

the **LODESTAR** STAR

Charting the course of fisheries development today.

Alaska Fisheries

Development Foundation, Inc.

Volume IV, No. 3, Summer 1986

News to Use

The masthead of this issue may say Summer, but autumn definitely has spread its yellow sheen over Alaska. *The Lodestar* was delayed slightly this time while AFDF awaited news from its board of directors about a new executive director; see page 7 for details. (Okay, okay, I'll tell you. One hasn't been chosen yet; the board decided to re-open applications until November 15.)

Other news worth waiting for: Polydextrose has been found to be a suitable non-sweet alternative for sugars as cryoprotectants in surimi; see page 3. Significant progress has been made through the regulatory maze of USDA as AFDF pursues regulatory allowance for use of surimi with meats. See page 4.

The Fishery Industrial Technology Center in Kodiak is emerging as a data center for surimi research. In this issue, Dr. Elisa Elliot reports on her microbiological studies of surimi; see page 3.

But start this issue just right of here with our feature survey on the impediments facing the U.S. surimi industry. Then think about it from your own perspective. What is keeping your sector of the industry from further progress toward fuller use of surimi? What is needed to open more doors for industry development? What kind of information is needed? Please write to *The Lodestar* with your comments. Your participation in the industry is what makes it move forward.

As a post-script, please consider renewing your *Lodestar* subscription in the next few months; after December 31, the rate goes up.



Growing pains

Small thinking vs. surimi expansion

The U.S. market for surimi-based products is a thousand times bigger in 1986 than it was in 1980. Fifteen seafood analogue plants have sprung up in the U.S. in the past three years. On the production front, where most people thought the U.S. couldn't compete, there are now three shore-based surimi plants—Alaska Pacific Seafoods now is doubling the size of its plant—and at least three more scheduled to start production next year.

The industry has grown as quickly as Alice in Wonderland and now fulfills most everyone's first expectations. But what next? What must be done before Alice can grow any more? Who will build Alice a bigger house? Processors need new markets; the food industry needs more information; product developers need more room in the regulatory environment; and in every area the industry awaits someone who will take the first risk. Alice, it appears, has bumped her head against the ceiling of small thinking.

We asked nine participants in the surimi industry, "From your perspective, what is the biggest impediment facing the U.S. surimi industry today?" Below are their answers. (The *Lodestar* encourages responses from more readers in the form of letters to the editor.)

Need to learn economics of surimi

The biggest impediment to the surimi industry right now is price. Japanese surimi now costs \$1.50 to \$2 a pound, and the availability of SA grade on the market is disappearing. But the retail price of Japanese analogues is staying level, so that makes it hard for the U.S. analogue maker to compete.

On one hand, higher surimi prices make it easier for U.S. surimi producers to compete. But on the other hand, the Japanese can turn around and buy up U.S. surimi at lower prices for their own use, and continue selling their surimi at a higher price. The Japanese are now buying Korean SA grade, and New Zealand hoki surimi. They're holding down the prices of their surimi analogues by using imported Korean and U.S. surimi, and increasing the costs to U.S. analogue producers by selling them the higher-priced Japanese surimi. Some analogue manufacturers in the U.S. can't even get enough SA surimi.

One issue is that SA surimi comprises a smaller percentage of total surimi production in Japan. Here in the U.S., we're trying to produce all-white surimi for analogue use. In Japan, they produce *maybe* 15 percent SA grade, and use the redder surimi in their other products. We need to develop new markets for our redder surimi which is not used in analogues today. We need a better understanding of the yields and costs of all surimi production, and not try to make 100 percent all-white.

Continued next page...

Small thinking: continued

"The biggest impediment right now is the regulatory attitude toward new food products in general..."

Dr. Tyre Lanier

"Things started out very easily for this industry... But it isn't going to be easy any more."

Paul Taylor

"When you have the facts to support the creativity, then the doors are open to you."

John Morrison

"I think the biggest problem right now is inertia."

Bob Nordstrom



We have to get the price of the redder surimi to be competitive with other proteins. Surimi can be used anywhere chicken or red meat is used, but not at its current price/protein ratio. You can buy chicken for 15 cents a pound, and today white surimi is \$1.50 a pound. The cheapest chicken you can buy is equal to surimi in protein content. But surimi is ten times the price per unit of protein of mechanically deboned chicken. We have to start thinking in terms of the mathematics of protein substitutions.

*Rae McFarland
AFDF board member, and CEO of Beehive Machinery, Inc.*

Regulatory attitude

My stock response to that question has always been "Japan, Inc.," the total control of the industry by Taiyo and Nissui. But I think that's crumbling now.

Beyond regaining American control, the biggest impediment right now is the regulatory attitude toward new food products in general. There's a strong reluctance to accept fish as a meat. In the past, any meat with fish in it was viewed as almost alien. So this attitude, reflected in USDA and in FDA, is probably our biggest impediment right now.

The trouble is that the regulatory agencies have designed laws that protect consumers, but which end up inhibiting development. Why do analogues have to be labeled imitation, when they offer more nutrition per dollar than real crab does? We should be able to describe what these products are, not just that they're imitations of something else.

The regulatory climate has come out very strongly pro-consumer, but it's also very anti-innovation. The FDA believes it exists to protect the consumer, to ensure consumers aren't misled. But calling surimi products "imitation" is misleading. So we have quite a mine field to maneuver through.

I believe we need to regain firm control of our own resources, and then to help create an atmosphere open to innovation and new products, and help combat the attitude FDA seems to have that they're going to "protect" the consumer from new products.

*Dr. Tyre C. Lanier
North Carolina State University*

Next step will be difficult

Surimi enjoys a very strong momentum now in the seafood analogue market, and that's going to change. Analogue products filled a hole—the loss of crab supplies—easily and neatly, because crab was unavailable. Now that hole has been filled, perhaps to overflowing.

The next task is to create products that fill different needs, and teach consumers how to eat them. And that's going to be very hard. We've done this to a point with shrimp and lobster analogues, and now people are putting crab into things they never would have tried before, because surimi crab is economical to work with.

But now we'll have to scratch and fight for new markets, and it won't be easy. It's very difficult and very expensive to educate the consumers.

Surimi definitely has a future, but it isn't going to be as easy as people like to think it will be. I don't mean that it isn't possible; but we're going to have to tread very carefully in scoping out new markets. Things started out very easily for this industry, with a ready market. But it isn't going to be easy any more.

*Paul Taylor
B-K Ladenburg*

Need facts behind creativity

People don't understand the potential benefits of surimi. The knowledge that we are gaining isn't adequately documented for the industry. First our knowledge has to be documented, then we have to expose this knowledge to the industry.

In our visits with meat companies, we've discovered that they've heard a lot about surimi, but they have misconceptions about what it is and how it works. They haven't developed realistic opinions of its benefits. They react very mildly: "Oh, that's nice, but I don't see how it can help me." There's no mental bridge there between the surimi industry and their industry. It's our job to provide the documentation that will help meat companies make that connection.

We're beginning to gather enough information. Food marketing is based on facts and creativity. When you have the facts to support the creativity, then the doors are open to you. Most people have no idea what surimi can do for them. They need to be shown what can be accomplished with this process, and how surimi can help save money in product development. Only then will surimi begin to make sense to them.

The food industry is receptive to new ideas as long as they're believable. Who cares where a product comes from? Rubber comes from trees, but when you see a rubber tire, you don't think about trees. You don't care if it comes from the sky. Surimi happens to be a totally new protein, and the industry won't care where it comes from, if there is enough documented information available about its uses in various forms.

*John Morrison
president and COO of Noble Marketing Group, Inc.*

Lack of nerve

I think the biggest impediment right now is inertia. Seafood processors just haven't worked up the momentum to get things going. There are a lot of people who don't understand the potential of surimi and how to use it. Owners of plants could get surimi going, but they just aren't doing it. They're sitting back waiting to see how APS (Alaska Pacific Seafoods) and the two plants in Dutch Harbor are going to do. There's a lot of talking, but not much performance. It's a conservative feeling. The industry just isn't geared up for new things.

If we're going to make this happen, we have to be willing to put our money where our mouth is. lack of capital or fear of failure, but everyone's waiting for the Japanese to come over and do it.

*Bob Nordstrom
NMFS surimi coordinator*

Meat companies would use surimi—if they could

Meat processors are interested in surimi, but they're not going to spend much time or money pursuing it until the regulatory environment is more amenable. Once we open that door, meat companies will be very excited about using surimi. To do this, we need to assure the government that we're not introducing a hazard into the meat system.

One thing we're going to have to do, since fish is not inspected as meat plants are, is to set up a quality control procedure for surimi processors. We will probably have to provide a strict and stringent QC procedure whereby processors who follow it can be certified to produce surimi for the meat industry. Ideally, it would be a voluntary thing, so that plants that want to cooperate can get certified, and the meat industry would then be open to them as a market.

These are the three primary concerns keeping surimi from attaining its potential right now: regulations against using surimi in meats; lack of sufficient microbiological information about surimi; and lack of a QC protocol for surimi producers.

*Patricia Manning
surimi researcher, University of Arizona*

Fishermen won't deliver

As a shore-based producer, our biggest problem is an inability to compete with the joint ventures for a supply of fish. We can't recruit boats to fish for us, because they would rather deliver to foreign processors at sea than to a shore-based plant. We're paying \$35 a ton differential, and they still would rather deliver to joint ventures.

It's a big disappointment for us. We thought we could build a nice shore plant here, and thought the fishermen would wave the flag a little bit and be glad to see a shore-based plant get established. But right now our biggest problem—and I know this was a problem at APS, too—is an inability to get good quality fish delivered to the dock. From our perspective, this is the biggest problem we're facing.

*Richard Pace
president, Unisea*

Lack of information

We suffer from a lack of technical information, and what we have is based on what we've either stolen or learned from Japan. Most of our working data is incomplete or inconclusive at this point. We're working on developing crucial technical information, in quality consistency, freeze-dried technology, etc., but the Japanese still have a leg up on us.

The only existing domestic markets for surimi are seafood analogue markets, which are peaking now. We are looking to develop new markets—the meat industry, snack foods, baby foods, pet foods, etc. There is a huge amount of work to be done, far beyond what we've even been able to accomplish yet. But we need these markets to keep out from under the thumb of the Japanese.

*Michael Broili
AFDF marketing director*

Surimi under the scope

FITC is building a data bank on surimi microbiology

This is the second in a series of articles resulting from tests done on the factors affecting quality of surimi. The tests are being done at the Fishery Industrial Technology Center (FITC) in Kodiak, Alaska. They are part of an overall effort by AFDF, NMFS and FITC to provide technical information about surimi to the U.S. industry, and to develop an Alaskan center of expertise on matters relating to surimi.

From the very beginning of the AFDF surimi demonstration project in Kodiak, we were determined to produce surimi of the highest quality, including its microbiological condition. The microbiological content was determined for more than 120 samples of surimi produced at Alaska Pacific Seafoods (APS) and 17 samples of imported surimi.

A search of the Japanese literature revealed very little on the microbiological content of surimi. Apparently the Japanese thought that the heat required to set surimi gel into *kamaboko* would inactivate the microorganisms; they paid little attention to them. Their use of wheat rather than potato starch to minimize the risk of contamination by soil-borne *Clostridium botulinum* spores apparently was done by conjecture rather than on a scientific basis.

The tests

We tested frozen imported surimi for aerobic heterotrophic and coliform content. Aerobic plate count (APC) and coliform count reveal the microbial load of non-sterilized foods and indicate whether that food was produced under unsanitary conditions or subjected to time-temperature abuse. Coliforms can include human pathogens of fecal origin. Thus APC, coliform and fecal coliform counts are widely used to test the microbiological conditions of foods. Many food companies also specify microbiological limits for ingredients they buy and the products they manufacture.

Data from tests on frozen imported surimi are presented in Table 1. Surimi produced on factory ships had a much lower microbial load than did shore-produced surimi.

Table 1. Microbial load of surimi imported from Japan.

Processing Source	No. of Samples	Aerobic Plate Count (CFU/g)			Coliforms (MPN/g)			
		Mean	Low	High	No. of Samples	Mean	Low	High
Ship	12	15,000	1,600	130,000	7	4	0.3	93
Shore	5	2,100,000	1,000,000	8,300,000	0			

In the U.S., no APC, coliform or fecal coliform limit is set for surimi. However, the International Commission on Microbiological Specifications for Foods (ICMSF) has set an acceptable APC limit of 1 million colony forming units (CFU) per gram for minced fish, and the major seafood entrepeneur producers set their purchase limit at 100,000 CFU per gram. When it comes to fecal coliforms, the ICMSF limit is as low as a most probable number (MPN) of 4 per gram. The industry uses a coliform MPN limit of

100 per gram, and requires the absence of *Escherichia coli*, a fecal coliform.

The difference between these two standards reflects different concerns: The industry places a greater premium on sanitation and time-temperature abuses; the ICMSF is more concerned with potential health risk.

The industry limit is a two-class plan by which a lot is rejected or accepted based on a single limit. The ICMSF follows a three-class plan which identifies low and high limits and recognizes a gray zone or marginally acceptable sample. The low and high limits for APC are 1 million and 10,000 CFU per gram, respectively. The ICMSF would accept a lot if three or fewer samples out of five fall in the marginal area, but would reject any lot that has the APC in excess of 10,000 CFU per gram. The low and high limits for fecal coliforms are MPN of 4 and 400 per gram, respectively, and a lot that may show three or fewer samples out of five in the marginal area will be accepted.

APS surimi results

Microbiological data of APS-produced surimi are analyzed against these criteria. If measured by ICMSF standards, all lots of surimi tested would be unconditionally or marginally acceptable; 57 out of 83 (69 percent) met the lower APC limit. When the ICMSF fecal coliform limits were used, most (94 percent) of the APS-produced surimi was acceptable using the lower limit of 4 per gram. If the marginally acceptable limits of MPN between 4 and 400 were used, all samples would have been acceptable.

Using the industry standard, only 33 out of 83 samples (41 percent) would be acceptable, with an APC of fewer than 100,000 CFU per gram. Most of the acceptable samples were of lots produced soon after the processing line had been stopped, cleaned, and restarted several days later. Fifteen percent of the surimi was acceptable by the industry MPN limit of 100 coliforms per gram. However, *Escherichia coli* was detected in only 10 per-

cent of the samples. In general, samples with low aerobic plate counts were also low in coliform concentration.

We further characterized the coliform and fecal coliform isolates to the genus level, and found most of the isolates to be *Citrobacter freundii*. *Escherichia coli*, in addition to *Citrobacter*, was detected in only eight lots of surimi. Nevertheless, the coliform level must be reduced to achieve high microbiological quality.

Seeking the trouble spots

We also tried to track down the source of coliform bacteria in surimi. Coliforms were present in refrigerated seawater in the fish hold. The rapid increase in coliform count, however, occurred at the later stages of surimi manufacture, especially during the refining and dehydrating stages.

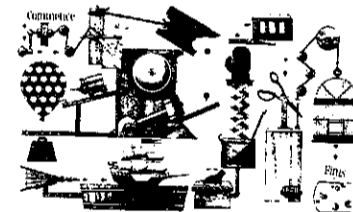
Surimi samples were collected during two years and three processing seasons. We noted that the microbial load of the surimi was lowest during the start-up periods. Also, the microbial load remained high during a stretch of days when the line operated continuously. Bacteria build-up seemed to have occurred in-line, especially during refining and dehydrating.

When designing the next generation of dehydrators, a temperature control measure should be engineered into the machinery and cleaning and sanitizing requirements should also be incorporated.

In our microbiological study of surimi manufacture, we determined the microbial load of surimi, learned the identities and origins of these microorganisms, and also found clues on how to eliminate or prevent microbial build-up. This information will become very valuable if the microbiological condition of surimi is as critically monitored as are other functional attributes of surimi.

Dr. Elisa Elliot is assistant professor of seafood microbiology at the Fishery Industrial Technology Center in Kodiak, Alaska. For more information, contact Elliot or FITC director Dr. Jong Lee at (907) 486-6034.

"Most people would rather die than think. In fact, they do so."
--Bertrand Russell



Getting the sweet out of surimi

Polydextrose may be the ticket to less sweet surimi for use in products destined for the U.S. market. A study at North Carolina State University has found Polydextrose to be a suitable substitute for sorbitol and sugars in protecting surimi from denaturation in frozen storage.

This finding promises to be of interest to surimi processors and users because it means surimi can now be produced without the sweetness added by traditional cryoprotectants. American consumers have expressed a preference for surimi-based seafood analogues without the sweetness in traditional Japanese formulas.

Jae Park, Tyre Lanier and David Green recently completed a report of their findings following a study comparing the cryoprotective effects of sugar and/or polyol, including a starch hydrolysate product, and phosphates. The three food scientists concluded that "Polydextrose may be substituted for the traditional sucrose and/or sorbitol now used in surimi manufacture with no change in cryoprotective effect. Indeed the stress-to-failure data seem to indicate that, combined with STP (sodium tripolyphosphate), even

better protection may be possible than afforded by sucrose/sorbitol."

The study team's tests included several products in the maltodextrin/corn syrup solid class of materials, finding Polydextrose most suitable because of its relatively low sweetness.

Samples containing Polydextrose registered higher in stress and strain values than samples using sucrose/sorbitol, maltodextrin or phosphates alone. Samples containing Polydextrose, sucrose/sorbitol, and maltodextrin registered similar values in protein extractability.

The NCSU report summarizes: "Further work should be done with the maltodextrin/corn syrup solid class of materials with regard to their cryoprotective vs. gel inhibition effects. Perhaps it will be possible to single out one or more such products which can contribute beneficially to cryoprotection of the proteins while simultaneously, due to selection of a particular molecular weight and/or being combined with other cryoprotectants, not inhibit gel formation."

Copies of the report are available from NCSU, Department of Food Science, Raleigh, N.C. 27695-7624.

Surimi down on the farm

Will fish and meat ever mesh?

A FDF has begun to break ground for new USDA regulations allowing surimi to be used in processed meats.

The foundation is working with a team of marketing and research consultants to research the USDA's concerns surrounding surimi's use with meats. Two prototype products containing surimi—first a non-standardized nugget-type product, and later a standardized frankfurter product—will be developed, tested, and presented to the USDA within the next year.

AFDF marketing director Michael Broili said the goal is not to gain approval for the products, but rather to pave the way for meat processors to gain approval for their products in the future. "We hope to introduce USDA to surimi, to familiarize them with surimi's functional qualities and its relationship with meat systems, so that in the future when a meat processor goes to the USDA with a product, the USDA will know what they're talking about. And the processor won't have to start at square one, either, but will know what's expected beforehand."

The foundation's effort should make surimi-related product development less expensive for meat processors, who otherwise could not afford to go through the process with USDA themselves. Patricia Manning, a researcher working with AFDF, said, "No meat processor is familiar with the process of getting a petition through USDA. When a processor realizes all the testing procedures required, and what it costs, it's cheaper not to do it at all. And why would one company go through all the expense to have regulations changed so that its competitors can come in and take advantage of it too?"

Marketing consultant Barbara Batson has begun a dialogue with USDA on behalf of AFDF to address nutritional and labeling concerns relating to surimi. Batson said she has found the USDA supportive of surimi entering the meat industry. "The USDA is interested in helping any way it can," she said. "They want to help develop a program that will make it as painless as possible for the fish industry to do this." Batson said that the USDA recognizes the economic and nutritional value of admixed meat, poultry and fish, though the agency does have a number of concerns about the uses of fish meat with poultry or red meat.

Batson identified the primary objections to the use of fish in meats. "If there are curing agents in the proposed product, then nitrosamine formation is the major concern. If there are no curing agents, then the formation of vibrios and type E botulism is a concern," she told AFDF. Other concerns center around the fact that fish processing plants are not federally inspected, as are meat and poultry plants in the U.S., and that the micro-

biological standards of fish may be lower than that of meats.

The issue of mandatory surimi plant inspections promises to raise its controversial head before the industry is finished with USDA. While few processors welcome the idea of inspection, Broili said meat processors will be reluctant to work with surimi without it. "In the first place, meat processors aren't going to support letting fish plants go without inspection when it's required of them. And in the second place, the first time something goes wrong with a product—the slightest sign of microbiological inferiority—they're going to blame the seafood industry."

"Most processors aren't going to like inspection, but some support it. Some processors see inspection as the seafood industry's introduction to the modern food industry," he said.

Batson said the USDA also may require a standard of identity for surimi as well as processing, handling and packaging procedures. "This could create complications since there currently seems to be a variety of manufacturing methods employed for products called surimi," she said. "A movement to establish a standard of identity could be controversial [among] other producers and users of surimi, or rejected entirely on the basis that there is no way to control other producers marketing a product for an application and calling it surimi."

National Marine Fisheries Service petitioned USDA in 1981 to change the ruling for minced fish meat, but that petition was rejected, primarily because of unacceptable nitrosamine levels found in the samples.

The NMFS lab in Seattle now is investigating the formation of E. botulinum in surimi and surimi-based seafood analogues, and this information will be useful to the USDA petition. In particular, NMFS is studying the formation of nitrosamines in surimi. While there is undocumented belief that the constituents which promote growth of nitrosamines are washed out in the leaching stages of surimi production, this hypothesis has not been proven.

Batson said the research team hopes to develop a non-standardized nugget product for presentation to USDA by late November.

AFDF will publish a monthly newsletter charting the progress of the effort to change USDA rulings governing surimi in meat products. The first issue will be published in September. Readers interested in following this issue may contact AFDF to get on the mailing list.

Surimi: If you can find a better

Surimi may find niches in baby foods, snack foods, or pet foods in the future, but the biggest potential in the U.S. for surimi appears now to be in the processed meats industry.

AFDF is sponsoring research to investigate the uses and behaviors of surimi in meat protein systems, and results look promising: the addition of surimi to a meat system increases its bind significantly, and tests have shown that surimi can be added to meats up to levels of 15% without affecting texture or flavor of the product.

Patricia Manning at the University of Arizona is studying the functional characteristics of surimi when added to meat systems. Below is a portion of her preliminary report, which indicates a bright future for surimi in formulated meats.

The first representative red meat analyzed was a Class 1 striated skeletal muscle, lean boneless pork picnics. Three lots of surimi from Alaska Pacific Seafoods were selected as representative of low, medium and high gel strength surimi based on quality specifications obtained from compression and torsion testing.

Only trends and initial inferences

can be drawn at this time; however, the statistical analysis of the data indicates strong relationships between the interacting systems of red meat and surimi. Some significant trends were:

1. A significant relationship was indicated between interacting meat and surimi systems.

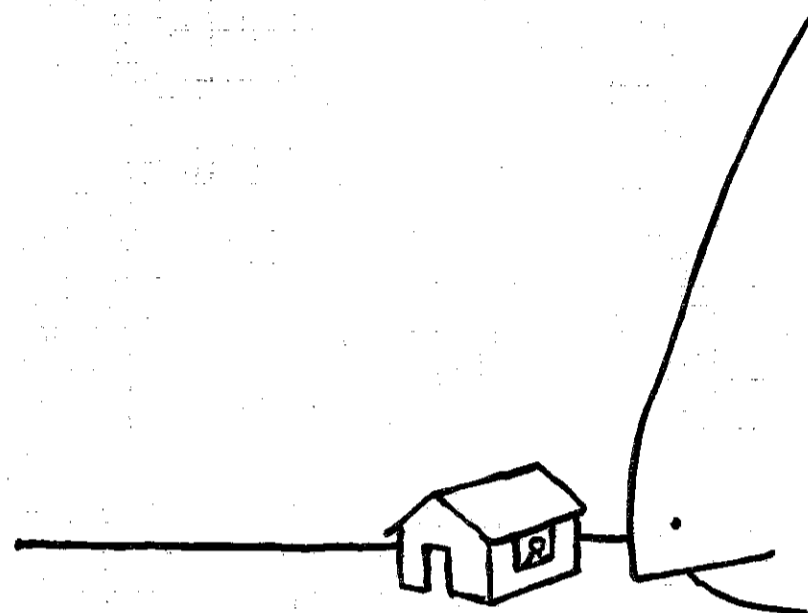
2. Binding potential as related to gelation of lean pork picnics was increased by the addition of low, medium or high gel strength surimi.

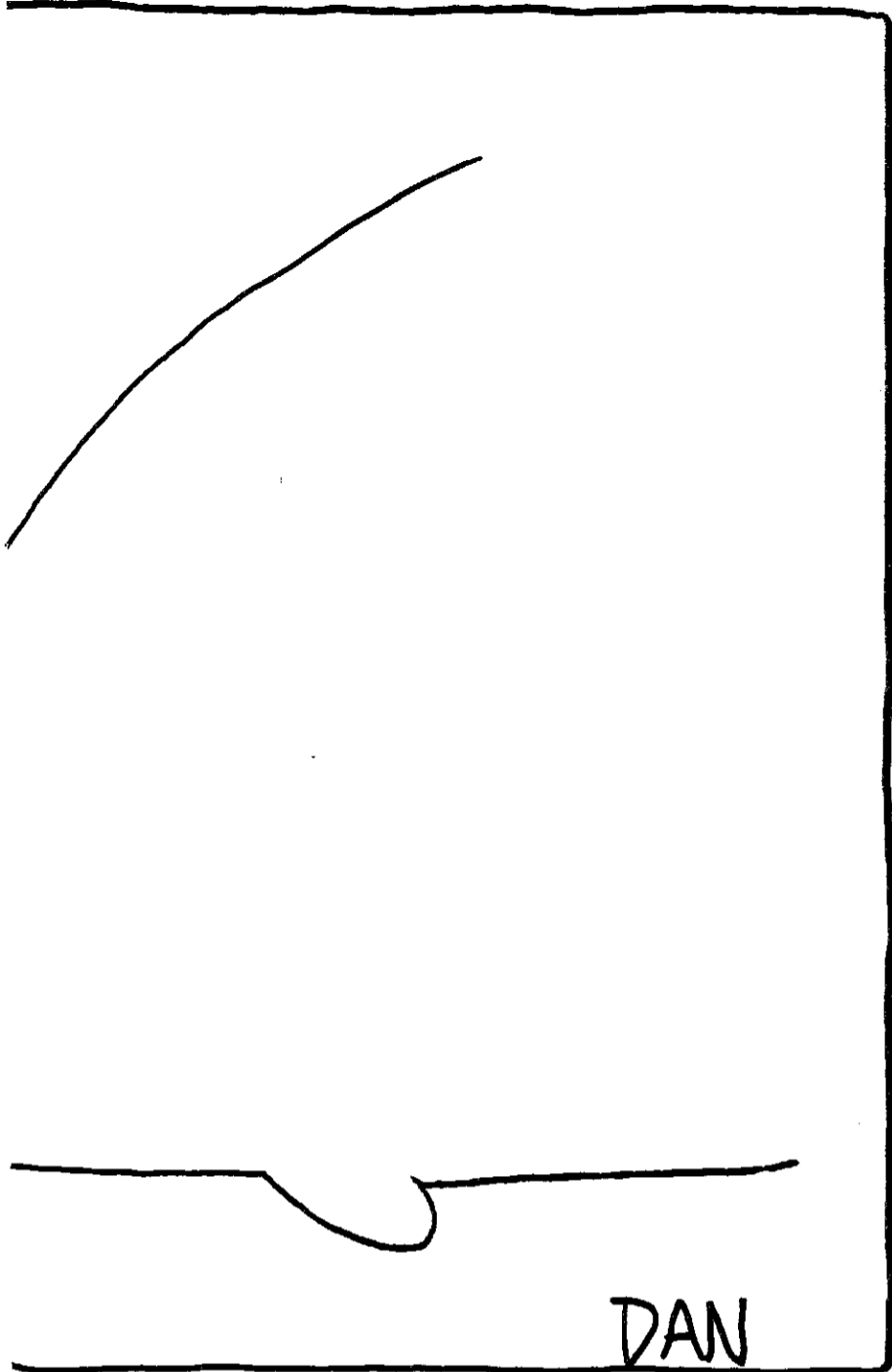
3. Binding potential was increased by surimi addition levels at either 5% or 15%.

4. The level of surimi addition does not appear to play as significant a role in bind enhancement in this application as does the fact that surimi is added.

The greatest increase in binding potential, for this first experiment with lean pork picnics, was observed with medium gel strength surimi added at a level of 15%.

These trends show several possible benefits to meat processors if these trends prove to be true in further studies. The most significant benefit is the increased binding potential of meat blend formulas with the addition of relatively low levels of lower-cost surimi. Since the level of surimi added does not appear to contribute as significantly to the possible binding poten-





r binder, buy it

tial as does the actual inclusion of surimi into the formula, processors can use surimi at levels ranging from 5% to 15%, depending on their specific needs, maintaining consistency in the final product.

Production problems associated with existing products may be avoided with the addition of lower cost surimi at low levels. The use of surimi would provide flexibility to the processor who is governed by specific production

“The level of surimi added does not appear to play as significant a role as does the fact that surimi is added.”

requirements or problems. A processor could enhance marginal binding formulas with low levels of surimi, or save costs in expensive formulas by adding lower-cost surimi. And possible production failures may be avoided with the addition of surimi at relatively low levels.

One significant discovery was that, though adding surimi increased the bind potential as related to gelation, the bind potential decreased slightly with the use of high gel surimi. However, the binding potential of the high

gel strength surimi/lean picnic system remained greater than that of the lean picnic alone.

This trend suggests that low to medium gel strength surimi may be more economical and effective for meat processors than high gel strength surimi. This would not adversely affect processors. High gel strength surimi is most costly, and there may be no cost advantage to adding it to a formulation. High gel strength surimi could be viewed as a competing protein source for lean, good binder meats, which might harm its position.

In addition, the type of texture imparted by a high gel strength surimi admixed with meat may not be suitable for maintaining the typical texture associated with meat products. Most meats do not have a rubbery or extremely firm gel set, and to make it such would be undesirable.

Though high gel strength surimi may not be of interest in this type of application, the lower cost, lower gel strength surimi shows much promise as a bind enhancer in meat systems.

Manning's investigation of the functional properties of surimi in processed meat systems continues. A final report will be published in June, 1987.

New Surimi Products

Sea Dogs

INDIANAPOLIS - “We wanted to do something dramatic to show that we're serious about meat flavorings,” said Bill Ritter about Universal Flavor Corp.'s newest innovation. “We decided that surimi was the medium, and a beef-flavored frankfurter containing no beef was the ideal product.”

Ritter served up Universal's “Sea Dogs” at the June IFT show, and got exactly what he wanted: attention. The product is 50% surimi, 16% turkey, and 10% vegetable fat, and is flavored with natural beef flavors. Its total fat content is 12%—compared to 30% fat in most frankfurters.

“There was as much interest in the frank itself—and the fact that it was made of surimi—as there was in our flavorings,” Ritter said. “People were asking us when the product was going to be on the market.”

Ritter said Universal chose to develop a surimi-based product to show off its flavorings because surimi provided a unique opportunity to be completely innovative with a product. “We'd seen a lot of seafood analogues, but we'd never seen a good surimi frank on the market,” he said. “We hoped to show that we could take a novel material and do something creative with it using our flavorings. Our goal wasn't to develop a new surimi product. It was to show that we have the capability to make meat flavors useful in different applications.”

Though Ritter did not find surimi difficult to work with, he noted that it

must be more carefully handled than red meats to prevent degradation of texture. Unless kept frozen until the cook stage of processing, the surimi became grainy and lost some of its functional properties. “We felt that only really fresh material responded functionally the way we wanted it to,” he said. “This is something that could easily be worked out. It's not that much harder to deal with.”

Universal now is looking for companies who are interested in developing surimi-based products using their flavors. “We're not interested in creating any new surimi products ourselves,” Ritter said. “But we are willing to share the benefit of our knowledge with companies interested in developing new products.”

William J. Ritter, manager of processed meat flavor department, can be contacted at Universal Flavor Corp. at 5650 W. Raymond St., Indianapolis, Ind 46242; (317) 243-3521.

Surimi-pasta snacks

Kibun Products International, Inc. has introduced two new “Sea Pasta” products using surimi for its Delicaseas label.

Stuffed Crescenti are pasta-wrapped snow crab, surimi and vegetables, with 60 calories per two-ounce piece; they are sold in boxes of four. Filled Fiore contain surimi, snow crab, cheese and onion at 90 calories per five-piece serving; there are 15 pieces in each eight-ounce box.

Both products are aimed at the frozen shelves of retailers, and now are being marketed nationwide.

Another surimi-meat study

Researchers at the University of Georgia have identified surimi as “an excellent binder for restructured red meat products,” and have begun a product development project using surimi in a low-salt restructured meat with strong binding properties prior to cooking.

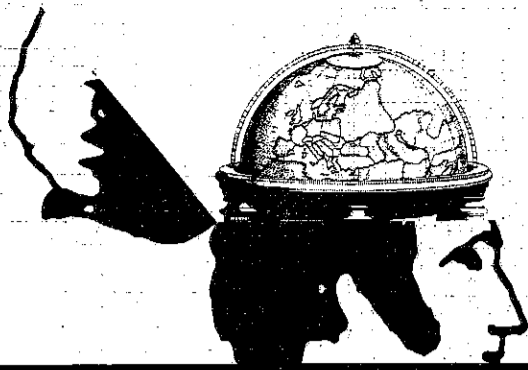
The project is partially funded by AFDF.

Bill Shivar, research associate at the university, said that surimi of two different gel strengths was used in preliminary studies, both with positive results. “While some critics may speculate that surimi is too costly to be used merely as a binder, emphasis must be placed on the amount of surimi actually used,” Shivar reported. “Very low percentages of either type of surimi may be used to bind a coarse ground product. Since a ground product has more surface area, a chunked or whole muscle product will bind just as well with even less surimi.”

Shivar used small amounts of salt in the formulation, and was able to retain “outstanding cold binding properties,” he said. “It appears that salt has very little interaction with the surface proteins of the meat, and that it is the surimi that has the actual binding potential.”

Shivar is working with Dr. John Carpenter at the university, and with Dr. Tyre Lanier of North Carolina State University. He hopes to develop a low-salt, high-bind restructured meat with high consumer appeal.

Opinions



New NOAA study earns chilly welcome

THE VIEW FROM HERE

By Chris Mitchell
AFDF Executive Director

It's been ten years since the enactment of America's 200-mile exclusive economic zone through the passage of the Magnuson Fishery Conservation and Management Act (MFCMA). Those ten years have been a period of unprecedented change, including:

- the creation of a management mechanism (the fishery management councils) which try to balance the conflicting objectives of conservation and allocation;
- a period of the most rapid growth of American participation in the fishing industry;
- a period that has seen American consumption of seafood rise to all time high levels; and
- a period of time when the industry has grown significantly while our nation's federal fishery agency, NMFS, has been neutered in its funding and its function by the creation of the fishery councils.

With such rapid, progressive and profound changes in the industry, it's no wonder that organizations and systems designed for 1976 don't work as they should—ten years later.

To this end, the administration of NOAA commissioned a blue-ribbon panel (better known here as Calio's Gang of Eleven) to review the purposes of fishery management and to assess the system of management created by the MFCMA.

This editorial, my last as AFDF's executive director, is not intended to criticize the study's findings or to embroil myself in the controversy generated by this report. There is, however, one recommendation that we can't let pass without vehement disagreement. It relates to the panel's suggested methods of funding fishery management: namely, by taking funds away from *industry assistance*, to fund scientific research, catch and effort data, and enforcement programs.

While it's hard to argue against government's need to refocus and reprioritize its function, the use of such grab-all cliches may destroy one of NMFS's most successful programs and cripple the one undertaking with the highest return on investment—the Saltonstall-Kennedy grant program.

Since my tenure with AFDF spans the period 1982 through 1986, I shall focus here on what target S-K dollars have accomplished in that time.

In December 1982, AFDF's board of directors and NMFS recommended

If there's one thing that has set industry tongues wagging this summer, it is the NOAA Fishery Management report. Written by NOAA's "blue ribbon" panel under the leadership of William J. Hargis, Jr., the study was released June 30 to mixed reviews from industry, management agencies, and development organizations.

Briefly, the study recommends separating conservation from allocation decisions by transferring power to set harvest limits for each resource to the federal level, while keeping allocation decisions under the jurisdiction of the management councils. It also recommends that federal administrators—not state governors—appoint council members.

The study also favors consideration of limited entry, including in recreational fisheries, as a management tool where necessary and useful.

Citing disappointing progress in Americanization of U.S. fishery resources since the MFCMA was enacted, the study recommends giving harvesters fishing for domestic processors preferred access to fishing grounds, placing joint venture operations under the jurisdiction of the councils, and requiring equal access to markets in countries processing in the U.S. FCZ.

Of greatest interest to industry developers was the committee's list of suggested fishery management priorities which included scientific research, long-term catch and effort data, and enforcement.

"Lower priorities are in the area of industry assistance," the report stated.

Here, four of the five executive directors of regional fisheries development foundations, along with Jim Branson, director of the North Pacific Fisheries Management Council, give their responses to the study. Chris Mitchell's regular column, "The View From Here," is incorporated into these comments. Copies of the study are available from Brian Gorman, NOAA/PAF, Washington, D.C. 20235.

the reprogramming of a minuscule \$144,000 of unused funds toward the Minced Pollock Pilot Project. This inauspicious start was our first step toward the minced fish/surimi opportunity. Since that time, the S-K grant program has invested nearly \$6.8 million through AFDF's surimi projects and other pollock development projects managed by Alaska Seafood Marketing Institute, Alaska Factory Trawlers Assoc., and Pacific Seafood Processors Assoc. to help the industry unlock the pollock opportunity for the American industry. The results of those expenditures are mind boggling.

	1982	1986
Pollock catch by U.S. vessels	131,000 MT	1,077,00 MT
Pollock processed U.S. firms	2,352 MT	169,000 MT
Catch value ex-vessel	\$14.5 million	\$118.5 million
Processed value ex-plant	\$830,000	\$59.5 million
Pollock product sales	?	\$100 million
U.S. surimi/kamaboko sales	19 million lbs.	120 million lbs.
U.S. surimi mixers & capacity (Additional capacity of nearly 40,000 MT in various stages of development)	NONE	3 - 19,000 MT
U.S. surimi crabstick manufacturers	1	14
U.S. factory trawler/processors	2	20

While neither AFDF, ASMI, AFTA, PSPA nor NMFS can claim this progress is all due to the S-K industry grant program, neither did it happen in a vacuum. The focused industry expenditure of these funds formed the catalysts around which this growth could occur.

With such success in hand I find it hard to understand why anyone could even suggest that this program be eliminated. In 1982, the total S-K funds available nationally were but \$8.05 million. For 1986, the total is

\$8.23 million—hardly a ripple on the ocean of NOAA's budget. Yet this little amount obviously caused a Tsunami in the American seafood industry.

Don't take management away from regions

Jim Branson, executive director
North Pacific Fisheries Management Council

The council's committee on reauthorization of the Magnuson Act met July 29 to discuss the NOAA report. The committee took exception to two areas of the report and, in addition to other comments, outlined those exceptions in a letter to NMFS.

First, we object to the separation of allocations and conservation of the fisheries. That's not going to work. In the first place, setting an absolute ceiling number for the allowable biological catch (ABC) is going to cripple management of the resource. The council now sets an ABC number, and then uses that as a basis on which to make decisions relating to allocation. For instance, at times the council sets an optimum yield (OY) that allows a factor for rebuilding the resource. Who on the national level would set a rebuilding schedule for these populations? This is very much the council's prerogative. If NOAA puts an absolute ceiling on each fishery, it would eliminate most of the councils' management abilities.

The second concern was with the proposed council appointing system. The reason governors now are given the power to appoint council members is to strengthen the federal-state relationship in fisheries management. To transfer appointment power to the federal level would lessen cooperation between state and federal entities, and lessen the governors' interest in helping manage the fishery.

The council's committee agreed with many of the fisheries manage-

ment priorities. However, we see enforcement as a short-term solution. We should be developing programs that would eliminate the need for enforcements, that fishermen wouldn't feel they'd have to beat.

Alaska continues to object to the federal recreational fishing fee system. This would be similar to the federal duck stamp, which would be required for recreational fishermen fishing inside the U.S. FCZ. Our top objection is that money from the fees would go into the general revenues, and not into any fishery programs. So recreational fishermen would be paying for the national debt, not for anything that helped them directly.

Our job is not done!

Tom Murray, executive director
Gulf and South Atlantic Fisheries Development Foundation

The bottom line here is that the report recommends redirecting funds from other areas without indicating any line items. The use of S-K money to bolster management efforts at NMFS is discussed without any input from the industry or the foundations. We must be specific about where this money is coming from.

Every year the S-K program has funds in excess of what comes to industry development programs. So if funds are redirected from S-K, it should be from other areas than industry development or foundation budgets. In this case, what's not said is the problem.

Secondly, in the area of full domestic utilization, this is clearly the bailiwick of the foundations. Yet the report doesn't discuss any role relevant to the S-K program. There's no reference in the document. In discussing full domestic utilization, it doesn't say that there is any S-K effort applied there. The report should include the foundations' activities here, but there is no mention made at all.

Yet there are inferences made that other programs of "lower priority" can be reduced or eliminated. One of those low priority items is industry assistance. The report suggests the privatization of marketing in the industry. Is this appropriate to discuss in a fishery management study? Our job in this area is not done! They shouldn't even be discussing this.

"Democracy is measured not by its leaders doing extraordinary things, but by its citizens doing ordinary things extraordinarily well."

Many thanks to Chris Mitchell from all of AFDF



Let industry decide

**Pete Granger, executive director
West Coast Fisheries Development
Foundation.**

The assumption in this report is that industry services are a low priority, and that all the money and all the support (from NOAA) should go toward management. I don't think they asked the industry before they made these assumptions.

I don't think this study takes into account any idea of what it takes to completely redo the management program. It talks about re-allocating money from within the department, and it also says they would like to cut funds. But they can't do both. You can't initiate a completely new program and cut spending at the same time.

For example, where are they going to get information about habitat? They can't get it. They're going to have to put a little money out for it.

Some portions of this report are right on target. We now have an incredibly complex system of management, and we need to build in an equilibrium between conservation and allocation. Whether separating the two will accomplish that, I don't know.

My biggest objection is that the report states that domestic catch through over-the-side sales are way up, and domestic processing is very low. And yet, NOAA wants to cut the budget for industry development. Well how else are we going to do it? How are you going to accomplish anything if you don't have money to do it?

NOAA can't change the law

**Kerry Muse, executive director
Mid-Atlantic Fisheries Development
Foundation**

The following was excerpted from a letter from MAFDF director Kerry Muse to Calio dated August 5, 1986.

Since the development foundations are not significantly involved in the management process, we have limited our comments to non-management sections of this report.

Conservation of our fisheries is an important issue. We would hope in the process of conservation that you do not overlook the needs of allocation and the needs of the American public who consume American fishery products.

Under the sub-heading of Fishery Management Priorities, the report suggested that there are other programs of lower priority which can be reduced or eliminated to make talent and money available.

It said "All promotional costs concerning sale of seafood and other marine resource products and capital costs in risks should be shouldered by the private sector of the industry concerned." I'm confused as to why this statement was ever included in a

fishery management study since the priorities for fishing management should not conflict with existing legislation.

The Saltonstall-Kennedy Act has been in effect since 1952 and has been amended to provide financial assistance to the industry for research and development:

The thrust of the S-K program has been to recognize that there are a number of impediments to the development of U.S. fisheries, and that a government/industry partnership is necessary to overcome these impediments. The U.S. fishing industry, especially the harvesting sector, is highly fragmented and composed of relatively small, independent operators who do not themselves have substantial funds available to undertake major research and development efforts. In such circumstances, if the U.S. industry is to take advantage of the 200 mile EEZ, federal support for industry development is a necessity.

Since NOAA's study does not include any suggested change in legislation in the S-K Act or the AFPA, we must assume that these development programs will continue as per the mandate of Congress.

In the area of increasing research to provide additional alternatives for the management process, we would strongly suggest that the fisheries development foundations become more involved in carrying out and conducting research projects which meet with the needs of industry and the understanding of government. The capabilities and resources of the fisheries development foundations are vast and unlimited in many areas and deserve the opportunity to become involved.



AFDF still looking for executive director

AFDF has extended its call for an executive director to November 15, 1986.

Current director Chris Mitchell said the deadline for applications was extended to give more people a chance to submit resumes. Mitchell, who served as AFDF executive director for four and a half years, is scheduled to leave September 15. Former AFDF program director Sharon Gwinn will step in as acting director until a permanent executive director is named. Gwinn was program director for the foundation from 1980 to 1985, when she left to start her own business, First Alaska Surimi.

Gordon Lowell, president of the AFDF board of directors, said the board's primary criterion for a new executive director is an appreciation of the need for seafood market and product development. "We're looking for someone who can lead the foundation into the mainstream of the U.S. food industry," he said. "Seafood always has been in its separate, limited niche. The primary opportunity surimi has presented to the seafood industry is to expand seafood's market into food, cosmetic and pharmaceutical uses, just to name a few.

"Success in this area requires leadership by a strong administrator who has an industry-wide perspective, who has a strong development background, and who isn't afraid to take some risks," Lowell said.

Those interested in the Anchorage-based directorship should write to AFDF Executive Search Committee, 508 West Second Ave., Suite 212, Anchorage, Alaska 99501.

The editor's turn

Off the



Cuff

By Krys Holmes

A threat now faces the Alaskan seafood industry which could put every processor and fisherman reading this out of business. It could mean the loss of millions of dollars and hundreds of jobs. That threat is the paper Americanization of the seafood industry.

While processors and resource management groups fight to eliminate foreign harvesting and processing within the U.S. 200-mile limit, a plan is afoot that could throw control of the North Pacific fisheries right back into the hands of the Japanese. Experts say that the major players in the Japanese industry plan to set up U.S. companies and then sell fleets of factory trawlers to those companies. Taking advantage of U.S. laws, those companies could re-flag the Japanese vessels with U.S. flags, staff them with Japanese crewmen, and lease the ships back to the Japanese for operation in the Bering Sea.

The result: the paper Americanization of the seafood industry. On paper, the industry would be controlled by domestic companies and the Americanization effort would be successful. But in reality, the industry power would be concentrated in the hands of two companies which now manipulate the gigantic Japanese seafood industry.

This simple, entirely legal plan would quietly create fully-integrated companies with enormous harvesting and processing capabilities, with open access to Japanese markets, and with the advantages of domestic status—all under the control of the major Japanese seafood powerhouses, Taiyo and Nippon Suisan.

The laws that allow this to happen—under which the German-built Golden Alaska was flagged with U.S. colors—were written to give domestic processors access to inexpensive hulls to further Americanization efforts. The Golden Alaska, a factory trawler now operating in the Bering Sea, has been an honest, laudable contribution to the industry. But what

happens when the Japanese, faced with losing a grip on the \$4 billion-a-year potential in the U.S. surimi industry, choose to take advantage of these simple laws instead?

What happens when it becomes more trouble to fight for joint venture allocations than it is to quietly spend a few million dollars setting up a U.S.-based front company?

Domestic fishermen would face a buyer's cartel. U.S. processors would be edged out of the market. The Bering Sea would be full of huge, foreign-built trawler/processors legally and technologically capable of controlling not only the pollock fishery but the salmon, crab and herring fisheries as well. And consumers would face a seller's cartel of large processors who have cornered the market on the Bering Sea resource.

Silent ownership of the U.S. industry would bring Taiyo and Nippon Suisan many blessings: with U.S.-flagged ships, they would not have to compete with Korea for groundfish allocations in U.S. waters. Japanese processors also enjoy an import tax advantage over Americans on products processed in U.S. waters and sold in Japan. Most significantly, it would mean the Japanese could maintain a grip on the growing U.S. surimi industry while bolstering the declining Japanese surimi industry.

Paper Americanization has been called the single biggest threat to the industry today. One industry expert said, "If the Japanese aren't planning to do it, then why did Nissui just build a brand new mothership for the Bering Sea?"

In the past few weeks, fishermen and processors have quietly begun working to change the legislation that would allow paper Americanization to occur. The laws must be changed quickly. This is an issue around which the entire U.S. industry can and should join forces.

Bulletin Board

Export market good for U.S. pollock

HAMBURG, GERMANY - Decreases in catch and quality of North Sea saithe has created strong demand in Europe for Alaska pollock—a demand which could be met by U.S. processors, according to an international trade communique.

Tariffs on pollock fillets were decreased in June from 15 to 5 percent in response to the increase in market demand. The tariff reduction applies only to the first 6,300 metric tons of product entering the European market. The reduced duty import quota has been divided among the EEC nations, with Germany given 3,000 mt., France 1,500 mt., the UK 1,000 mt., and Benelux 200 mt. Imports above the quota for each country will be subject to the usual 15 percent duty rate.

The German seafood industry has expressed a desire to increase their quota for reduced-duty imports, stating that the industry has been "favorably impressed with the quality of imported Alaska pollock, and in many cases prefers imported pollock to North Sea saithe," according to the document.

Copies of the document, which was issued by the American Consul in Hamburg, can be obtained from AFDF for \$1, or companies interested in exporting may contact the Hamburg American Consul directly.

Gordon reassigned

Bill Gordon, former NMFS administrator, was reassigned in mid-August to a post as special assistant to NOAA director Anthony Calio. Gordon will direct special projects there, including initiating a new recreational salt water fishing license program and facilitation of NOAA's fishery management report, but will be out of the NMFS chain of command. At press time, the position of NMFS administrator had not been filled.

McFarland offers technology

Rae McFarland of Beehive Machinery is experimenting with formed seafood, red meat and poultry proteins, and is interested in working with other companies conducting protein research. McFarland currently is researching protein forming technology and is experimenting with forming meat and surimi proteins into more usable forms. "We're making different shapes using extruders on various kinds of meat proteins, and we hope to create a line of proteins which can be poured like Corn Flakes out of a box," he said. So far, McFarland has made protein flakes, stars, bars and rods in frozen and modified forms, he said.

Interested companies may contact McFarland at 801-254-7377

Salmon: Norway gains competitive edge

Frozen salmon from the U.S. will find its stiffest competitor—farm-raised fresh salmon from Norway—taking over the European salmon market this year. Norway leads the European salmon farming industry, which will reach record levels in 1986. Because Norwegian farmed salmon are reported to be highly subsidized, the price for salmon on the European market has fallen.

In 1985, the U.S. was Germany's primary supplier of frozen salmon, with sales totalling 1,014.9 metric tons. This year, however, wholesale prices for Norwegian salmon are \$3.13/lb., compared to \$3.55 for quality frozen salmon from the U.S..

The consulate warns that "...although the fresh salmon enjoys both a competitive and price advantage over U.S. frozen salmon, German salmon importers stated that they will nevertheless be watching the U.S. salmon prices during the upcoming season. U.S. salmon exporters wishing to enter or maintain their market shares should be aware of the current market situation in order to set prices accordingly."

Ahem, a slight correction...

In the last Lodestar Update, we mistakenly identified the company that will provide the trawl fleet for Alaska Pacific Seafoods this fall. The correct name is Alveska Ocean, Inc.

The Lodestar

The Lodestar and its smaller companion newsletter, The Lodestar Update, are each published four times annually by The Alaska Writers Group for the Alaska Fisheries Development Foundation, Inc., 508 West Second Ave., Suite 212, Anchorage, Alaska 99501. (907) 276-7315.

Subscriptions: \$10 within the U.S., \$15 Canada, Mexico and overseas. Subscriptions are free to AFDF members. All subscriptions are on a calendar year basis.

The Lodestar is fully copyrighted; no reproductions without permission.

Chris Mitchell,
Executive Director

Krys Holmes,
Editor



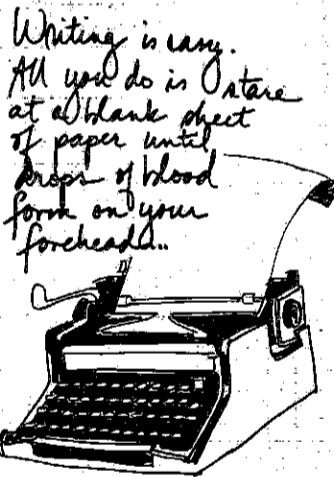
the L^ODESTAR

Charting the course of fisheries development today

Alaska Fisheries Development Foundation

Volume IV, No. 3 Summer 1986

What is defeat? Nothing but education,
nothing but the first step to something better.
-Wendell Phillips



Writing is easy.
All you do is stare
at a blank sheet
of paper until
drops of blood
form on your
forehead...

-Gene Fowler

Lodestar price to increase; renew your subscription soon!

If you think writing is hard, try fighting for funding for your writing project. Since our funding decreased this year, The Lodestar finds it necessary to raise its subscription rates for 1987. Don't worry, your favorite surimi newsletter will still cost less than a marriage license in Vegas, losing your wallet in New York City, or placing any bets from anywhere on the Chicago Cubs. After January, 1987, a U.S. subscription will be \$20 per year, foreign \$30 per year.

But if you renew now, you will still get the old rate of \$10 U.S., \$15 foreign. This offer will last through December, 1986, only. Any renewal or new subscription received after Dec. 31 will be priced at the new rate.

So please renew your subscription now. Buy one for a colleague. Or better yet, become a member of AFDF and get your subscription to The Lodestar absolutely free!

Now think about that until drops of blood form on your forehead. Then drop us a dime and renew. And thanks.

the L^ODESTAR

Alaska Fisheries Development Foundation
508 West Second Ave., Suite 212
Anchorage, Alaska 99501

Non-profit
organization
U.S. Postage Paid
AK Fisheries
Development Fd.