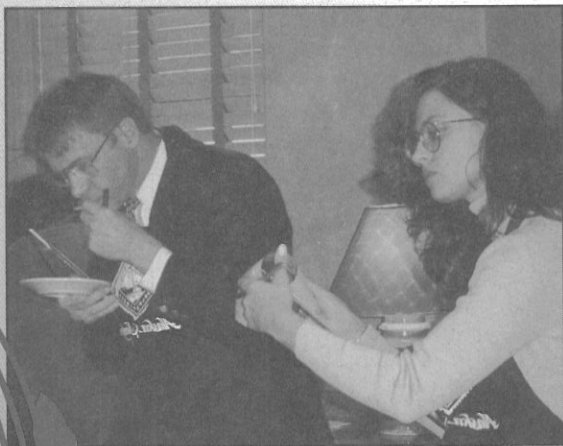
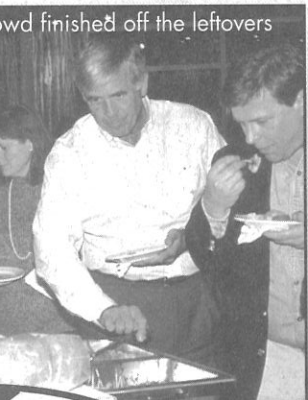
dent Natalie Schonberg. She reports that winning a Symphony prize has helped open doors to gourmet gift stores and mail order companies nationwide.

Salmon chowder has been a recurring theme at the Symphony of Salmon; several companies have brought chowder to the showcase, and last year Stockpot Soups won first prize in the food service category for their Smoked Salmon Chowder. Stockpot's marketing director Gary Merritt reports that their sales have more than doubled since the contest. Stockpot created a sticker for their retail pack calling attention to their Symphony prize, and they think it's helped sell the product. Stockpot markets their chowder primarily in the Pacific Northwest.

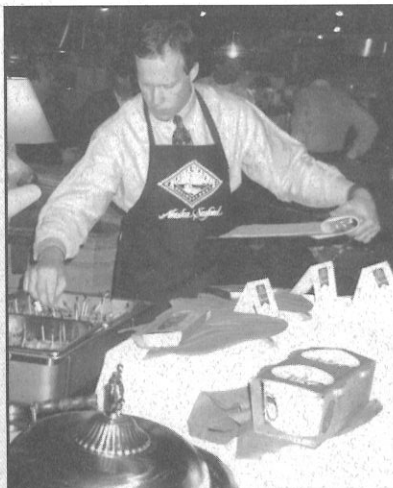
And what about the winner of the very first Symphony of Salmon, in 1994? Silverbow Salmon Ham, made by Health Sea, Inc. of Juneau, is the friendly football-shaped salmon ham you've probably seen in your local grocery store. The product is doing well, and Health Sea came back this year with another new product, Keta Gourmet Sausage "Southwestern."

"So far, every single Symphony of Salmon winner is still in business, still on the market," said Chris Mitchell, AFDF executive director. "When you think about the thousands of new products that are created and die

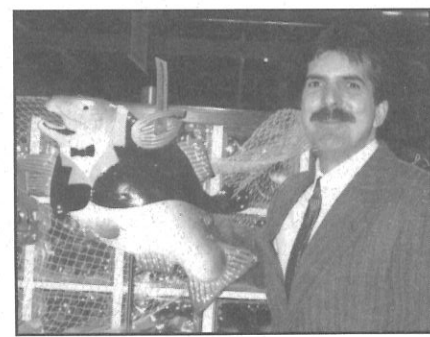
every year in the food industry, to have such consistent success associated with the Symphony of Salmon, I think, is a good indication of the quality of products that are coming out of this industry."



Judges Bob Arnold and Jackie Lees hard at work



Tom Hassenauer's only halfway through



BrewHouse owner Chris Anderson

of SALMON

The alchemy of arrowtooth

Five hundred fathoms below the filigreed chop of the Gulf of Alaska lies a 1.6-million-metric-ton conundrum. It's the last great untapped finfish resource of the North Pacific, the snaggle-jawed arrowtooth flounder. While the Gulf's pollock, cod, halibut and sole are sucked up by the thousands of tons, arrowtooth huddle in the deepwater gorges of the continental slope, reproducing. Waiting for the seabottom to become a less competitive place to live. And reproducing some more.

Back on dry land, arrowtooth has proven itself to be a dandy replacement for Alaska pollock in surimi and surimi-based seafood analogs. Last year, as part of an AFDF project, Dr. Jerry Babbitt hitched up with Alaska Pacific Seafoods (APS) in Kodiak to produce 152 blocks of arrowtooth flounder surimi in APS's commercial surimi plant. Babbitt expected things to go well — he'd made arrowtooth surimi in experimental batches before in his lab at National Marine Fisheries Service's Utilization Lab — but even so he cheered at the results: 73.2% moisture (compared to 74.4% with pollock and 76.3% for Pacific whiting) and a pH level of 7.2.

APS's surimi was shipped down to Aqua Mar, near L.A., for processing in their seafood analog plant. Aqua Mar president Ming Wu reported that the arrowtooth surimi put in a top performance in a medium-grade seafood analog product.

According to Wu's final report, the only potential concern was a slightly softer gel than pollock creates, though, he said, that may have been due only to water content differences. "Gel cohesiveness, the prime quality indicator, was essentially equal among the species when beef plasma was added to the Pacific whiting and arrowtooth surimis," Wu reports.

Beef plasma, you'll remember, is one of the enzyme inhibitors required to counteract the flesh softening that occurs in both arrowtooth and Pacific whiting when they're cooked. (A potato inhibitor, whey protein and egg white can also be used for arrowtooth surimi, reports Dr. Babbitt.)

Back in Kodiak, both APS and Western Alaska Fisheries now indicate they intend to manufacture arrowtooth surimi commercially in 1997. Production will depend upon deliveries of incidentally caught arrowtooth, since there's no directed fishery for it. Still, both plants have made commitments to develop the potential of the arrowtooth that do show up in harvesters' nets.

Caught in the bycatch net

Maybe there's a place for arrowtooth surimi in the world surimi market. Certainly manufacturers are always looking for new species to fill in the gaps when supplies of pollock, whiting, hoki and other major species are lean. But will arrowtooth flounder ever get out of the water in quantities large enough to matter?

*Full many a gem of purest ray serene
The dark unfathom'd caves of ocean bear:
Full many a flower is born to blush unseen
And waste its sweetness on the desert air.*

- Thomas Gray

Last year 20,000 metric tons of arrowtooth that jammed the trawl nets of groundfish boats were thrown back. That's the same amount as the total allowable catch of arrowtooth in the Gulf. A few people are selling H&G arrowtooth to Asia, and of course some of the retained fish are ground up for meal, but there's not enough interest in them to drive a harvester to devote any hold space to the 2-3 foot flatfish.

At this point, 2.2 million metric tons of arrowtooth — 587,000 m.t. in the Bering Sea; 1.64 million m.t. in the Gulf of Alaska — huddle in the shadow of about 21,000 metric tons of harvestable halibut. In the Gulf at least, arrowtooth and halibut are too intertwined, biologically and behaviorally, to harvest arrowtooth without bringing up halibut bycatch. And even if halibut bycatch

caps were raised in the Gulf of Alaska (the halibut biomass, it seems, may be considerably larger than previously estimated) it's unlikely that pressure on pollock and cod fisheries would allow

even a small amount of that bycatch to go toward a directed arrowtooth fishery.

"The National Marine Fisheries Service won't consider arrowtooth a priority unless it becomes a conservation concern, or unless harvesters and processors exert pressure to create a directed fishery for it," said Bill Hines, of NMFS's Juneau region. "When you have other alternative species like pollock that are abundant, it's up to the industry to determine whether or not it's viable to target arrowtooth for surimi."

ISA's pioneer project

"We accept everything the fishermen bring in to us," said Dave Rogers, manager of International Seafoods of Alaska (ISA) in Kodiak. "Our goal is 100% utilization of the fish landed. There is a certain amount of arrowtooth coming in as bycatch, and we can use that while we tool up to process large quantities of it."

Rogers said ISA, like most Kodiak plants, now operates "well under" 200 days per year as pollock and cod allocations decrease. Their desire to keep the plant operating, to help their 300 employees

increase their skills, and to find ways to decrease waste in the industry made them take a good look at arrowtooth. And they think they've come up with an answer.

With some equipment at the University of Alaska, and a grant from the Alaska Science & Technology Foundation (ASTF), ISA has developed a new processing idea for arrowtooth. They're now in pilot production of two new arrowtooth products, Rogers says, and they're not ready to announce what the product is until this summer. "We're using extrusion technology," was all he would say. "The equipment is very common throughout the food industry in cereals, snack foods, in that arena."

The protease activity that softens arrowtooth flesh when it's cooked doesn't affect either of their products, he said.

ISA buys arrowtooth from the groundfish boats that deliver to them, and occasionally will buy landings from other plants when their own supplies run low. Rogers figures ISA last year consumed or purchased 6% of the total Gulf of Alaska arrowtooth landings. "We expect that will continue to rise as we get more successful in utilizing the fish," he said.

While groundfish producers are scrambling to fill up a processing year that is diminishing before their eyes, ISA shouldered into the tiny niche presented by the small deliveries of arrowtooth landed as groundfish bycatch.

"Waiting for a market doesn't work," Rogers said. "You have to go find out what's possible! That's why the ASTF is such a great organization, because they'll work with you to find out how to get around the technological block. It's time consuming, it's tough, and we're bucking the tide that says you can't do it. Guys like Gour Choudhury (of the University's FITC) have done a lot to help keep pushing. It's terrific. But it's not easy."

Small and mid-sized groundfish plants are finding it harder to stay afloat in derby-style fisheries that require huge capital

investments. The corporate trend toward a few kingpin companies running an industry has begun to cast its shadow in the North Pacific. Smaller companies increasingly have to retrench, to seek new opportunities, or create a niche for themselves, to keep from drowning in the wake.

"It goes back to the resource and how you use it," Rogers said. "If you toss most of it overboard, it's lunacy."

They're growing out there

Meantime, while you were reading this article, several million *Atheresthes stomias* took several million little nibbles on their favorite food: pollock and herring. According to a report called "Groundfish Food Habits & Predation," prepared by the Alaska Fisheries Science Center, arrowtooth ate 247,896 metric tons of pollock in the eastern Bering Sea over a 4-month span in 1990. These days, arrowtooth are weighing in at the highest biomass levels since 1960.

"I wouldn't say the increase is dramatic," said NMFS stock assessment scientist Tom Wilderbuer, "but it's definitely the majority species now in the Gulf, with the largest biomass of any species."

If the other major species in the Gulf, like pollock, cod, herring and salmon, are harvested at significant levels, does the boom in arrowtooth biomass represent a significant shift in the species mix?

"I have a hard time making a judgment on that," Wilderbuer said. "We do manage the directed fisheries at a fairly conservative level. It's hard to say what's right and wrong [about species mix] but it's certainly changed. What does that mean? That's a good question."

Wilderbuer said he hopes the increasing attention on arrowtooth will spawn some ecosystem studies that will investigate multi-species harvesting and how they affect the ecosystem.

"There is some real concern in that direction," he said. "There's a good chance we can do some research in that direction in the near future."

Whether Babbitt and Wu's arrowtooth surimi or ISA's experimental arrowtooth products will open the door to a directed fishery, or whether they simply provide a profitable use for the arrowtooth that's harvested as bycatch in existing fisheries remains to be seen. Meanwhile, the mysterious arrowtooth itself remains, for the most part, born to blush unseen.



GOVERNOR'S SALMON FORUM:

Grab a tool, get working

If you were not one of the hundreds gathered in Juneau in late January to help design a radiant map of the future of Alaska salmon, you'll want to read up on the results of the three-day meeting. Alaska's salmon woes have generated great volumes of verbiage since the turn of the decade. Words can entrench and obfuscate as effectively as they can enlighten and motivate. Where wise words and bright ideas have created paths in the wilderness, they deserve to be followed by courageous actions.

One of the outcomes of the meeting: a three-branch map of strategies toward the common goal, one branch assigned to government and the actions under its purview, one assigned to the industry, and one jointly assigned to both. The forum adopted the following strategies, and urged the state legislature and agencies to adhere to this platform when making industry policy decisions.

Vision Statement

The group articulated a common goal: to recapture world leadership in the salmon market for a healthy, sustainable and expanding Alaska salmon industry. They also reinforced a dedication "to preserve and to increase the financial benefits for all industry participants and many Alaskan communities."

The state's strategy:

Consistent with sustained yield, the state should manage fish resources to maximize the intrinsic value of the resource to Alaska.

- Regulate harvest methods, timing and place of harvest of each fishery to realize maximum intrinsic quality and thereby maximize market value.

- Review and modify existing regulations which constrain maximum intrinsic quality.
- Ensure that all proposed regulatory changes that affect the fisheries consider the market impact of the proposed changes before implementation.

The industry's strategy

We will collectively move the salmon industry from a production-driven industry to a market-driven food industry. (i.e., one that knows its customer; is focused on the consumer's needs and actively works to fulfill those needs; provides competitively superior food products; helps educate the consumer about Alaska salmon; builds long-term relationships with customers and consumers; fully utilizes all the components of the resource as much as possible; readily adapts to market shifts; and focuses on success rather than mere identification of problems.)

- Examine operations and institute an internal plan that will quantifiably transform current production-oriented operations into market-oriented operations.
- Form partnerships between fishermen, processors, retailers and marketers.
- Create seafood promotions to reflect these strategies.

The cooperative task

- Develop a quantifiable salmon grading system that is market accepted and that can serve as a measuring stick to quantify quality.

We have, it seems, clarified the waters. At this forum, which was taken seriously by corporate leaders of some of the major producers, it was agreed that the operations of the 100-year-old salmon industry must

Everyone plays a part

We've been hearing about it for years: the burgeoning world production of salmon, wild and farmed. Consumers' increasing appetite for salmon, at home and abroad, to which the antiquated Alaska salmon industry can gain no access. While salmon markets become more sophisticated, Alaskan harvesters are taking home the lowest ex-vessel price in decades. World consumption is increasing, but many traditional processors are no longer even buying all the available harvest, no matter how low the price.

Alaska used to reign as Salmon Exporter to the World. Those days are over. One would have to be feeble-minded to believe that we'll weather the present situation and return to "normal" without radical changes.

Fishermen are being asked to fish slower, work smarter, to concentrate on quality over quantity. How can they do this on fewer pennies per pound? What tools do they have to work with? Not money, not time, not gear. What happens if they don't change their operations? There are no incentives to encourage them; the system reinforces the traditional approach. Yet following that well-worn path leads to a slow and painful demise.

The market is quick to tell processors that, while they can still sell all their canned salmon, profits are negligible and getting slimmer. Japan's demand for Alaskan H&G sockeye has softened. Though Japanese salmon consumption is up, farmed fish, Russian imports and their own salmon ranching activities are capturing this market. So processors, too, know things have to change — soon.

We face a double challenge: to preserve the salmon producing industry, Alaska's largest employer, and its economic benefits to Alaska's coastal communities. Also, to preserve a way of life for several thousand Alaskan residents who have lived by the seasons of nature, who have worked the rivers and shores of the land for generations.

Nature in its progress takes two paths: evolution or extinction. Frankly, for our industry to evolve is going to necessitate some aspects of it going extinct. The institutionalized inefficiencies that made sense in the 1950s, when Alaska ruled the salmon world, are crip-

Update

How to reduce halibut deaths


The final report is in from AFDF's cooperative study of halibut bycatch mortality estimates. The University of Wash. Fisheries Research Institute (FRI) looked at the way halibut bycatch mortality is estimated by on-board observers, and tested a new estimating model developed by FRI. Results make great reading for any groundfish trawler or observer.

Some results: More than 80% of all halibut were moribund (10% chance of survival) after an hour on deck. There was significant variation among observers in intensity of sampling, condition assessment and accuracy of estimates. Generally, the FRI model resulted in higher survival estimates than the standard model that observers use.

"Fish handling practices can be directly translated into mortality estimates, and trawl fishermen can reduce mortality of discarded halibut," the report concludes. What fishermen can do: 1) Dump catch slowly to prevent prohibited species from falling into fish hold; 2) empty contents of codend prior to setting the gear. 3) Make shorter tows; and 4) Return halibut to sea as soon as possible.

Step 5: Get the report, "Practical Applications of Fishing and Handling Techniques in Estimating the Mortality of Discarded Trawl-Caught Halibut" from AFDF.

For more information, call Ellen Pikitch (718) 265-2688 or Dan Erickson of FRI, (541) 747-9266.



change to address the demands of today's seafood markets. It was agreed that all factions need to work together, that dividing the world between the good guys and the bad guys and then spending our resources fighting the bad guys is harming the industry more than anything.

But back home in the company of our own agendas, will each participant be able to hold to these strategies? What about the companies and individuals who are profiting under the present scenario? What would an industry transformation mean to harvesters and fishing groups who may look fearfully at a foggy future in which what they catch, how they catch it, when

they'll be allowed to catch it, and what gear they must or mustn't use, will surely change by drastic degrees?

Participants at the forum seemed to agree: All this and more will change anyway. Whatever else we have to relinquish — the old ways, the entrenched enmities, attachment to the customary — the community of Alaska salmon producers does not want to relinquish the role of providing Alaska salmon to a world hungry for its richness. Both government and industry seem prepared to take the necessary steps — some perhaps difficult — to create the conditions necessary to hold onto this privileged role for years to come.



pling us now. The 58-foot seine limit, drum prohibition on seine vessels, openings run like a free-for-all in which the fishermen operate as recklessly as they can, and in which the salmon themselves are the biggest losers — these structures must change if Alaska is going to deliver high-quality fish to profitable markets. Fishery regulations that are driven by allocations and politics rather than by market demands are helping drive harvesters and processors into the ground.

There are some bright spots in the salmon world. As we learned at the Symphony of Salmon contest, a number of producers are bucking tradition to find high-quality raw material, put it to use in imaginative new ways, market their non-traditional products to new buyers, and take risks in product and market development. These efforts have begun to pay off. Projects funded by the Alaska Science and Technology Foundation — and ASTF's ongoing push to develop pin-bone-removal technology — have made a huge difference. In the past year, the Denny's restaurant chain began serving Alaska salmon to thousands of its customers across the country; other restaurant chains have followed suit. These are only a few of the many ways in which Alaska salmon is making a comeback.

The governor's Salmon Strategy Forum in January put forth a strong program that, if fully implemented, would help create the conditions in which a healthy, profitable Alaska salmon industry could flourish.

The key is: everyone has to play their part. Fishermen, processors, brokers, fishery managers, state policy-makers, everyone has to sign on. In a previous salmon strategy meeting, participants were asked to identify the biggest obstacle to a bright future in salmon: is it a glut of product? is it the condition of the market? is it conspiratorial competition? No. Nine out of ten participants identified industry in-fighting as the single largest obstacle to the goals of the industry.

The path ahead is clear: evolution or extinction. Commitment and risk, or stasis and the grave. The salmon strategy forum drew the map. Let's get moving.



Players in the Symphony

CATEGORY: RETAIL

Alaska Smoked Salmon International
Sweet Cajun Smoked King Salmon Nuggets
and Smoked Salmon Spread

Aquacuisine, Inc.
Premium Handmade Salmon Burger

AquaFoods Corporation
Seafood Pockets—Boneless Alaska Pink
Salmon & Lemon Herb Sauce

Finesse Fine Foods, Inc.
Jumbo Seadog

Gold River Foods
Gold River Smoked Salmon Spread

Health Sea, Inc.
Keta Gourmet Sausage
97% Fat Free "Italian"

Kasilof Fish Company
Wild King Teriyaki Strips
Wild Kippered King Garlic Pepper Cater Cut

Molly's Foods Inc.
Molly's Salmon Patties &
Molly's Salmon Roll Hors D'oeuvres

National Sea Products Limited
High Liner Salmon Bake -
Broccoli & Cheddar

Pan Asia USA
Salmon Fillets in Green Peppercorn Sauce

Northern Discovery/Lady Anne Seafoods
Honey Glazed Smoked Salmon

Port Chatham Smoked Seafoods
Portstix Salmon Jerky

Wyatt's Specialty Products
Alaskan Jalapeño Salmon

Yukon Delta Products, Inc.
Yukon Rich & Rare Regular Peppered Smoked Salmon

The Fishin' Place L.P.
Sockeye Burger and Salmon Teriyaki

Ocean Beauty Seafoods, Inc.
Salmon Fajita Strips

Trapper's Creek Smoking Company
Smoked Salmon Chowder

Pacific Marketing Group
Perfect Portions 4-oz. Smoke Flavored Salmon

CATEGORY: FOOD SERVICE

Alaska Seafoods Direct
Shredded Nova Lox

Port Chatham Smoked Seafoods
Pacific Select Wild Alaskan Coho Salmon
Nova Sliced Portion Controlled

Finesse Fine Foods, Inc.
Salmon Corn Dog

Saunders Seafood Company
Captain Saunders Salmon Burger

Gold River Foods
Salmon Santa Fe

Trapper's Creek Smoking Company
Peppered Lox

Health Sea Inc.
Keta Gourmet Sausage "Southwestern"

Trident Seafoods Corporation
4-Star Salmon Broil Blackened Cajun Select Salmon

Iceland Seafood Corporation
Salmon Sensations: Salmon
with Citrus Pepper Glaze

CATEGORY: GIFT/SPECIALTY

Morey Fish Co.
Smoked Salmon Crumbles

Arpeggio's
Smoked Salmon Caviar

North Pacific Seafoods, Inc.
49th Star Alaska Salmon Pouch

Colony Gourmet Kitchen
Bristol Alaskan Smoked Salmon Gift Box

Copper River Fine Seafood
Salmon Under Glass

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Alaska Fisheries

*"Talent develops in the quiet places,
character in the full current of human life."*

— Goethe

What makes Alaska salmon so special?

What is it about a rich, red Kuskokwim king salmon fillet that makes such good eating? What sets a Yukon chum apart from, say, the mauve flesh of a farmed salmon? We all have our tastes, but Dr. Chuck Crapo of the University of Alaska's Fishery Industrial Technology Center is approaching the question from a scientist's point of view. Dr. Crapo has spent the month of February studying the chemical composition of chum salmon from the Arctic-Yukon-Kuskokwim region. He's comparing the flesh characteristics to those of chums from other regions of Alaska to determine exactly what characteristics distinguish the AYK region's salmon from everyone else's.

Crapo's research is part of an AFDF project, funded by Alaska Science & Technology Foundation. When his results are compiled, in March, AFDF will distribute copies. Interested? Call us at (907) 276-7315.

In a separate project to help salmon producers become more familiar with their flesh characteristics, the Alaska Seafood Marketing Institute (ASMI) is now preparing a salmon flesh color chart. Many factors affect the color of salmon flesh — its home river drainage, time of year, spawn condition, quality, handling and, of course, species. With a standard flesh color chart, producers and buyers can use a common reference to compare flesh colors. ASMI's salmon flesh color chart will be like a booklet of paint swatches that will allow buyers to specify a range of color within which they'll require their fish to match up. For more information, call ASMI in Juneau at 465-5560.

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