International Awareness for Quality Seafoods: A Survey

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Introduction

By the time that Columbus sailed in 1492, the Worshipful Company of Fishmongers of the City of London, "had been in existence for over 200 years" (Watkin, 1980). Its work involved keeping out the "foreigners" from south of the Thames and, with royal approval, fixing prices. "When prices are fixed," commented Watkin, "so must be the quality and, therefore, each of the victualling (food and drink) guilds had power to inspect and condemn."

"Mr. Ogvind Lie, of Frionor Norsk Frossenfish (sic), Oslo . . . quoted the following Norwegian quality programme *anno 1444*: 'Stockfish quality grading shall hereafter be mandatory . . . Each one who is doing otherwise . . . has lost the ownership of the stockfish in question, and this shall thereafter belong to the kingdom . . . And the grading men should have for their strive, one half fish for every hundred and twenty they have been grading'" (Phillips, 1980a).

Despite these ancestral auspicious beginnings, seafood quality control programs throughout the world have shown varying degrees of continuity and efficiency. This article is concerned with recent developments in the field which, as evidenced by the many trade publications and journals surveyed, have gradually led to the widespread realization that the lack of assured quality to consumers is the single most important impediment to the growth of seafood consumption and the growth of the seafood industry as a whole.

This article is divided into three sections. The first reports on countries that have earned a deserved reputation for their high quality seafoods. These countries have, in effect, set standards against which, in a world of intense international trade relations, other countries have to be measured. The second section reports on countries that have lately shown an increasing awareness for the need to improve the quality of their seafoods.

The last section gives a few concluding comments and recommendations. The emphasis is upon practical rather than technical and scientific (biological, chemical, or engineering) factors that have lately been taken into account to put in operation a quality program—a program that attempts to bring the highest possible quality of seafoods to consumers.

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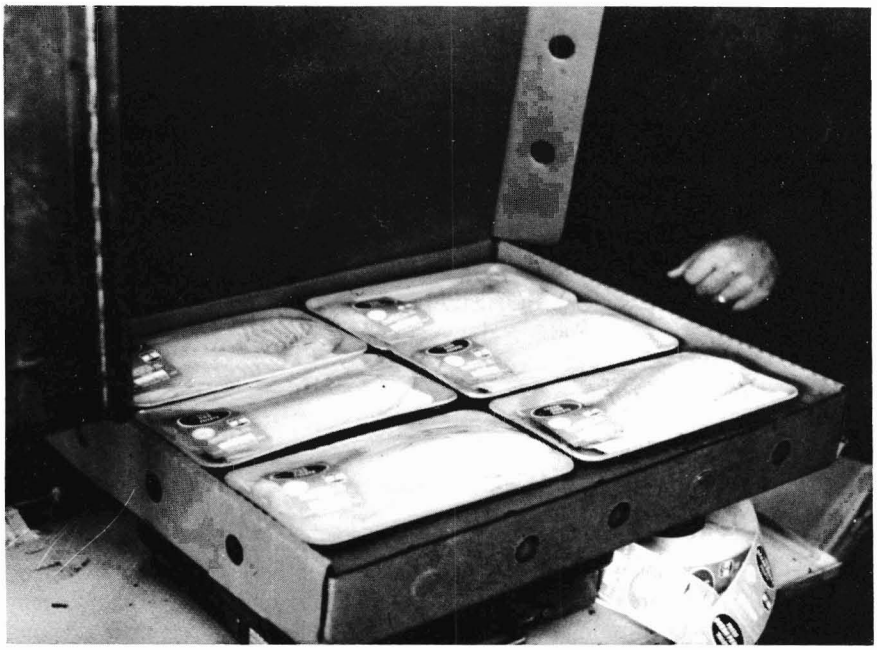
Countries With a Reputation for High Quality Seafoods

Some countries are recognized worldwide for their consistently high quality seafoods. Examples include Norway, Denmark, Poland, Iceland, and Japan. Here is a brief account of some of the literature indicating the strict quality control measures now in use in some of these countries.

Norway

A report (Alaska Fisherman, 1980) pointed out that, as a seafood producer, Norway has problems with too many boats in relation to existing stocks and overcapacity of shore processing plants. But one problem it does not have is quality. Fish to be filleted are promptly bled, gutted, washed, and carefully stored and unloaded. Vessels limit themselves to small hauls, and processing plants produce "top-quality fillets and second-quality products. A third category of the product (waste) is used for fox and mink farms."

Comments by the *Alaska Fisherman's Journal* (Anonymous, 1980a) are illuminating: "The regulations are extremely detailed down to such minutia as the incandescence and placement of lights over filleting tables." But, "The impact of these quality control standards is evident to anyone who spends even a day in Norway and eats three meals . . . the difference [is] between fish and fishy." The *Journal* then excerpted some of the official regulations: "The fish shall be frozen preferably before rigor mortis sets in or while it is still in rigor . . . . The freezing plant shall ensure that all large fish (tuna, porbeagle and skate) are chilled in ice to at least +4°C or colder at the warmest point before the freezing begins . . . . Packing and freezing shall be done in such a way that the goods are cooled to a temperature of −15°C or colder in the warmest point within 24 hours after they have been placed in the freezer." The administrative structure of Norway's quality control program is very



Prepackaged U.S. Grade A fish fillets just after packing in a shipping container at the plant where they were produced.

streamlined. It has delegated many functions to industrial control agencies (Lie, 1980).

Iceland

Wood (1978) stated that "The quality of fish landed is expected to be high, and by and large it is. The proximity of the grounds to the processing plant make spoilage through age almost impossible to attain. But attitudes at sea and on shore to quality ensure that handling techniques are of the highest order."

There is also a reverse side to this coin. While strict control measures are usually required to achieve high quality products, care must be exercised that overregulation does not interfere with productivity and efficiency. Iceland has run into this problem, but appears to be on its way to correcting excesses of regulation (Dagbjartsson, 1980).

Japan

For 30 days, "I became an interrogative picture-taking sponge that tried to absorb culture, business fact and fantasy for 14 hours a day" (Staples, 1980a). An article in two parts and a series of lectures distilled this experience. The theme of the visit, requested by the New England Fisheries Steering Committee and sponsored by Japanese concerns, was "How does Japan get its fish quality?" The answers—and the slides—came fast and furious. They are loud and clear.

Although the average trip length for the offshore fleet is 40 days, a system of "carrier boats" picks up the fresh catch every 3 days. Offshore trawlers are also endowed with a plate-freezer, ice-maker, and desalinator. Equipment and gear is up-to-date; crew accommodations are excellent and clean. Fish destined for the fresh market are packed onboard, "with an eye toward artistry," in styrofoam boxes to be used only once (Staples, 1980b). By 2:00 p.m., the auction market in Tokyo has cleared out and the entire facility "is scrubbed until spotless."

Staples was equally impressed by products and procedures in shore processing plants. As a result, the Japanese market is difficult to penetrate if the product is not of high quality (e.g., Smith, 1980), but is quite profitable once the quality standards are met (e.g., Anonymous, 1979a). The overall approach followed in Japan seems to be the following one: "In the upgrading of low-quality fish and fish materials, the seafood industry has much to learn from the meat processing industry" (Ayukawa, 1981).

Countries Recognizing the Need to Improve Seafood Quality

Of the larger seafood producing nations, the United States and Canada have recognized the need to improve their image in the international arena. Both countries, as well as others, have either demonstrated the benefits of assured quality or have made strong commitments to improved quality control. Literature on these efforts is surveyed here.

United States

Citing the work done by Consumer's Union over more than a decade which documented the existence of the low quality of fish available to the U.S. consumer, Ronsivalli et al. (1978) described the essential elements of a successful program established by the Northeast Fisheries Center's Gloucester Laboratory in conjunction with private industry. The authors listed the characteristics which fisheries products must exhibit to be classified as U.S. Grade A, and identified, among other contributing factors relating especially to filleting and packaging, the time/temperature integration as being essential to the preservation of quality in fresh fishery products up to the moment of consumption. The article also documented the wide acceptance accorded to this type of product by the processor, the retailer, and the consumer.

Retailers who implemented the quality assurance policy reported significant sales increases (Machiaverna, 1977; Zwiebach, 1978; Anonymous, 1980b). The additional cost involved in producing U.S. Grade A fresh fillets (about $0.10/pound) was later found to be amply covered by the higher retail prices commanded by graded vs. ungraded fillets (Gorga et al., 1979). By early 1980, it was found that this program had grown exponentially to include 11 processors

and 1,100 supermarkets selling about 11,000,000 pounds of fresh fillets per year at a value of approximately $30,000,000 (Ronsivalli et al., 1981). The Gloucester laboratory staff considered the enormous potential of a program assuring the quality of U.S. frozen seafoods to the consumer (Nickerson and Ronsivalli, 1979), and has initiated a study of its economic feasibility.

Since the procedures recommended for this quality program had generally been expressed either piecemeal in various reports or verbally, a paper has lately been written on this topic (Ronsivalli, 1982). Its central thesis is that "The point at which the quality of a fish fillet really counts is when it is being consumed. At any other point, quality is important only as an indicator of what can be expected when the fillet is consumed." Therefore it recommends the maximum times and temperatures that either fresh or frozen fish and fish fillets ought to be held at each distribution element; it suggests a series of handling procedures to achieve the recommended time/temperature integration, and lists some of the alternatives that might be followed for fish that is kept for more than 2 days in the vessel hold and is not destined to be frozen.

By 1980, about 4 years after the economic and other advantages of assured quality had been demonstrated by NMFS technologists, the awareness of the need for "QUALITY - and its partner, quality controls" had become rather widespread in the United States (Donnell, 1980a). The Maine Department of Marine Resources and the Maine Development Foundation combined to develop a quality control program for adoption by the industry. The program ". . . is unique for Maine, and quite possibly the United States, in that it spells out a single, comprehensive system of quality controls which spans all levels of the groundfishery from the harvester to the final marketplace." (Anonymous, 1980c).

The Rhode Island Seafood Council also announced its intention to implement a quality program that would initially be paying participating vessels a premium price for fish to be processed and distributed under the U.S. Grade A label (Tarasevich, 1981). Thus quality came to be generally recognized as the key for opening up new markets for fisheries products, not only in the Midwest and in foreign countries, but "just a couple hours drive from the wharf," (Donnell, 1980a) and even in the local school lunch programs (Donnell, 1980b).

The idea of selling quality fish, in fact, can be implemented by any single-minded concern. Such is the case of the Stinson Canning Company, Rockland, Maine, the first reported business in that State to recognize the many advantages that can be derived from the use of plastic boxes on its fishing vessels (Day, 1981; Anonymous, 1981a). Such is the case of Jon Rowley of Seattle, Wash. (Fitzgerald, 1980), who guarantees that his fish is not older than 3 days, charges up to twice the going price, and his buyers reportedly cannot get enough of his fish. He buys everything fishermen catch and pays them about double the price on most species, but insists on the following standards: *"All fish must be caught on hook and line. No fish which comes over the rail dead will be sold as fresh fish. All fish will be bled immediately while still alive. All fish, with the exception of rockfish which are sold whole and ungutted, will be cleaned within two hours after bleeding. All fish must be iced immediately after cleaning and sorted by size and species into 100 liter totes. The totes are taken off the vessel no later than the next day and trucked to Seattle directly to buyers."*

But can a quality program be adapted from the local to a large scale and even the international market? Although necessary, this is not an easy step. The telegraphic style of a business communication (Anonymous, 1980d) gives a broad picture of what the U.S. fisheries industry needs to do in the field of foreign trade: "S.I.A.L. in Paris was again an eye-opener to North Americans. Quality of *Fish* and *Shellfish* products, packaging, and presentation by European countries and companies was in sharp contrast to *very poor* U.S.A. (first effort at S.I.A.L.) booth displays and *equally poor quality* of some *Seafood* products and packaging offerings by U.S.A. companies."

In confirmation of those difficulties, one can cite two articles appearing next to each other in a major newspaper. The

Prepackaged U.S. Grade A fish fillets in an open, refrigerated display case at one of the supermarkets that is selling the high-quality fish fillets.

first article (Mohl, 1980) reported on the proceedings of a seminar stressing that the United States runs a $2 billion trade deficit in seafood, that the potential for overseas sales is considerable, but that "poor quality standards and the lack of world-wide marketing" are problems to be overcome. The second article (Smith, 1980) reported that the demise of a long established seafood processor might have been averted, had it not been for "a Japanese company's refusal to accept $1 million of contracted fish because of poor quality. . . ."

The need for an official assessment of the quality of seafood products has ultimately been recognized at the highest levels of the U.S. government. At the beginning of 1981, it was widely reported that the General Accounting Office (GAO) had asked NMFS to conduct a survey "to document the extent that quality defects exist in U.S.-produced seafood products" (e.g., Anonymous, 1981b).

Canada

Set against "a slippage of quality when comparing the production of the 70's with the 60's" (Blackwood, 1980), the focus of attention in Canada has become the preparation of official standards published by the Department of Fisheries and Oceans in a booklet entitled "Quality Excellence in the 80's." The overall policy is that "All sectors of the industry must cooperate to ensure that the Canadian name on a product brings automatic recognition of top quality on the markets of the world" (Anonymous, 1980e).

The implementation of this policy has resulted from extensive consultations with all segments of the industry (Anonymous, 1979b; Hjul, 1980; Blackwood, 1980) and intensive studies (Johnson, 1980; Anonymous, 1980f, g, 1981c). This policy, also reported by Phillips (1980a), involves a detailed and scheduled program of: Vessel certification; quality protection on board; dockside grading; unloading, dockside handling and transportation to plants; improved quality control in processing plants; final product grade standards; and advice on handling and processing practices. The implementation of the policy was accompanied by anticipated increases in budgetary assistance (Surette, 1981).

This assistance has lately been realized in order to insure that, in the words of Romeo Le Blanc, Canada's fisheries minister, "Canadian fishery products are of consistently high quality to enable us to match and, hopefully, outdo our foreign competition in the world" (Anonymous, 1981d).

Official efforts to improve quality have been paralleled by private industry efforts. In 1980 National Sea Products Limited and B. H. Nickerson and Sons Limited announced the formation of a jointly owned research and development company, Fisheries Resource Development Limited (Anonymous, 1980h). The central area of involvement for this enterprise was planned to be quality improvement and product development. The importance of high quality has also been firmly supported by the Fisheries Council of Canada, whose chairman is on record stating that "It is my strong conviction that quality enhancement is an essential key to market growth at home and abroad" (McLean, 1980). The President of the Fisheries Association of Newfoundland and Labrador is also on record stating: "Quality enhancement is a key to the future of the industry, in both catching and processing, without a major effort on quality success in terms of the potential will not be achieved" (Wells, 1980).

England

In England the administrative structure of the official quality control program appears to be quite streamlined. Outside the City of London this responsibility is carried out by the Environmental Health Inspector (Sanitation), but in London it is still carried out by the Worshipful Company of Fishmongers (Watkin, 1980). The company is a private organization administered by a Chief Inspector and two assistants (Fishmeters). In addition to quality control, the company also performs relevant studies, is a funding source for other fisheries research organizations, and carries on an extensive training program. By virtue of a consistent quality control program, frozen fish has made inroads into Billingsgate "provided that fresh supplies are not available" (Watkins, 1980).

U.S.S.R.

Just as in Norway, Iceland, England, or Japan, it is the official policy in the U.S.S.R. to have fish of the highest possible quality. A. A. Ishkov, the Minister of Fisheries, is on record stating that the number one task for the fishermen today is "The quality of the product" (Ishkov, 1975).

Australia

An experience strikingly similar to that of the United States has taken place in Australia (Watson, 1979). The only difference is that the initiative was taken by a supermarket chain, G. J. Coles and Co. Ltd. The first paper outlining the program was delivered at the Fishexpo '76 in Melbourne and was "largely met with disbelief, criticism, scepticism and disinterest" (Watson, 1979). However, after tentative test marketing in a handful of stores of branded, prepacked, chilled (0°-2°C) fish supplied by an independent processor, "a network of production centres and distribution systems, covering most of Australia" have been established in little over two years, and six new processing and packing plants have been built (Watson, 1979).

The similarity extends to other factors: Promotion and advertising was very limited; in country or inland towns remote from sources of fish the demand was higher than average; prices could be relatively high, thus "supporting the view that quality and presentation are significant for shoppers, as long as price does not become unrealistic or uncompetitive with other protein foods such as meat and poultry." Problems to overcome also appear to be essentially the same as in the United States: The supermarket chain is still "often unable to acquire sufficient quantities of good quality Australian species"; all segments of the industry must still "resolve existing

problems of product identification and naming"; consumers are still "very suspicious about fish quality and freshness"; provided price is not excessive, "frozen fish can be marketed successfully" (Watson, 1979).

New Zealand

The adoption of the 200-mile zone legislation in New Zealand, as in other areas of the world, brought with it substantial investment in new vessels and processing plants, and consequently difficulties in marketing the increased catch (Anonymous, 1979a). A study was commissioned by the Department of Trade and Industry and it was found that even though Japan is already New Zealand's second largest market it still offers the best opportunity for expansion, because, "provided the quality is right, the market offers the best price, as well as being able to absorb large quantities." The study stressed that "the potential export earnings from relatively small volumes of high-value fish could equal those from large quantities of the offshore trawled species on which most attention is currently focused." And in any case, to reach the potential will "involve producing an acceptable product in terms of freshness, size grading and packaging; and the development of long-term [trade] relationships . . . ." In short, New Zealand concerns must supply "regular quantities of consistently high-quality fish" (Anonymous, 1979a).

FAO

At the third International Seafood Conference (1980) organized in Rome by the Food and Agriculture Organization (FAO) of the United Nations, three major points were raised which are relevant to this article (Phillips, 1980b). First, world exports of fisheries products have increased considerably in the decade of the '70's (from $3,392,000,000 to $11,170,000,000), with the share of developing increasing at one-third higher rate than that of developed countries (from $1,000,000,000 to $3,800,000,000). Second, there exist problems faced especially by developing countries related to product quality, prices, and insufficient and/or costly shipping facilities. Third, as stressed by Murray Hillman, a marketing expert, fish must be made "a chic experience" not just food. This point has been recently confirmed and stressed by an in-depth survey of consumer reactions (Anonymous, 1981e).

Discussion

The points raised at the FAO conference (Phillips, 1980b) might serve as the backbone of a few comments and recommendations. First, the recent growth pattern of the fishing industry represents the opportunity to be exploited. It might be worthwhile to reinforce this point with one general set of statistics: "During the Korean War, the world-wide harvest of fish was 20 million tons. By 1970 it topped 70 million and is expected to surpass 90 million tons by 1983" (Noble, 1981).

Second, the many problems faced by the industry, some of which can be inferred from the above, represent the obstacles to overcome. Third, making fish "a chic experience" (i.e., not only producing high quality seafoods, but also making them look like high quality products) appears to be the method through which obstacles can be overcome and the potential reached by the seafood industry worldwide.

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