the LODE STAR

Charting the course of fisheries development.

Alaska Fisheries Development Foundation   Volume 1, Issue 3   Winter 1983/84

INDUSTRY SAYS:

Grab a toe hold, dig in.

"The surimi industry at this stage isn't easy. But people mustn't be discouraged by the high technology of the problems. We have the technology. . . We should focus on the possibilities."

—Frank Kawana

Lik[illegible] scouts rubbing stic[illegible]gether in an electrical storm, sparks flew at the first surimi industry meet[illegible] sponsored by AF[illegible]ctober 26.

Nearly 250 people—surimi technologists, brokers, engineers, financiers, packagers, marketers, fishermen and processors gathered in Seattle's Park Hilton to meet each other face to face, most for the first time.

It was designed simply as an opportunity to meet, exchange ideas and business cards, and make plans for further contacts that will help the industry grow. And to talk to many who were there, the sparks fairly flew. Never before had so many people gathered together to talk about surimi. Never before had so many ideas about this versatile product—and its possibilities—sailed between four walls.

During the reception, which was catered with surimi-based seafoods by Universal Seafoods, Chris Mitchell introduced a number of engineering, equipment, and service company representatives who spoke about their

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The Royal Alaskan plant in Dutch Harbor will be first in the U.S. to commercially produce surimi.

Royal Alaskan to Produce First U.S. Surimi

Royal Alaskan Seafoods, Inc. will be the first American seafood processor to run a full-scale commercial surimi line under a $450,000 contract awarded by AFDF December 2 in Anchorage. The agreement marks the first step toward establishing an American-based surimi supply for the growing interest in this industry.

According to the contract, Royal Alaskan will produce 1.3 million pounds of surimi from Pacific pollock in 1984, which will then be distributed primarily to American food companies which are involved in the AFDF Pollock Industry Development Program.

In exchange for the 1.3 million pounds of surimi, AFDF is offering Royal Alaskan $450,000 plus a complete surimi production line, as well as technical assistance from American and Japanese industry experts, and a 50¢/lb. bonus for high-grade surimi produced during the project. Royal Alaskan will be allowed to keep 10% of the surimi for private marketing efforts in Japan.

AFDF executive director Chris Mitchell said after the contract was awarded, "The important thing about Royal Alaskan is that they've hit the ground running. Their plant manager, Tom Takeoka, left for Japan two days after the decision, to learn more about the Japanese industry, and he was going whether they got the contract or not."

Mitchell said he hoped to draft a contract by Christmastime. Royal Alaskan officials plan to begin production in March, with preliminary operations starting in February. The company has also received inquiries from Japan's largest surimi processors about purchasing an unspecified amount of surimi.

"We would have been satisfied with any of the processors," Mitchell said. "But Royal Alaskan is definitely intent on getting into surimi whether we help them or not. They are already committed to the business."

The five proposals submitted were judged on four criteria: plan of operations, access to pollock resources, management strength, and accessibility for visitors involved in the project.

The proposals were reviewed first by a five-member industry advisory panel including Tom Wilson of Rainier Bank; Frank Kawana of Jac Creative Foods; Bob Ryan of Ryan Engineering; Jim Blackburn, Fish & Game groundfish biologist; and Dave Galloway of Pro Fish International.

At the AFDF annual meeting a week later, the five processors presented their proposals before the panel and the board of directors. The panel and board then separated to cast ballots according to a voting scheme designed to balance out any possible conflict of interest among industry members who voted.

The entire AFDF program has emphasized the importance of industry direction from the start; here, that direction was crucial. Most involved said the advisory panel's contribution of time and judgment in the selection process was invaluable to the strength of the project.

The submissions themselves also revealed a growing strength as knowledge of surimi processing increases in the U.S. industry.

"I was impressed with all the proposals," Mitchell said. "It's obvious that a lot of homework was put into each one of them, and each company could have done a good job with the project."

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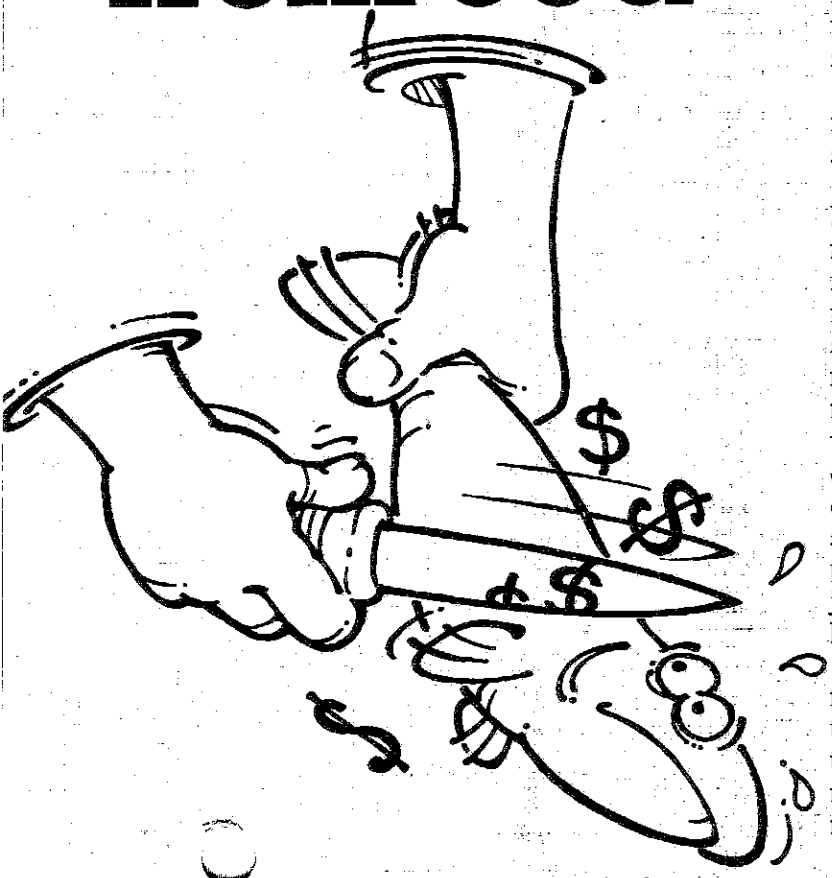
Trimming profits from cod



Pacific cod processors may earn extra profits from products made of cod trimmings, according to a report by Trans-Pacific International.

Trans-Pacific is nearing completion of a project funded by an S-K grant through AFDF to recover and evaluate marketable products from cod trimmings, and company president Mike Nordby said the project is successful.

According to the Phase I report, Trans-Pacific focused its efforts on J-cut napes (belly flaps) cut from cod harvested by the F/T Arctic Trawler. The crew manufactured and tested surimi made from napes, and nape blocks from trimmed, clean nape pieces. The project also included testing a procedure to remove cod worms from flesh and reducing moisture content of minced fish used in 16.5 pound minced fish blocks.

Initially, 750 pounds of surimi from cod napes were produced. Fresh cod napes were found to have "excellent natural gelling properties," the report said, although napes may not be suitable for surimi because the J-cut is too close to the viscera, giving the surimi an excessive enzyme level.

While fresh surimi was found to be of excellent quality, it didn't test high in gel strength after sitting in storage for six months.

The project also included producing standard fish blocks in order to experiment with removing cod worms from flesh and reducing moisture content of the minced fish. Napes used for this project were produced in the filleting operations of the Arctic Trawler. A Bibun meat strainer was used to separate the dense cod worm flesh from the less dense cod meat, thus extricating the parasite from the fish block material. The fish meat was then put through a continuous dehydrator to remove some of the excessive moisture found in very fresh minced fish. The continuous dehydrator, developed for producing surimi, squeezes moisture out of the meat while moving the flesh through a perforated cylinder with a large screw. By adjusting the machine, the moisture content of the flesh can be regulated.

The Arctic Trawler crew is now producing nape blocks from trimmed, cleaned nape pieces. Fillet blocks can contain up to 10% nape pieces, the Phase I report states, and this application was found to be the best use of raw material, bringing in more revenue than most other alternative nape products.

Napes from smaller fillets were found to be more tender than napes from larger fillets, although the latter were tougher, and more pliable.

The Arctic Trawler is expected back in port in December, and marketing efforts will begin in January for the blocks. Nordby says the company is pursuing domestic markets for the product; he hopes the final report on the project will be completed next spring.

MEMBERSHIPS

Alaska Fisheries Development Foundation is more than a clacking computer printer, an exhausted Xerox copier, a ten-page monthly phone bill, an empty coffee pot, several overflowing ashtrays and a typewriter rattling away in the back room. AFDF is people, primarily members, whose ideas set spark to the embers of this industry and without whom we just might still be basket-trapping salmon in the Nushagak River.

AFDF was proud to welcome fourteen members at the December 2 annual meeting. Two of these are former affiliates:

Hank Eaton
F/V Skagit Bay
(former member with Koniag, Inc.)

Sara Hemphill
Alaska Contact, Ltd.
(former AFDF exec. director)

New voting members are:

Anthony Aparo
International Seafoods of Alaska, Inc.
Kodiak, Alaska

Alec W. Brindle
Wards Cove Packing Co., Inc.
Seattle, Washington

Dave Woodruff
Alaska Fresh Seafoods
Kodiak, Alaska

William Quimby
Joint Trawlers Ltd.
Gloucester, Mass.

Jeffrey R. Stephen
United Fishermen's Marketing Association, Inc.
Kodiak, Alaska

James Major
East Point Seafood Company
Kodiak, Alaska

Oscar Dyson
All Alaska Seafoods, Inc.
Kodiak, Alaska

Edward A. Ryan
Star-Kist Foods, Inc.
Terminal Island, California
(upgraded membership)

New Associate members are:

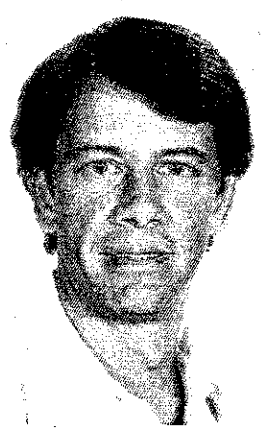
H. Michael Reese
Alaska Brands Corporation
Seattle, Washington

Dr. Soliman Y.K. Shenouda
General Foods Corporation - Technical Center
Tarrytown, New York

Terence Reeve
Kyokko Suisan Alaska, Inc.
Anchorage, Alaska

Paul Taylor
B.K. Ladenburg Corp.
Olympia, Washington
(pending board approval)

THE VIEW FROM HERE



A year ago, as we prepared for the holidays, the Foundation sent out Christmas cards emblazoned with the words: "Year of the Pollock." A rather non-traditional holiday greeting! Frankly, we even had staff disagreements about that card. Yet send it we did.

That same month, the Foundation left its traditional road toward fisheries development and embarked on a massive, interconnected and yet focused attempt to interest the food industry in pollock surimi. There were a lot of skeptics; many still remain, but much progress has been made.

Uncertain though we were of its success in the domestic industry, we purchased a small amount from Japan and began distribution. Gradually supplies were exhausted and larger purchases made. Then the demand began to mushroom, and lately surimi samples have been "selling like hotcakes." (While to the best of my knowledge no hotcakes company has asked for samples, one producing cake mixes has.)

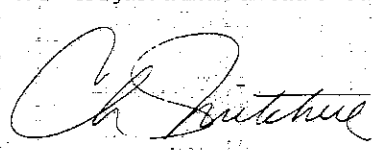
Within the last three weeks, more than 60 companies—from cheese manufacturers to snack chip producers—have asked for samples and further information. If but 5 percent of those are "live ones," a market is being born.

We have also succeeded in procuring a commercial surimi processing line and finding the most capable and qualified Alaskan processor to produce surimi for us. By the time the next *Lodestar* hits the newsstands, surimi production in Alaska will be a reality.

At least one domestic processor who received surimi supplies from the Foundation has gone commercial. Word is that within the next few months a few more will take that final step. These next months will be critical as the first U.S. commercial plant attempts to duplicate, in quality and competitiveness, Japan's centuries-old surimi industry.

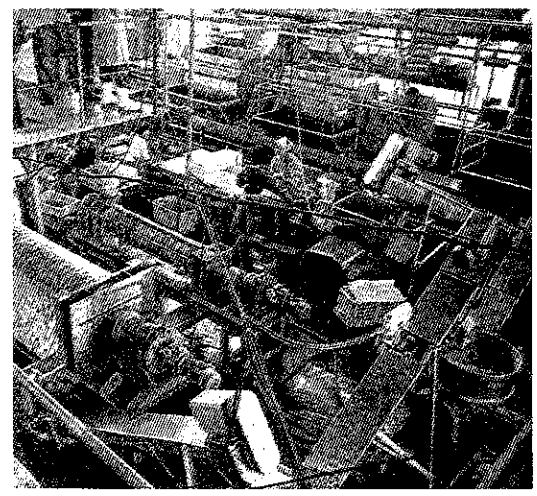
Complimentary to our efforts will be the first U.S. trial run for Baader's new, rapid (120 fish/minute) pollock filleting machine, with a "computer brain" that measures each fish to maximize yield and minimize labor costs.

The myth, the mystique, and the unpopularity of pollock are fading. Perhaps this past year was the Foundation's "Year of the Pollock"—it now looks as though next year will be the year of the pollock for the industry. We were just a little ahead of our time.



Chris Mitchell, Executive Director

SURIMI SYSTEM: starting from scratch



Ryan visited Japanese surimi plants in November. Above he is pictured with Dr. Takeda, president of the Japanese surimi assoc.

Final design plans are still being drawn for the Royal Alaskan surimi plant. Engineer Bob Ryan spent two weeks in Japan in November and returned again in December to look at surimi plants, examine their methods, and begin purchasing equipment.

The process of designing a full-scale surimi line from scratch won't be easy, Ryan said, because it's never truly been done before.

"No Japanese (surimi) plants were built," he said. "They evolved. Most of them are over ten years old. Much of their equipment is outdated, and the plants are awkward in design."

He also cites safety and sanitation hazards in Japan that wouldn't pass inspection in this country. Japanese plants aren't designed the way he would like to see a plant designed here—but no Japanese engineer has been given the opportunity Ryan now has to create his own configurations.

"No Japanese shore plant uses machines to fillet the fish," he said. "No plant, ship or shore, machine butchers fish and recovers roe. No plant that hand butchers fish produces SA (high quality) grade."

The Japanese are still the experts in the industry, however, and not all are as inefficient as some of the plants Ryan visited in November.

But they seem nervous enough about the news of Alaska's new turnkey plant to befuddle its progress at least a little.

"They've heard about AFDF, they know what we're doing, and they don't like it," Ryan said.

Ryan will spend the next several months exploring the options open to him as he and Royal Alaskan plant manager Tom Takeoka design the new line. "We're really starting from bare bottom," he said. "We can use the Japanese experience and knowledge, but not their example. In that sense we're very much on our own."

Ryan's surimi plant design includes: a washer, header, gutter, removable roe table, filleter, deboner, leach tank, pump, screens, refiner, dehydrator, weigh hopper, blender, and filler.

Some of the machinery is decided upon; four machines were to be purchased in mid-December. Some are presenting intervening problems for Ryan: the Japanese are just wary enough to try to slow things down for America's first venture into the processing side of surimi.

Ryan hopes to complete the line by mid-April. He will supervise installation and monitor the first few weeks of production to ensure smooth operations.

Processed surimi in Japan is tested on a dozen criteria before grading. Quality control personnel take careful objective and subjective calculations on moisture content, rheometer puncture readings, elastic limit, white value, bright value, drip tests, pH levels, visual appearance, and presence of foreign material, bite tests, fold tests, and salt content.

The Royal Alaskan plant will ensure equal quality control. Careful scrutiny will begin with the machines as they process the product. Final results will be put to several tests to measure moisture content, salt content, and gel strength.

The final product will be graded according to the following standards: Number 1 grade will contain 4% sugar, 4% D-sorbitol, 0.2% polyphosphates, and 77% (+/−1%) moisture, with compression response of 350 grams or greater. Second grade will contain 79.5% moisture and register in compression response tests at 300 grams or greater.

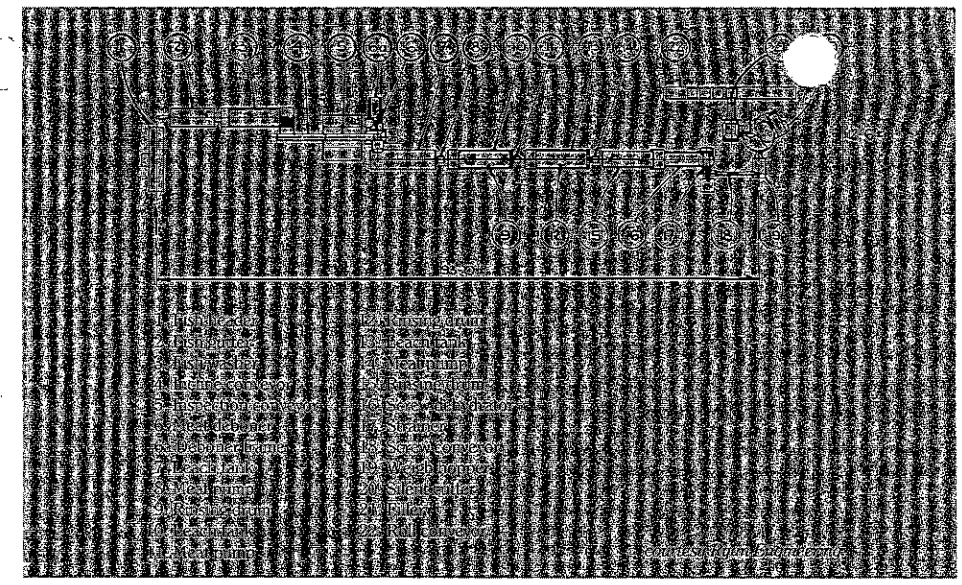
"The Royal Alaskan plant is one of the largest facilities in Alaska, with over 4,800 square feet available for the surimi line. The plant is capable of processing 600,000 pounds of crab or 400,000 pounds of salmon a day, and is attached to 700 lineal feet of dock space.

The plant is already equipped with most of the major machinery needed to make a second-grade surimi line, Ryan said. "The best designed plants will provide space to use the reject first-line material to produce second-grade stuff," he said.

Other Alaskan processors will be as eager to scrutinize Royal Alaska's plant as Ryan and Takeoka are to scrutinize Japan's plants this month and next.

The U.S. surimi processing industry is poised. Much will happen between the signing of the production contract and the freezing of the first pan of Dutch Harbor surimi, and most of the industry will be watching.

Plan view of 2600 lb/hr surimi line



Royal Alaskan to Produce First U.S. Surimi (continued)

Royal Alaskan, whose Dutch Harbor plant processes primarily king crab, salmon, and cod, sits just five hours away from the largest pollock concentration in the Pacific Ocean. According to the company's proposal, there are at least 200,000 tons of pollock harvested annually in the Aleutian Chain and eastern Bering Sea area, and over 1.4 million metric tons available. The plant itself is capable of processing 11,800 pounds of raw pollock per hour, producing 2,600 pounds per hour of finished surimi, the proposal stated.

The firm plans to contract with two catcher vessels, the F/V Storm Petrel, and the F/V Lone Star, both of which have fished for pollock for surimi production in joint venture operations with Japanese processors.

The pollock will be delivered every 12 hours to the plant, where it will be processed into surimi. Where feasible, plant managers hope to produce other pollock products in conjunction with the surimi line, including roe, canned pollock, frozen fillets, and possibly some surimi made from Atka mackerel.

Machinery for the full-scale line will be provided by Ryan Engineering, Inc., of Seattle, the exclusive Bibun Machinery agent in North America.

Surimi produced during the project will be distributed by AFDF to the nearly 100 food companies across the country who are working with the versatile material in developing new products.

It is hoped that once this surimi processing line starts bringing in profitable results, others in Alaska will spring up to take advantage of the growing opportunities in this nascent industry. Food companies are often wary of committing themselves to sole-source supplies, experts say, and will welcome the entrance of competitive surimi distributors.

Since the beginning of AFDF's direct-mail information campaign in October, the office has received an average of six to 10 requests daily for surimi samples or information.

"Now that the food and ingredients folks are running away with this idea, we'd better have the stocks (of surimi) to supply them," Mitchell said.

Dave Keene, vice president of Royal Alaskan, said he hopes to begin operations by early spring, and fulfill most of the 1.3 million pound commitment by June.

Editor's note: This is the second in a series of articles by T C Swafford about profit opportunities open to Alaskan processors through fish by-products. We believe total use of the resource is the key to a successful industry. Here, Swafford offers invaluable information about this undeveloped part of the industry, from which most of us can learn.

T C Swafford is marketing specialist for Alfa-Laval, Inc., 900 Larkspur Landing Circle Suite 115, Larkspur, California 94939. (415) 454-9530 Telex: 33-0467.

Waste Watching:
gearing up for profits from fish meal

by TC Swafford

The remote processor initially may feel some apprehension about broadening his base for better profitability, particularly when the tonnage of his resulting fish oil and meal by-products won't make a simple pimple dent in the millions of tons generated annually in the world marketplace.

But the 1.4 million tons of fish oil and the 5.4 million tons of fishmeal produced annually actually serve to give the smaller individual processor ready-made revenue access to established major markets. By-product prices do vary, even as do those of raw materials or finished commodities; fishmeal prices are significantly higher, at this writing, than last year. The ongoing national and international market demand continues in a realistic fashion. A good broker provides your link-up into that market.

For the most part, fish oil has been viewed as a product for use only in industrial and marine paints, where it has excellent penetrating character, and for other strictly industrial uses. However, a major extension for fish oil has led it into human consumption for margarine and shortening in Africa, Europe and Asia. The marine oils are deodorized, refined, hydrogenated, and blended with vegetable oils into a perfectly suitable food. Similar blended marine oils are also used in manufactured cookies and similar food abroad.

Alternately, it is possible a very remote plant may wish to properly blend its clean produced fish oil on a percentage basis (similar to the "gasohol" concept) into certain of its fuel oil. Nozzle adjustments and other considerations apply, but an extension of No. 2 diesel fuel, or of boiler fuel, can contribute to lessening some of the remote processor's fuel supply costs. Thereby, the plant could consume its fish oil at an internal value somewhat equivalent to the cost of fuel, and ship out only its packaged meal to the marketplace.

Conventional Fish Reduction

Alaskan processors and operators elsewhere, who wish to extend their flexibility and profit ability by installing by-products reduction, should take advantage of modern concepts. Installing what was efficient a few decades ago makes for a non-competitive cost factor in 1984, to say nothing of continued increasing inefficiencies for the next 15 to 20 years while other competing plants modernize further.

Until recently, reduction of fish into meal and oil by-products followed a time-worn circuit.

- Whole or broken fish or offal are chopped and fed into a steam cooker.
- Pressing of cooked fish squeezes a flow of presswater containing oil and meal.
- Meal and oil are separated and sold.
- Separated water may be evaporated and sold as "solubles", or blended into the meal.

This type program has variations, of course, but its basic principles appear in most reduction plans. Recent trends have been toward reducing capital and operating costs, and producing higher-value by-products with more simplistic yield efficiencies.

NEW TRENDLINE - Cooking Stage

Heating the ground fishmass is vital to enable removal of the oil. Desirable temperature is about 190°F - 210°F. Innovative in-line heating can get the mass up to temperature in 20 to 100 seconds, and ready for centrifuging removal of the oil.

The new Contherm "self-cleaning" scraped-surface heaters differ greatly from conventional older-style steam cookers. The new "cookers":

- Eliminate injection of steam into fishmass, thereby decreasing wastewater.
- Reduce usual "20-minute" cook time into seconds, benefitting oil and protein quality.
- Enable very high-heating efficiency.

NEW TRENDLINE - Fishpress Stage

Presses of several designs have long been used to create a presscake which is then dried into fishmeal. Centrifuges were used originally to recover high-protein fines and salable oil from presswater. Now smaller plants can often combine both Pressing and Meal Recovery into a single centrifuge step which:

- Boosts protein yield of fishmeal with significant price advantage.
- Presses mushy fish otherwise impossible in conventional presses.
- Combines primary oil separation with pressing in smaller plants.

NEW TRENDLINE - Meal Drying

Rotary direct-flame dryers have been widely used for years. Direct-flame dryers can often simply degrade, combust or scorch fine protein particles (usually of high nutritional character) which lose economic value when fed to the dryer. The Pulse Combustor dryer by Sonodyne Industries is the newest in very high-drying efficiency, and is available to smaller remote processors, meaning less fuel is required at the site. The Pulse Combustor dryer surpasses other pulse dryers in performance, because of the following features:

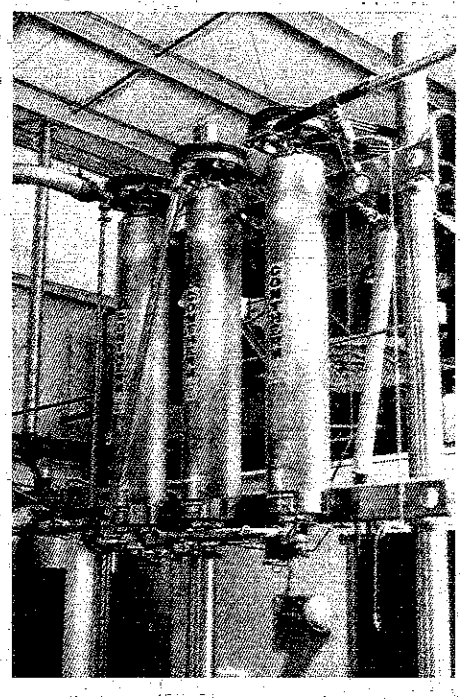
- Protection of quality protein and valued amino acids.
- Low surface-drying temperature of meal in air stream.
- Exceptional thermal efficiency for lowest fuel cost of other dryer designs.
- Uses almost any liquid or gas fuel.
- Combined Drying with usual solubles Evaporation stage, boosting meal sales value without requiring purchase and operating factors of traditional evaporator equipment.

The processor's meal sales revenue per ton is based upon high quality protein content. Example: Based upon trading price of $6.75 per protein unit:

Plant A delivers one ton of meal at 58 protein units. 58 protein units @ $6.75 = $391.50 revenue.

Plant B delivers one ton of meal at 65 protein units. 65 protein units @ $6.75 = $438.75 revenue.

Both example plants delivered one ton of meal, but the quality meal always brings a higher price.



New-style cookers are scraped-surface vertical-mounted units, connected in series to provide heating of pumped ground fishmass to the centrifuge, literally in seconds. These insulated cylinders occupy very small deck space, and keep hot vapors from escaping to atmosphere.

Courtesy: Alfa-Laval, Inc.

New Trendline - Hydrolysates

Natural or added enzyme organisms liquefy dead fish or offal. Liquefaction can be accelerated and controlled to yield highly desireable amino acid/concentrated protein products of definite commercial advantage.

Liquefied Fish Hydrolysate has long been used for silage animal feed material, although it's not particularly suitable for economic transport to distant feed farms. LFH in most cases can be readily dried; removal of excess fat by centrifuge may be desirable to prevent spoilage, enable proper drying, or for livestock suitability. Processed LFH can also be sold as a liquid fertilizer.

Animal Feed Concentrate, as produced in a system developed by Advanced Hydrolyzing Systems Inc., uses the same basic principle of enzyme liquefaction of ground whole fish or offal. A.H.S. has process-engineered a compact straight-through continuous-flow circuit which can be tuned to deliver animal-grade feedstuff, and other specialties to satisfy the heavy demands of fish hatcheries and fish farms.

Fish Protein Hydrolysate Concentrate for human consumption can be produced in the above-described A.H.S. process circuit by adding extra staging onto the end of the Animal Feed Concentrate staging; naturally, sanitary regulations do not permit the interchangeable processing of edible products in the same equipment used for inedible production. The Edible and the Inedible upstream configurations of the A.H.S. circuit are basically identical.

Considerations for Quality

Making good fish meal and oil has some similarity to the making of good wines; the better your quality, the higher the price. Your broker will love you, too, because when market conditions are soft, he can move your products easier than poor grade products.

Several basic factors can significantly affect quality:

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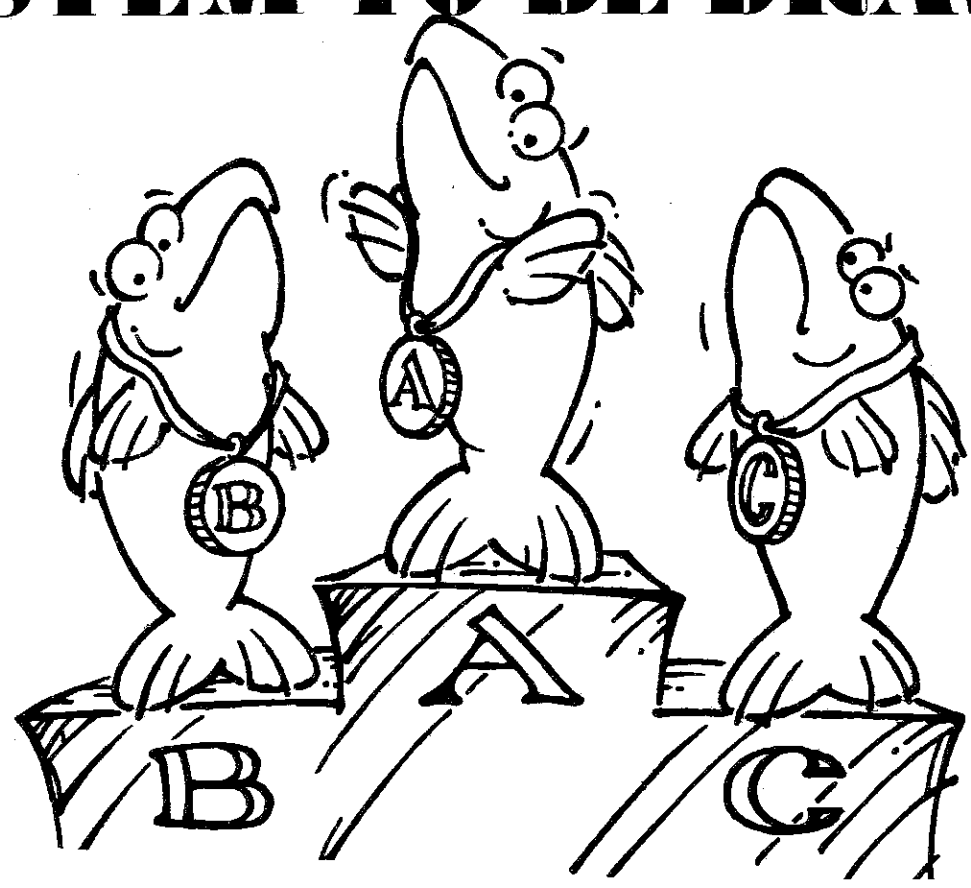
SURIMI SPECIFICATIONS SYSTEM TO BE DRAWN



AFDF will award a contract to North Carolina State University to develop methods for establishing product specifications for surimi.

According to the proposal submitted by Dr. Tyre Lanier and Dr. Donald D. Hamann of NCU's Department of Food Science, the two-phase project will:

1) review the present Japanese surimi grading system; and
2) develop testing methods and quality specifications for the U.S. market.

The contract comes in the wake of a spurt of growth in the U.S. surimi industry. With over 50 companies researching the potential of surimi based products (at last count), the need for uniform specification standards has increased.

According to AFDF's proposal request, the grading system presently used in the surimi industry (most of which is produced in Japan) may be inappropriate for surimi produced in the U.S. for the U.S. market. The present Japanese grading system is based on production methods, allowing only surimi produced at sea to be classified at the highest price grade.

Lanier maintains, however, the most important characteristic of surimi bound for the U.S. market is the ability to gel. While taste, color, and texture are easily measured and compared, Lanier states, "gelation properties are very sensitive to the processing steps employed, and thus more difficult to quantify."

Lanier and his staff, Dr. Donald D. Hamann and Dr. Takayuki Akahane, will first review the existing Japanese grading standards for surimi and minced fish and how that industry uses the various grades in manufacturing different products. They will then develop a set of testing methods to evaluate those qualities that would be significant to the domestic industry.

The quality of surimi is a multi-faceted determination based on gelling qualities, color, taste, moisture and fat content, and a number of other factors. In many cases, the end-user is primarily concerned only with a few aspects of quality, and therefore may want to choose which specifications are more important for his uses.

Dr. Lanier hopes to provide a set of specifications that will apply to the spectrum of uses U.S. food companies may apply to surimi in the future.

The project is slated to be finished by December 1, 1984. Reports will be available through AFDF.

Wast_ Watching: (continued)

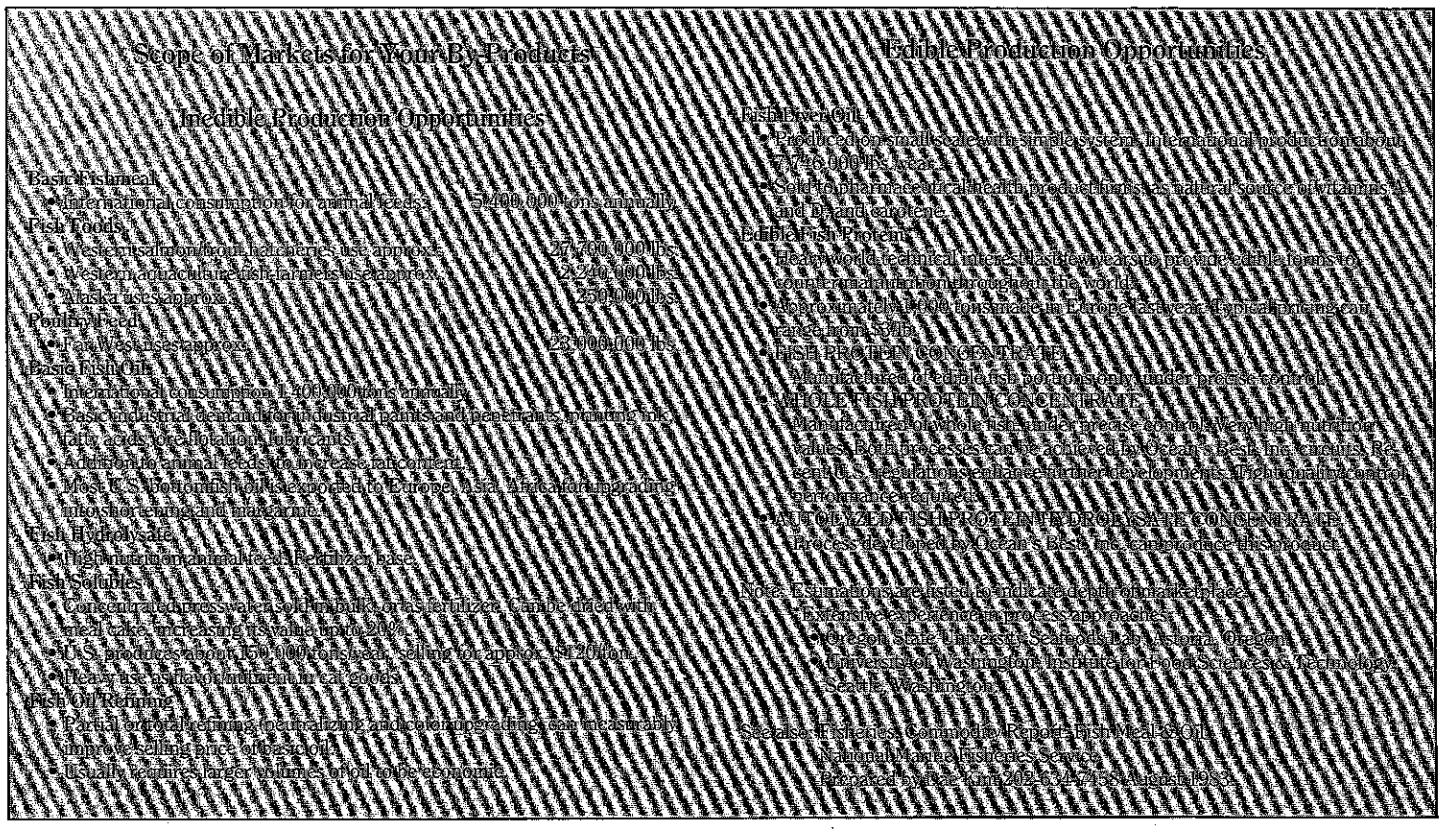
- Raw Material: Keep it cool, and process it as rapidly as possible. Do not grind up the whole fish or offal until ready for the cooker stage. If possible, process the poor material and the good quality separately.
- Reduction Design: Arrange components to aid ease of cleaning.

"Good housekeeping is profitable." Make it safe and convenient for operating personnel.

- Process Timing: Shorter actual reduction time aids higher quality yields, making oil of better character.
- Storage/Warehousing: Observe good clean practices. Protect the quality (and your investment) to the point of delivery.

Operational decisions can impact quality and profitability. For instance, a decision not to produce fishmeal within trade standards of moisture and oil (fat) content, or the lack of proper equipment circuit to enable meeting these standards, could result in:

- severe discounting of the meal, just to get rid of it.
- potential spontaneous combustion of the sacked meal, with appropriate inconveniences.



Summary Statement

Whether the processor elects to install by-products reduction on his own, or as a joint-venture or central plant with others, and whether on-shore or afloat, his goal is to upgrade the health of his industry through improvement of his own economics to match the foreign-flag operators. Most emphatically, his goal is to improve his total competitive posture.

Recent technology can be put to work to gain an edge, particularly for smaller operations. It would not be amiss to examine financing alternatives, such as leasing in place of outright purchase as an aid to cash-flow conditions.

Lower leasing payments become possible if the processor is able to assign Investment Tax Credit and Depreciation to the lessor. In larger by-products plants, it may be possible to include installation costs as part of the lease package, or to arrange lease payment scheduling more nearly in line with timing of by-product revenue returns.

The Alaskan fishery can only benefit through the continuing interest and active involvement by all of its friends.

NFPA to sponsor surimi conference

National Food Processors Association will sponsor a mini-conference on surimi in conjunction with its annual convention Feb. 11-15, 1984 at the Washington D.C. Convention Center.

Slated as the "first U.S. conference on surimi in the U.S. food industry," the meeting is co-sponsored by NFPA's fishery affairs division, AFDF, and other development foundations, and is scheduled from 1-5 p.m. Tuesday, February 14.

The speakers' panel touts names that are familiar to many who are already involved in surimi. The program will be as follows:

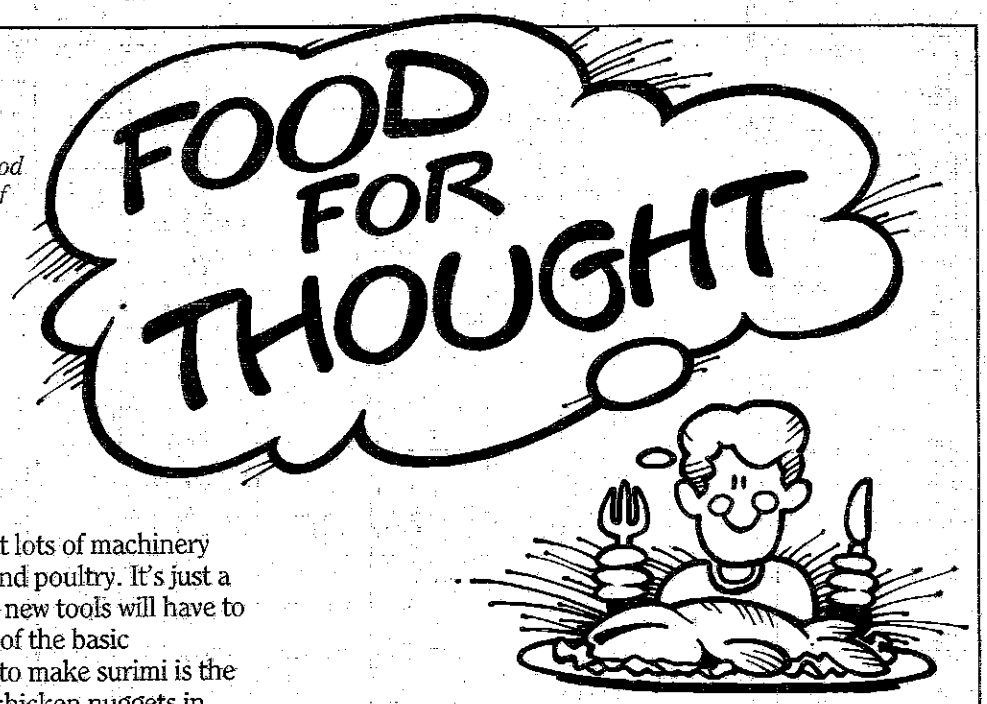
- Introductions:
  Douglas B. Gordon, NFPA Fishery Affairs Division
- Overview and Potentials Through a U.S. Case Study
  Frank Kawana, President, Yamasa Enterprises
- Fish species and their Potentials in Surimi
  Prof. Tyre Lanier, Department of Food Science, North Carolina State University
- Harvesting and Handling
- Processing Machinery and Product Development
  Robert Ryan, President, Ryan F[illegible]neering
  K[illegible]McFarland, President, Beehive Machinery
  Jack Hice, President, Research Associates.
- Ing[illegible]ents technology
  Vito Russo, Norda/Ogawa
- Domestic Market Outlook for Surimi
  Prof. Ed Leonard, School of Business Administration, Emory University

A "Seafood Fantasy" reception with the slogan "Things are not as they seem. . . " will follow the conference,, from 5:30 - 7:30 p.m., featuring a myriad of surimi products for tasting. Most will be donated, with company representatives on hand to answer questions.

The surimi conference is open to all NFPA convention registrants. Fee to attend the convention itself is $50 for NFPA members, $100 for non-members. To register, contact Ms. Yaso Narita, Manager, Convention Services, NFPA, 1401 New York Avenue, N.W., Washington D.C. 20005; (202) 639-5923.

> The surimi industry right now is much like the old chicken and the egg. We don't want to scramble the eggs and eat it. We've got to get that chicken out there scrapping around and laying eggs.
>
> —Bob Ryan

This issue, the Lode Star speaks with Rae McFarland, food technologist and president of Beehive Machinery, Inc. in Sandy, Utah. McFarland's 30 years in food technology have brought him the depth of knowledge and creativity of hand that have earned the respect of food industry experts worldwide. Here, read excerpts from a conversation with McFarland that may spark new ideas among our readers. . . .



"One thing in favor of surimi is that lots of machinery you need is already made for meats and poultry. It's just a matter of using the right tools. Some new tools will have to be created, but we already have a lot of the basic technology. The technology you use to make surimi is the same Campbells Soup uses to make chicken nuggets in chicken noodle soup. It's just extruded chicken.

Surimi is just the isolation of various muscle components with water, using a water wash. The same idea is being used in traditional meats like beef jerky, dried beef pellets, cottage cheese. . . take milk mass and lactic acid, and it starts to curdle. Wash that in water, and it makes cottage cheese. It's dairy surimi. The technologies are the same; the difference is the level of sophistication, the pH balance, and pressure. It's really being done all over the U.S. right now. . . it's just that nobody's thinking about it in that way.

We can do the same with wheat protein: wash it with ethyl alcohol, and it makes wheat flour. In other words, the isolation of various components of natural products makes surimi. It's all the same concept of cellular swelling without breaking them (the cells). Then wash certain components out from the cellular struc[illegible] Use corn, wheat, milk, or wood pulp. When you use fish, you get surimi.

"Each process has a different key with a different set of teeth. Each process is different. W[illegible] the key to separating surimi? What's the factor that makes it economically successful? There are a hundred different varieties of corn, also; figure out which is the best key for economics. There are lots of different species of fish. Pollock is the one raw material that looks like the key is really going to fit. It's profitable; it can be a successful contribution to the system."

"Surimi technology will survive no matter what anybody says, because it's the right economic level. It's not just creating an interest that's important. Surimi is going to be an industry in itself. Just like if you could go out and get gold for a dollar an ounce. The price is right, the industry is going to work. Beef on the hoof is 55¢ a pound right now. Pollock FOB the trawler is four to five cents a pound.

"When assessing food needs, the government looks at cost of energy output. If the energy used to feed the animal isn't going to be supported by nutritional output, then it's not efficient. Compare surimi, hamburger, and chicken. How much energy does it take to make one pound of ground beef? It takes 7 pounds of feed to produce one pound of beef for food. It takes 4 pounds of feed to make a pound of pork. It takes two and a half pounds for turkey, a pound and a half for chicken. But it takes one pound of marine food to produce one pound of food for the table. If the animals are good converters, they have a low cost per unit of protein. Marine products have the highest conversion level. It's all a question of how much energy it takes to put the food in front of you.

"The cost also depends on how industrialized you are. Cheap meat gets expensive if the process isn't industrialized. In some countries, fish are highly prized for rituals. In others, like Japan, they have economic cartels, so the price of fish may never go down. But the industry has to make it cheap to consumers to survive.

"The Japanese dominate fishing technology. Germans control the muscle fiber technology of the world. But the fishing industry is improving in America, due to competition, better quality, better handling and flavors. Fish is becoming a substitute for meat and poultry in America. We're more generalists in this country; we eat everything.

"Surimi is a tool to improve the quality of a fish product that otherwise wouldn't make it on the market. The quickest way to success with surimi is to copy something else, and then branch out as time goes on. Start out with copying crab legs or whatever. Later on, we'll need to develop new kinds of food that we don't have now. The American hot dog is only 125 years old. It's obvious that surimi will become an industry, just like the hot dog did.

"You should be smart enough not to mak[illegible]imitation food. We call steak a certain style. Far-land[illegible]k is chopped and formed steak. Use generic names, like in meat: sea legs, chicken of the sea, surimi-style crab legs. It's important to find the right way of writing a label. It's not imitation seafood, it's just a style of making se[illegible]d. Some names become a legal definition in themselves. You must study the existing law, and apply that to your own organization.

"I don't find regulations a problem. The (inspectors) are just as interested as I am in creative work, in making sure the consumer gets the nutrients he thinks he's getting. We all want to make sure nobody pollutes the standards. Laws are just helpful guidelines."

"Too bad they can't come up with an American word for surimi. The Japanese don't have a definition for it. We need our own word.

"The Japanese didn't come on board as innovators, they came in as copiers. Most all food products are made in the U.S. now. A hundred years ago, everything was made in Europe. Then they came here and taught us, and we created new things from what we learned—hot dogs, pizza, mcnuggets, fish sticks. We learn, and then innovate. Now there are more kinds of sausage here than there are in Europe.

"I've made 50 different kinds of sausage over the last few years. I know which spices go with which muscle. Each spice is associated with a food product like salami, ham, cube steak, sausage. Each spice represents a tradition somewhere in the world. The Oriental is MSG or soy sauce. Europe is garlic and onion; U.S. is hominy and tortillas. In Central America, they use anise and chocolate in their sausage. . .

"You can't hardly hurt a chicken. But not everybody likes all the other flavors of meats. I've tried to make surimi out of trout bones from fresh trout. Also patties, fillets, croquettes, reformed trout. . . We've made simulated canned tuna and salmon. . .

"It's all the same technology. The key is finding which one works to fill the need."

Editor's Turn

OFF the CUFF

"If nobody said anything unless they knew what they were talking about, a ghastly hush would descend upon the earth."

—Sir Alec Herbert

Luckily for us, people have been banging around where they didn't belong for generations, bringing home new discoveries like fire, the cotton jenny, internal combustion engines, and pizza.

Americans are famous for taking quantum leaps toward ideas that are just plumb crazy, thereby changing the world, or part of it, slightly. Jet engines were invented in America; so was the hot dog and the paper napkin. We don't have all the good ideas first, but our country is where most of them blossom.

I heard a preacher in Montana tell a tale about a man stumbling home drunk from a party one night, who fell into one end of an open grave. He scratched and jumped around, but couldn't drag himself out of the grave, so he curled up and decided to wait for morning, when someone would save him.

Pretty soon, a second fellow came stumbling through the darkness, and fell into the other end of the grave. He too began scratching and jumping trying to get out, and was just about to give up when he heard a voice through the darkness from the other end of the grave say, "You'll never make it."

He made it.

It's amazing what you can do when you really want to. The reluctance to explore new frontiers has never been a handicap for Americans, and we've seen this more in the U.S. food industry than anywhere else. The United States has far and away the strongest, most technologically advanced food industry in the world. Between cheese-flavored cat food and artificial eggs, there's hardly a product you can't get here, hardly a process that isn't being used in some formulation.

We already have the technology, as Rae McFarland says in his "Foods for Thought" article. Processes like cross-current extraction, and spray-drying protein from pollock by-products have been used for years in the U.S., and in these areas the Japanese are in fact lagging behind.

As the U.S. food industry grabs hold of surimi and other pollock products and wraps their expertise around these materials, we learn we are only beginning to discover the economic advantages to this huge resource. The world's strongest food industry has met up with one of the world's largest, least expensive protein resources, and from there, who knows, we may soon surpass Japan in surimi technology.

George Stephenson once told about the public reaction to his first steam locomotive in 1829. When the crowds gathered around to see his "Puffing Billy," they said, "It'll never go. It'll never go." So he started it up and as it picked up speed, they all said, "It'll never stop. It'll never stop."

(The steam locomotive, by the way, was invented in England in 1804. It was the Americans who made the machine a success.)

There's always a few in the crowd who have to speak up. Even when they don't know what they're talking about, and the food and the fishing industries feed on them. When the surimi industry picks up as much speed as Stephenson's locomotive did that day, let's hope the hue and cry is: "It'll never stop."

LodeStar editor
Krys Holmes

Krys Holmes

A LABEL BY ANY OTHER NAME...

More surimi products are making their way onto the market by the minute. As crab sticks, lobster thermidor, and pizza toppings made of surimi find their way before the U.S. consumer, one problem looms before brokers and processors: what do you call them?

Labelling problems haunted marketing executives long before the first squid salesman wrapped his decadigital cephalopod in a designer baggie and called it 'Calamari."

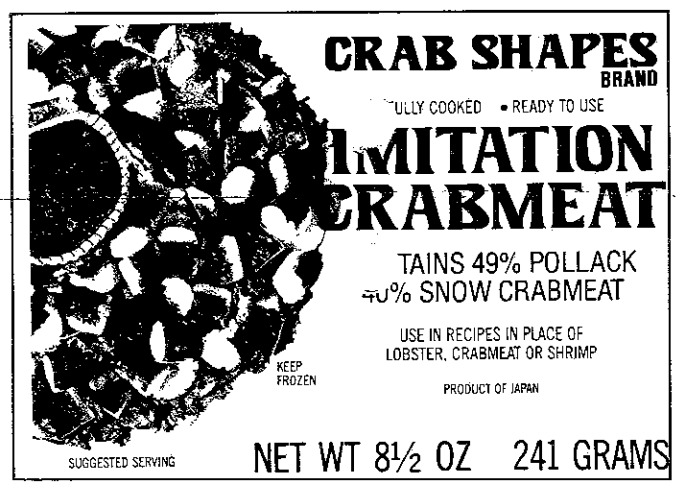
Most agree: no one would eat a cold, dead, raw fish. Yet "sushi" has become one of the most trendy dishes of the 1980's.

Labelling requirements and restrictions have a profound influence on the marketability of new surimi products. Current labelling regulations require that any food resembling and substituting for an existing food that is nutritionally inferior must bear the name "imitation" prominently on its label.

Several weeks ago, a waitress in an Anchorage hotel asked an AFDF staff member about the company's activities, and when surimi-based crab legs were mentioned, the waitress blanched. "I don't eat imitation food," she said.

The waitress shares sentiments with the vast majority of consumers. An FDA survey showed 80% of the respondents believed "imitation" foods to be nutritionally inferior to traditional foods, and less "good for your health."

"We believe the word 'imitation' is the kiss of death for a product," said Ken Coons of the New England Fisheries Development Foundation. That organization is now entrenched in a project to evaluate current labelling requirements, survey the industry's present label practices, and glean industry input to discuss with FDA officials next April. Coons hopes to develop a solid base of background information and documentation to present to the FDA to justify the industry's requests in rewriting surimi labelling restrictions.



"You don't just go in and say, 'This is what I'd like you to do,' " Coons said. "You have to back it up. We're doing the homework. . . "

Currently, no FDA regulations have been formally written for surimi products, and rules seem to change from state to state. Buyers in the Midwest find they must label all surimi products "imitation," while West Coast distributors had to argue for the right to do so, which was granted them last summer.

One large Seattle grocery chain buyer said his company appealed to the regional FDA offices to allow them to use the term "imitation" on their surimi-based crab legs. "We felt it would be an advantage," he said. "It identifies the new product, and helps let the consumer know what it is."

Marsha Lohbeck, seafood buyer for Kroger Co., said the nation's largest grocery chain preferred to call their product "crab shapes," with bold lettering underneath the name telling of the percentages of real crab and surimi.

"The FDA seized two container loads of the product, held them up for many weeks, and required us to relabel all of the packages before we could sell them in the U.S.," Lohbeck said. "Food and Drug people said the primary name had to be imitation. We relabelled them all at great financial expense, just to get the product into the stores."

Lohbeck says in-store sampling indicates customers who usually buy shellfish buy most of the analogue products, and sales are "very good." "It's one of our most successful seafoods—it's the fastest selling new item we have. People are willing to try these things once, but if they're not good quality they won't buy it again. You can always sell the first time for the price, but after that it has to be because of quality," she said.

Lohbeck, however, feels that the word "imitation" is a handicap, and consumers are less willing to adopt imitation foods as a regular item on their shopping list.

Bob Simon of Sea West Industries believes name brand strength will overcome any negative effects of the word "imitation."

Marketing experts agree name brand strength packs a wallop in the consumers' mind. Ben Bliss of Ernest Potischman, Inc. in New York (the company who put baking soda in America's refrigerators and made WD-40 a household word) said imitation products appeal to a certain segment of the market, if they are strategically positioned.

"Sometimes the words "pollock" or "squid" have negative connotations, depending on the culture," Bliss said. "Then imitation crab might help the product."

Bliss suggested the "name conveys the image," and the very idea could stimulate consumers' interest. "There are any number of things creative people can do to deal with labelling restrictions," he said.

Closer to the Alaskan market, Tim O'Krongly of Aadland-Huber Advertising in Anchorage said bold "imitation" wording will discourage consumers. "The word connotates chemically made products that are handled by a lot of people. Consumers want food to be perfect, not fiddled with or fabricated," he said.

People are more sensitive about freshness in seafood than in most meat products, O'Krongly said. Showing a photo of an attractive product helps sell to the hesitant customer. O'Krongly says 88% of the people look at the picture on the label; only 20% read the entire copy.

continued on page 8

Holiday Wishes

Chris Mitchell and the staff at AFDF heartily extend joyous Christmas wishes to all our associates and companions in this venture. At Christmas, we reflect on the immeasurable gifts that make up our lives: gifts of resource, of challenge, of opportunity, and the sheer human creativity that sheds its endless hope on all of us. May these and other blessings be yours this Christmas season and through the coming New Year.

A LABEL BY ANY OTHER NAME...

Famous name brand companies aren't much ahead of unknown brands, either, according to a study by the Consumers' Network in Philadelphia. Food Engineering magazine (October '83) reports that study found most consumers don't associate brand names with good quality, and that management "greatly overestimates consumers' brand-quality associations."

"Seafood marketing is a tough nut, and imitation seafood might be even harder," he said. "The only answer is to research your market. Everyone in the industry is going to have an opinion; it's best to get an opinion from the consumer and stick with that. Strategy is 99 percent of success."

O'Krongly recommends putting the brand name most prominently with the required "imitation" verbage further down.

Rae McFarland, president of Beehive Machinery, Inc., recommends another route completely: make up a new name entirely. "Either call it surimi-style crab chunks, or come up with a completely new name, like Chicken of the Sea," he said.

It's been done. Sizzlean, Cool Whip, Country Spread—even the hot dog—have all escaped the dastardly "imitation" labelling controversy.

The New England Foundation will gather comments in depth from various marketing vantages for their report. In the meantime, National Fisheries Institute officials and other key industry people are discussing regulation requirements, nutritional analyses, and strategy plans with FDA. Some officials warn against "opening a can of worms," by pushing the issue before the scheduled meetings. Others—like grocery store chains and other major importers of the Japanese product—would like to see changes happen sooner.

McFarland advises, meanwhile, that companies should "study existing laws for other products and apply them to your own organization.

"They (the FDA) are just as interested as I am in making sure the consumers get the nutrients they think they're getting."

INDUSTRY SAYS:

(continued)

involvement in the surimi industry.

Little formal speaking was scheduled; AFDF staff felt that more important results would come from personal contact over a crab stick than from speech-making over a podium.

As a result, the din was louder than an auctioneer's fest. But participants later deemed the gathering a smashing success. National Marine Fisheries Service officials, AFDF board members, and industry people alike expressed surprise over the number of people who participated, and the level of information exchange that had resulted. Most felt as though the mere opportunity to share ideas with so many surimi industry resources at one time was an invaluable contribution to the industry as a whole.

The day after the gathering, NMFS held a surimi industry meeting themselves, to discuss the status of AFDF's surimi project and other similar programs around the country. Thirty participants from the regional fisheries development foundations, several NMFS members, and industry representatives discussed the immediate future of the industry and the steps needed next.

Most agreed the industry faces some uphill battles with FDA labelling restrictions, technology sharing, new product marketing, and Japanese competition.

Jack Greenfield of NMFS suggested that small companies seeking advice in Japan should avoid the large surimi processing industry there, and center on the kamaboko plants. "They produce a higher-grade product, in smaller shops, and are more likely to be interested in alternative surimi supplies," he said.

Others also agreed that sending small U.S. companies to learn about the Japanese industry may just result in "shell-shock" over the size of the competition.

Dr. Chong Lee of the University of Rhode Island said, "The problem isn't starting the industry, but in making a consumer-acceptable product. Americans have a more subtle, sensitive tongue than the Japanese. We have the high technology, especially in protein manufacturing. It's just a matter of time."

The idea was discussed to create a surimi "think tank," an industry nucleus that would function as a brain trust for surimi technicians. No action was taken on the idea, but the concept was well received, and may come to fruition in the near future.

The prevailing winds in this nascent surimi industry seem to say: let's meet the challenge head-on.

As kamaboko-maker Frank Kawana put it: "The U.S. industry has to roll up its sleeves and go into it. Grow as you go." Kawana, whose company Jac Creative Foods is the only U.S. producer of kamaboko products, said it was fruitless to worry about competing with the Japanese surimi industry at the outset. "Find your own market," he said. "Find your own place and develop it."

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