

Institute for 21st Century
Business Series No. 8

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Sea Grant Laboratory

**A MARKETING COMMUNICATIONS
AND PHYSICAL DISTRIBUTION SYSTEM
TO PROVIDE THE MIDWEST WITH COASTAL FISH**

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and

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COLLEGE OF BUSINESS ADMINISTRATION

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FOREWORD

This monograph is the last of a series of seven reports dealing with the marketing and physical distribution of fish, particularly fresh fish, into the Midwest.* Although it deals with the basic proposal which originated this particular Sea Grant project, it depends greatly on the results of the preceding studies. All of these other monographs are referred to in Chapter I.

This research is the only large-scale study viewing fish and seafood products as a household menu item, rather than looking at a single specie moving to the processor or distributor from the fisherman. The possibility of establishing a marketing communications and physical distribution system depends upon the attitudes and desires of all members of the channel. Until some knowledge of these was available, the feasibility of the original proposal could not be determined..

This study, coupled with the other six, should be particularly useful to the members of the fisheries industry, governmental agencies concerned with fish, and students of marketing.

NOAA 2-35364, Application of Computer Technology, and Advanced Physical Distribution Techniques to Seafood Marketing.

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A MARKETING COMMUNICATIONS AND PHYSICAL DISTRIBUTION SYSTEM
TO PROVIDE THE MIDWEST WITH COASTAL FISH

CHAPTER I

PURPOSE, ORGANIZATION, AND SUMMARY OF CONCLUSIONS

Introduction

A proposal concerning the feasibility of establishing a marketing communications and physical distribution system was made in 1970 by an associate regional director of the Pacific Northwest Region of what is now the National Marine Fisheries Services, National Oceanic and Atmospheric Administration, United States Department of Commerce.¹ It was thought that such a system should provide a higher return on coastal fish, especially that from the West coast. Retailers, particularly those in the Midwest in towns of 2,500 or more, would be able to order fresh seafood daily and receive delivery within twenty-four hours through such a system. If established, it should result in higher returns to all members of the system and greater satisfaction to household consumers.

The possibility of such a return is based upon certain

¹Glude, John B., "A Proposal for a Nationwide Distribution System for Fresh Seafood," Unpublished memorandum, January 7, 1970.

assumptions:

1. United States fishermen land finfish and shellfish that are equal or superior to fish landed by foreign fishermen.

2. The cost of harvesting and processing the catch is higher in the United States than abroad.

3. Imported frozen or canned fish, therefore, can often undersell comparable United States products, even with additional transportation costs, tariffs, and quotas.

4. Importation of fresh finfish or shellfish from abroad is not practical because of their short shelf life; high air freight costs which offset lower production costs abroad; and the higher quality of domestic finfish and shellfish maintained by more rapid delivery.

A Sea Grant project was given to Kent State University to determine the feasibility of such a system.² To do so, it was necessary to know the existing channels through which fish moves from the sea to the table; the characteristics and tasks of the members of the channel from coastal fisherman to household consumer; their attitudes toward fresh or frozen fish; and the demand for such products, especially fresh ones, by the household consumers.

²NOAA 2-35364, Application of Computer Technology and Advanced Physical Distribution Techniques to Seafood Marketing.

Two basic types of information relating to the harvesting, processing, storage, and consumption of fish were utilized. The first basic type of information was that information already available from government and industry sources. Since much of this material either did not relate specifically to the issues inherent in the proposed distribution system or dealt with one specie of fish only, it was necessary to garner primary data from household consumers and people at all levels of production and distribution. To gather this second basic type of information, personal interviews and mail surveys were conducted with fishermen, auction company managers, trade association spokesmen, processors, wholesalers, retailers, institutional buyers, government personnel, and airline and motor transportation company representatives on the coasts, in Canada, and in the Midwest.

From these data, it was possible to answer some of the questions in regard to a more orderly system in the marketing and distribution of fresh fish:

1. Is the demand for fresh fish sufficient to support a sophisticated distribution system?
2. Is the demand for fresh fish likely to increase if consistent supplies of high quality fresh seafood are available generally?
3. Is the supply likely to increase with additional de-

mand or will additional demand only result in higher prices due to a proportionally larger increase in demand than supply?

4. Are the wholesalers and retailers prepared to participate in a more sophisticated distribution system, and are they willing to promote and offer more fresh fish?

5. Are there adequate facilities presently available to permit application of streamlined ordering and delivery scheduling systems - that is, computer technology and advanced physical distribution techniques?

6. Would the new system provide economic advantages due to lower costs, greater efficiency in processing, cold storage, transportation scheduling, and other factors?

Purpose and Organization of This Study

The information gathered in regard to the component members of the distribution channels have been presented in a series of monographs dealing with retailers,³ wholesalers,⁴

³Konopa, Leonard J., Survey of Selected Retail Food Stores Handling Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.

⁴Konopa, Leonard J., Survey of Wholesalers Handling Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.

institutional users,⁵ and household consumers.^{6,7} This study deals with the existing developed channels and the proposed system. In addition to the data provided in the published monographs, facts gained by observation and interviews with knowledgeable persons were utilized. This was particularly true in regard to the last two questions posed in the section above.

An overview of the industry and some background information, including a schematic model of the existing channel structure, form the basis for Chapter II.

To establish such a network as proposed, certain basic requirements or characteristics must be present. An analogy between the experience of the citrus fruit industry (a highly perishable product being moved over long distances) and that of the fisheries industry aids in seeing what may be in store for the latter one. These ideas are presented in Chapter III.

⁵Logar, Cyril M., and Donald F. Mulvihill, Survey of Institutional Users of Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.

⁶Sanchez, Peter, and Leonard J. Konopa, Fish as a Household Menu Item, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.

⁷Machamer, Albert V., and Leonard J. Konopa, Market Segmentation by AID Analysis of Household Consumers of Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.

Chapter IV presents a description of the physical flow and communications aspects of a model as proposed and a discussion of the necessary hardware that would be utilized in transportation, storage, and computerized communications and order-filling.

The attitudes of middlemen and household consumers, which may be a reflection of demand, are summarized in Chapter V and related to the proposed system. This chapter also presents the conclusions drawn from the study and outlines possible future courses of action.

Uncontrollable Outside Factors

The timing of the study was unfortunate because of certain factors that were not capable of being controlled by the investigators. At the start, the so-called "mercury scare" caused some uncertainty as to whether or not there would be an adverse effect on respondents. Although the questionnaire study was already launched, a limited study of the effect of the pollution publicity was made of two areas in Cleveland that varied as to income, education, and race.⁸ It was found that the regular users of seafoods in both

⁸Kelly, J. Steven, Attitudes about Water Pollution and Fish Consumption, Working Paper, Kent, Ohio: Center for Business and Economic Research, Kent State University, 1972.

groups tended to ignore the implications of this situation while the non-regular users mentioned it among other reasons for not buying and eating fish.

While interviewing processors, brokers, and fisheries association leaders in the East coast, Phase I of the most recent Federal government price controls was established. At first, fish were defined as processed foods which caused them to be subject to control. Later they were classified similarly to farm products which released them from control. Such a restriction was, naturally, upsetting to those who had to buy and sell competitively items previously not subject to price controls. Hence, the problem of pricing was uppermost in the minds of those interviewed.

Finally, with an increasing demand for meat substitutes brought on by meat growers and packers refusing to sell at the controlled prices, there was some increase in the amount of fish purchased. Frozen and canned fish and fish products were bought when available even though prices of these went up as changes were made in the price controls.

Summary of Conclusions

Although discussed in greater detail in chapters following this, it is well to summarize the conclusions in light of the six questions raised.

1. The demand among household consumers for fresh fish does not apparently warrant a sophisticated (and more costly)

distribution system.

2. Considering the present chaotic situation in the fisheries industry brought about by government controls and foreign exploitation of coastal waters, it is unlikely that consistent supplies of high quality fresh seafood may be obtained. Since this condition cannot be met, it is doubtful that, even if the demand were increased for a time, it would be a sustained increase.

3. The supply of fresh fish will not be increased even if there were an additional demand because of other factors which will offset such a supply-demand shift (see Number 4 below).

4. Wholesalers and retailers would rather handle frozen fish because of ease in handling, less deterioration, and a more consistent supply; hence few, if any, would be willing to promote the sale of fresh fish.

5. Adequate physical facilities are available to provide the system proposed. Since many retailers already have 24-hour delivery service, it would appear that delivery systems are adequate at present.

6. Although lower costs of processing, physical handling, and transportation might be obtained by such a system, there would be a higher cost to provide the communications network and order-filling process. No centralized agency appears ready to maintain and control such a system and it is doubt-

ful that the Federal government, if it should establish it experimentally, would find it being used by the middlemen.

It would appear, as a result of this study, that such a system has merit when there is a constant, dependable supply of a product that may be fed into a distribution system where information, order-placing, and order-filling may be routinized. Such are not the conditions in the fisheries industry.

If such a system is not feasible, what are the alternative future courses of action? One might be for the fisheries industry to curtail any expansion of the fresh fish processing and sales. No doubt the demand for a few species might justify a specialized market for fresh items desired by some independent restaurants and household consumers. This might be particularly the case for certain shellfish such as lobster, shrimp, and crab. Such a network probably would operate most efficiently in the coastal cities since delivery costs would be less.

An extension of the alternative of curtailing fresh fish processing and sales might be to concentrate on the production of fish blocks which do not necessarily have to be made of one species. In this way, at least some of the underutilized or "trash" fish could be used. It would probably also entail consumer education to obtain acceptance.

Another possible alternative action might see the fish-

ermen and processors coming together in cooperative associations to a greater degree than at present. There seems to be a tendency in this direction. To be most efficient, these cooperative groups should not be in terms of a single specie but on a geographical basis. The next step would be to establish a connection with distributors, either independent or chain middlemen. The communications net and physical distribution system, then, would only stop short of the household consumer. Further study should be made of this possibility as well as of the non-subsidized government agency established by Canada for the marketing of fresh water fish from the non-maritime provinces.⁹

⁹Lamb, Charles, and Donald F. Mulvihill, The Freshwater Fish Marketing Corporation of Canada, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.

CHAPTER II

EXISTING CHANNEL STRUCTURES IN THE FISHERIES INDUSTRY

Introduction

Any marketing communications and physical distribution system begins with the sources of supply of the good and ends with the household consumers. Between them are the producers or processors (those who usually change the form of the good in some way), intermediaries (agents, transportation lines), and distributors (middlemen such as wholesalers and retailers). An examination of published government documents and secondary source research showed no overall studies of the total physical distribution pattern for fish or sea products, particularly any with reference to the Midwest. There were a very few research reports of localized marketing patterns such as that of Gaston and Storey¹⁰ or Gillespie and Gregory¹¹ or a single specie such as Pacific

¹⁰Gaston, Frederick L., and David A. Storey, "The Market for Fresh Fish that Originates from Boston Pier Landings," in F. W. Bell and J. E. Hazelton (eds.), Recent Developments and Research in Fisheries Economics. Dobbs Ferry, New York: Oceana Publications, Inc., 1967.

¹¹Gillespie, Samuel M., and Jon L. Gregory, A Study of the Marketing Channels for Fresh Finfish in the Texas Fishing Industry. College Station, Texas: Texas A & M University, 1971.

salmon.¹² No study was found that treated all seafoods as a menu item or that followed the flow of such products into the Midwest.

To determine the existing physical distribution channels for fish, fresh or frozen, from the coasts into the Midwest, it was necessary to hold interviews with producers to determine their sources of supply, intermediaries (especially transportation companies), and distributors to determine their concept of demand as well as supply. Federal and state agencies and trade associations concerned with the promotion of fish sales were interviewed also. Many of the producers and intermediaries were willing to aid in this project but preferred not to be quoted directly as sources of information. Those who were interviewed and whose concepts are utilized in this chapter are presented in the Appendix. Attendance at two conferences sponsored by the National Marine Fisheries Services (one at New Bedford, Massachusetts, in 1972, and the other at Seattle, Washington, in 1973) was helpful in the interviewing and correspondence process. The concepts and attitudes of the distributors based upon interviews and mail surveys have

¹²Schary, Philip B., Linn Soule, and Robert E. Shirley, "Analysis of the Distribution System for Northwest-Originated Fresh and Frozen Salmon," Preliminary draft, Corvallis, Oregon: Oregon State University, 1970.

been reported in three monographs.¹³

Observation as well as the results of the surveys made it possible to establish a schematic model of existing physical distribution channels now available in the fisheries industry (Figure 1). The marketing communications flow is, in general, the reverse of that of the physical flow. That is, the retailers ask the wholesalers about fish availability; the wholesalers, in turn, deal with the brokers or processors. Through time, informal communication networks are formed so that a processor may take the initiative in letting distributors know what they have available. The brokers' principal function is that of bringing buyers and sellers together. Transportation lines may serve as informational sources (the airlines desiring back-hauls from the West coast are performing the communications function in order to secure more business).

The model shows the alternative routes available for the movement of seafoods. Such a structural pattern cannot be standardized but the seller or buyer of such products should realize the possible choices he has and should choose that which will be most advantageous to him. Not all fish

¹³Konopa, Leonard J., Survey of Selected Retail Food Stores, op. cit.; Konopa, Leonard J., Survey of Wholesalers, op. cit.; and Logar, Cyril M., and Donald F. Mulvihill, Survey of Institutional Users, op. cit.

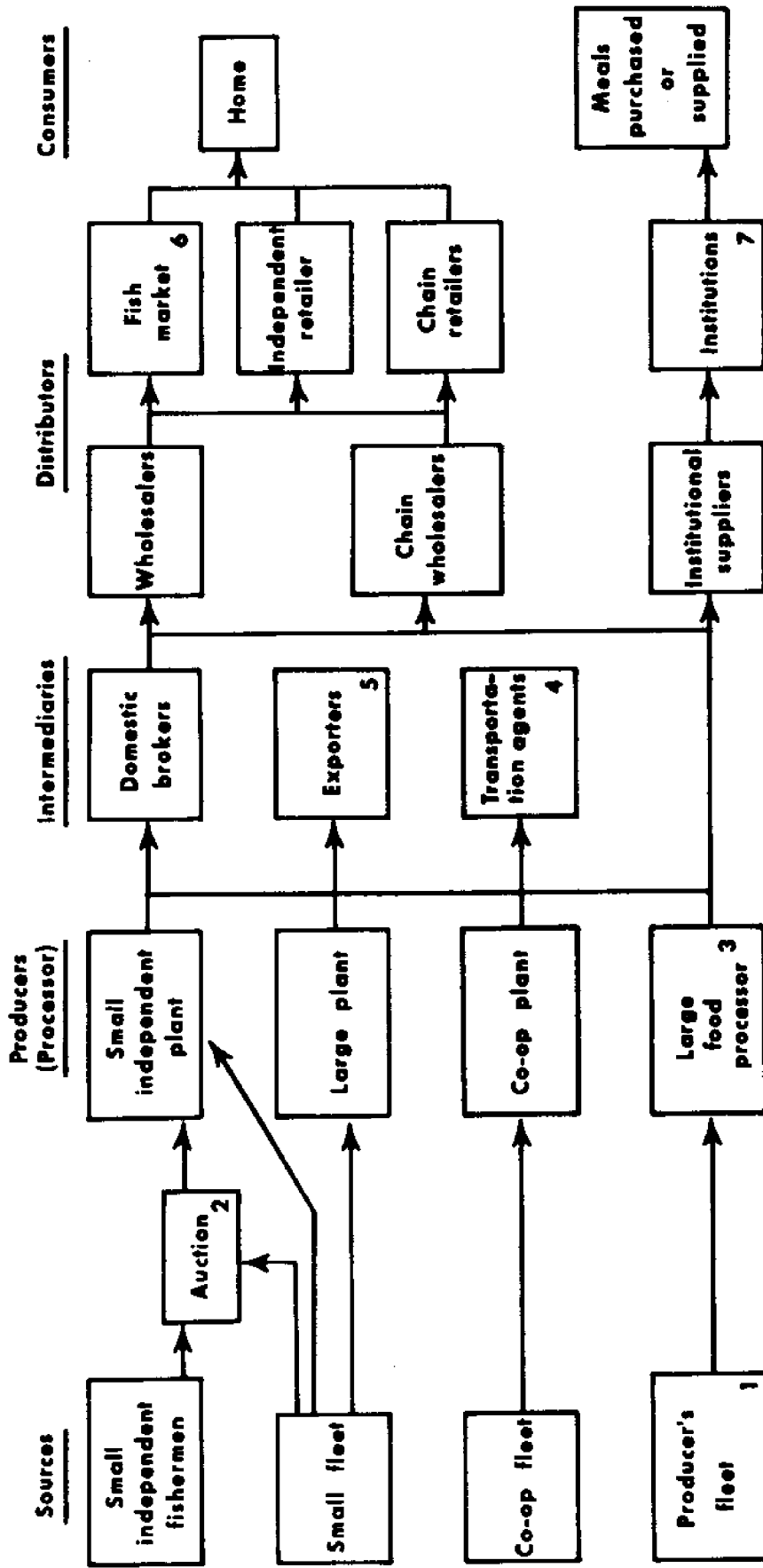
move through a complex channel in coastal areas; whole fish may move directly from the fishermen to the home consumer or from a "fish house" (often a wholesale-retail outlet) to the home user. By having such a model, it is possible to examine the tasks of the various components and to determine what must be done to have more orderly marketing and, hopefully, higher returns for the fishermen's harvest.

Fish Harvesters

Small Independent Fishermen. A great number of fishermen own and operate only one boat and fish only for a single specie. The designation of the vessels used bear out this idea - a haddock boat, a shrimp boat, a whaler, never a general-purpose fishing boat. This particularization is encouraged by the Federal control of the United States fishing activities through licensing and by tradition. Gloucester fishermen were after cod and other specie which were disdained as "trash fish", except perhaps haddock and halibut. The higher prices for cod, haddock, or halibut also made specialization most important. For certain types of specie, such as lobster and crab, special types of gear are necessary - another reason for specialization.

As a particular specie becomes scarce because of overfishing or the presence of foreign fishermen in what have been considered United States waters, the numbers of independent fishermen have decreased. The industry ceases to

FIGURE 1
Physical Distribution Channels in Fisheries Industry



1 May be owned by food processors or financed.

2 Only for certain specie; to set price; a dying institution.

3 May finance small independent fisherman or small fleet owner.

4 Not strictly agents; airlines particularly may serve processor and distributor as communication agents.

5 Exported fish may move to distributors or processors overseas.

6 Fish specialty house is another dying institution; fish stalls in public markets present in coastal cities.

7 Includes restaurants (independent as well as fish specialist outlets), schools, hospitals, industrial plants.

Not all fish move through so complex a channel. In coastal areas, whole fish may move directly from fisherman to home consumer, with all other members of channel eliminated.

have an attraction for younger men, particularly on the East coast, so that captain-owners are middle-aged or older men who, as they retire, are often not replaced by others.

Austin Skinner of the New Bedford Seafood Union reported at a staff meeting and marketing conference in New Bedford, Massachusetts, September, 1972, that a fisherman has an indifferent attitude towards marketing. He may be at sea 250 days each year, so he wants to make a catch, sell it, and spend a few days with his family. At times, he may participate in some collective activity to move a product declining in price. For example, seamen aided in forming a New England Seafood Association in 1958, when the price of scallops declined. Subsequently, demand appeared to increase, but was offset by lower harvests of scallops which caused higher prices. Some actively engaged in the fisheries industry believe this is the best way to get greater earnings. The lowering of supply to increase returns was actually advocated by one officer of a semi-cooperative group at the New Bedford conference. One group at a particular port, practicing this philosophy, obtained a greater dollar volume in 1973 on a lower yield which put pressure on other fishermen out of other ports to harvest more and did not give consumers the amount they may have wanted.

The small independent captain-owner operation appears to be on the way out. Three factors seem to be active in

causing this to happen: higher costs of operation; invasion by foreign fleets of what were considered United States waters; and overfishing with little or not attention paid to quotas established by international agreements.

Small Fleets. Small fishing fleets are in the same position as the single boat operator. In the past, a successful fisherman would add one or more boats to his first one. Often these were captained by sons or other kin. They would operate jointly and have a somewhat larger capital capability than the single unit. They, too, are becoming less a part of the supply picture for the same reasons as the individual boat.

Fish Auctions. Traditionally the catch of the single boat or small fleet was sold through the fish auction. This method of bringing the seller (the fisherman) and the buyer (the processor) together was also a price-setting mechanism which tended to stabilize price on a given day for a given specie. The fish auction is an East coast institution, particularly strong auctions being those at Boston and New Bedford. Today, relatively little passes through the auction. Many days, only one boat will sell its haul through the auction. Processors have been making direct purchases from fishermen or fishermen have been selling their harvest while at sea. By radio-telephone, an offer to sell may be made as the haul is completed and, depending on the different buy-

ers' offers, the boat will make for the appropriate port.

Although there is no absolute evidence of this fact, some fishermen (often former captains) feel that the old auctions were dominated by the processors and that the bid and acceptance process was not a truly free auction. Whether this has been true or not, the industry is following the same historical steps taken by others. Even in the grain market, where the auction provides future as well as present contracts so that the processors can hedge against price changes and be sure of stable flow of materials to the mills, the tendency is to bypass the auction and for the processors to deal directly with the suppliers.

Since the beginning, no sizable foreign flag vessel (more than 5-ton burden) could bring fresh fish into a United States port. This limits the amount of fish that might be auctioned as well as that which might reach the household consumers.

The auction did fulfill its functions for many years-- price-setting, bringing seller and buyer together to culminate contracts, and ensuring the fishermen a way to get their money out of the trip. The tendency towards integration through cooperative associations (see below) also makes the auction less necessary than in the past.

Cooperative Fleets. Perhaps because of the awareness of common problems not only in outfitting fishing boats but also in disposing of the catch, the fishermen of a given port

catching primarily the same specie have banded together in cooperative associations similar to those formed by farmers. Often the fishermen have been encouraged to do this by the fish processors. The cooperative arrangements may aid the fisherman in financing his operation, in securing technological help to increase his productivity, and perhaps in marketing his catch. Oftentimes the encouragement of the establishment of the cooperative group is shown by the processor guaranteeing a minimum return to the fisherman with later adjustments in the purchase agreement if the market prices rise.

The fishermen themselves may integrate forward in the channel and maintain their own processing plant which in turn offers the harvest to the distributors. Examples of such organizations are the Point Judith (R. I.) Fishermen's Cooperative Association and the Provincetown Co-operative Fishing Industries, Inc. At one time, Point Judith even owned and operated its own fish protein concentrate plant so that even so-called "trash fish" brought a payment to the fishermen.

Producers' Fleets. Food processors who may be handling fish most often in frozen or canned form may actually have their own fleets or may finance a large fleet operation from which the catch goes directly to their plants for processing. This is another way by which the processors are sure of the

needed materials for their plants. Quite often the processors are also integrated forward to secure a sure demand for their products. Often they may be part of a completed integrated food chain operation.

Processors

The producers or processors are those institutions that head, tail, and fillet the fresh fish. Very few whole fish are sold compared with those that are processed. The processors may decide to freeze or can the fish. Some even prepare the fish for cooking by breading fish sticks or portions, or making fish specialty items, including fish dinners. One reason for freezing, canning, or preparing fish is to decrease the risk of losing the fish through deterioration. Although there is an increase in the processors' costs and a decrease in the final market price if this is done, it may be that the total return for a given lot of fish will be greater than if there were an attempt to sell it fresh and the item does not move. Coupled with the fact that many wholesalers¹⁴ and retailers¹⁵ do not care to carry fresh fish, it can be seen

¹⁴Konopa, Leonard J., Survey of Wholesalers, op. cit., pp. 43-52.

¹⁵Konopa, Leonard J., Survey of Selected Retail Food Stores, op. cit., pp. 42-46.

that the processor may tend to freeze or can fish rather than promote the sale of fresh fish.

Small Independent Plants. There are still some small independent processing plants. They will get their supply of fish directly from the small independent fishermen or the small fleets. They may participate in the fish auction where these are still active. They probably will package items for ease in handling but they probably will not have an advertised brand name except in certain local markets adjacent to their operations. They may sell through a broker or directly to the wholesalers. Their output is probably not big enough to satisfy an exporter or large chain wholesalers or institutional suppliers.

Large Plants. The large processing plants have a high capacity operation so that they will easily handle the inputs from many fleets. Their products, often frozen and prepared, may carry a brand name, either their own or that of a chain wholesaler to whom they may sell a large portion of their output. They might sell to an exporter, depending upon the specie handled and the price in the overseas market. They may also supply frozen portions to institutional suppliers.

Cooperative Plants. The cooperative fishermen's association is often initiated by a processing plant that wishes to have a sure source of supply. In a few instances, the fishermen have instigated the move forward, either buying an ex-

isting processing plant or building one. The costs of finding a supply on the part of the plant or a buyer on the part of the fishermen should result in a lower price to the plants' customers. In the United States, the cooperative concept does not seem to progress often to the distributor level although a cooperative plant might sell some of its output to a cooperative food chain.

Large Food Processors. There are large food processors that process and prepare fish in the same way that their counterparts in other food industries process other products. They usually package under a nationally advertised brand, sometimes one that is a family brand for several product lines. Many of these processors will sell to foreign markets through an exporter, either a merchant middleman or an export agent.

Intermediaries

These intermediary institutions stand between the producers or processors and their markets. Their primary function is to bring sellers and buyers together. This is done by having the most complete market information, particularly that relating to the probable prices in the different markets.

Domestic Brokers. Located in the large market centers, especially on the coasts, the domestic brokers handle sales for the large processors and the purchases by large wholesalers, especially chain operators. They may also deal with the exporters who have comparable market knowledge for the

overseas markets.

Exporters. The exporters may be either merchant middlemen who buy and sell in their own right or agents who deal for either sellers in this country or buyers overseas. They have a high degree of knowledge of the markets abroad, particularly in terms of prices.

Transportation Agents. The representatives of the trucking companies on the East coast and the airlines on the West coast, although not actually true agents, are concerned with the physical distribution of fish, particularly fresh fish. In both cases they are looking for hauls that will be profitable. As will be seen in Chapter IV, by the nature of the goods and the rate structure under which they move, carriers may adjust rates so as to provide a mutually-profitable transaction for themselves and the channel members. Physical characteristics of the carriers and the highway and airlines networks make it possible today to lay down fresh fish in the Midwest markets in approximately 24 hours from either coast.

Distributors

Wholesalers. The wholesalers in the fish physical distribution channels are apt to be food wholesalers who handle meat and poultry items also because these goods also need refrigeration facilities. They assemble various product lines in quantity through buying from suppliers such as the

processors and in turn supplying lesser amounts of the goods to retailers.

There are three different types of wholesalers in the physical distribution channels for fish--those that sell to independent retailers and fish markets; those that perform this function for chain outlets; and those that supply institutional users. In some instances, the institutional users establish and use their wholesale establishment in a manner similar to that of the chains.

The institutional suppliers may provide stock for caterers to schools, hospitals, and industrial plants. Fish in the form of portion-controlled servings may best be frozen. These middlemen may also supply restaurants who feature fish meals. Where fresh fish are a specialty of the restaurant, its supply may be obtained from the coastal processors.

As indicated in the section above concerning the processors, many wholesalers are not eager to handle fresh fish because of its inconvenience, risk of deterioration, and uncertainty of demand. This is particularly true of the smaller wholesalers who may not have adequate refrigeration facilities or for whom fish is a very minor line item among hundreds of others.

Retailers. In a few of the larger cities, there are still a few specialty retailers that deal primarily in fish and seafood products. Often called a "fish market," these stores cater to household consumers who consider fresh fish

a delicacy and a highly desirable menu item. Today such a demand has become relatively less important. Caught between the difficulties of serving a steady supply and a decreasing demand for their specialty, the fish market seems to be disappearing. The impact of the self-service supermarket grocery outlet also has provided the household consumers with frozen fish, including prepared items ready to be heated and served. This type of built-in "cook service" has effected the demand for fresh items other than fish which seem to require time-consuming chores and uncertainty as to the final culinary result.

Two other retailers have the bulk of the activity at this level, the independent and the chain outlets. These draw respectively on the independent and chain wholesalers. In each case, the retailers want supplies of products in terms of their turnover rate. As indicated in the reference cited above, the larger retailers carry fresh fish because of consumers' preferences, but many would prefer to carry frozen fish for reasons similar to those of the wholesalers. Smaller retailers are inclined to carry no fish products other than canned fish which is handled in the same way that other canned items are.

Schools, hospitals, industrial plants, and restaurants form the institutional group. The first three are serving meals (often catered by an outside agency) where one of the

greatest objectives is portion control. This is best achieved by the use of frozen fish items. Restaurants may be broken down into two groups--chain groups that may specialize in fish meals ("fish and chip houses") and the specialty restaurants that feature fresh fish. The first group is similar to the other institutions. As noted in the section on wholesalers, the second group may bypass the wholesaler and deal with the processor. The airlines, although not registered brokers, may be helpful in providing market information to the West coast processor and the Midwest restaurant operator.

Ultimate Consumers

Home Consumers. Most of the fish, either frozen or fresh, processed or prepared, is consumed in the home, but not much is used. According to Federal government sources, the per capita fish consumption in the United States for many years prior to the present food situation was about eleven pounds per year. It is now thought to be about twelve and one-half pounds.¹⁶ This is, of course, only a small amount of the total food consumed. If this per capita consumption is multiplied by the total population, it is approximately one mil-

¹⁶Fisheries of the United States, 1973, National Marine Fisheries Services, National Oceanic and Atmospheric Administration, Washington, D.C.: U. S. Department of Commerce, 1974, p. 79.

lion and one-third tons per year. With apparently diminishing domestic supplies and the possibility of greater demand because of greater numbers of people and greater rate of consumption, it is probable that fresh fish will be less available in proportion to the total amount of fish in order not to lose a valuable protein source due to handling problems.

Consumption Outside the Home. Persons supplied meals by schools, hospitals, and industrial plants do not have much choice as to the items on the meals served. The vast number of meals served and the need for uniform portions being served prohibit use of fresh fish. Only the restaurants specializing in high-priced "gourmet" menus can afford fresh fish as regular items. In this way, those consumers who desire fresh fish may be satisfied. In time perhaps even this source of want satisfaction involving fresh fish items may also disappear because of higher costs and equally-desired substitutes.

Summary

An examination of the components of the physical distribution channels available to move fish from the coastal waters to the household consumers in the United States, including the Midwest, produces the schematic model shown in Figure 1, a model not previously presented in fish marketing studies.

In order to examine the feasibility of translating the existing structure into that proposed at the beginning of the study, certain characteristics must be present. These form the basis of the next chapter. How one industry involving a highly perishable good moving over long distances was able to organize a communications net and physical distribution system will also be discussed.

CHAPTER III

CHARACTERISTICS OF A CONTROLLED DISTRIBUTION SYSTEM

In order to determine how the present market communications and physical distribution structure for fresh fish needs to be altered to satisfy the requirements of the proposed system, it is necessary to establish the characteristics required to have an efficient controlled system. This chapter will deal with these characteristics and provide an example of the system adopted in another perishable food product industry - the California citrus industry.

Requisite Characteristics

Availability of Product Information. So that buyers may find out whether or not their fish needs, particularly fresh ones, coincide with the fish in the hands of processors, it is necessary that a standard nomenclature be accepted by all in the trade. Although the names of most fish previously available in large quantity such as cod, haddock, halibut, or tuna have general acceptance, the names of many of the underutilized specie are not known by wholesalers.¹⁷ The same

¹⁷Konopa, Leonard J., Survey of Wholesalers, op. cit., pp. 91-96.

problem is present among retailers.¹⁸ The names for many fish will also vary by region.

Another problem that must be overcome is that of quality designation. In any fresh product, particularly, there is difficulty in setting up standards that will differentiate quality. Even more difficult is to grade the product in terms of the standards. Standards relating to fish quality might include texture, color, and smell as well as size (length and thickness). Ideally, the standards present in one short term indicates quality of the item - e.g. U. S. Choice, Grade A. As with fresh meat, the grading process of fish through inspection appears to be something learned mainly by experience and too few graders may be available to handle the fish at the processors' level.

Branding often serves as a substitute for grade labeling. By the nature of the product, fresh fish is difficult to brand. It can only be done by placing a brand on its container. If the wholesaler is to break bulk, the brand for that fish may not go forward with each part of the shipment. The same is true for the retailer making displays behind glass and even more true if the product is placed in bins.

¹⁸Konopa, Leonard J., Survey of Selected Retail Food Stores, op. cit., pp. 67-69.

Availability of Market Information. In order for the middlemen to place orders consistent with the market offerings, there must be a central location of information of what fish is where. It would be possible to have a network of computerized inputs from processors (or even fishermen) in some regional or national memory bank. Against these inputs would be offsetting takings by middlemen. The offerings would be described by specie, quality, and amount.

The requirements of the middlemen would flow as orders from them and be matched against offerings. The matching process would start the physical movement of the fish at the point of storage to the middlemen.

Need for Adequate Distribution Facilities. In order for fresh fish to be moved over any distance without the risk of spoilage, refrigerated transportation vehicles must be available. Most fish moves by truck or airplane, so these must be adequate, both in terms of numbers and efficiency. Since there will be some time lags between the fish being put in the supply stream and their being bought, it will be necessary to have storage capacity at the processing point, an intermediate point, or at the point of trans-shipment at the reselling end. This last point is apt to be at the airport where fresh fish is received from the West coast and local delivery is made by truck. Ideally, if the system works well, there will be little, if any, need for a huge

capacity of refrigerated storage. The greatest need for refrigerated storage will be at the processing point as inventories are accumulated. Evidence of this need is the building of a large processing and storage facility by the Fresh Water Fish Marketing Corporation of Canada, an operation¹⁹ which perhaps most nearly approaches the system proposed.

Need for a Coordinated Payment System. An additional function that would have to be carried out by the central organization would be that of billing and collecting from the middlemen and paying the processors who, in turn, would pay the fishermen. In a controlled system such as that in Canada, the processor pays the fisherman an initial price upon receipt of the product and later distributes any amount over the original payment brought about by higher sales prices.²⁰ This operation would be similar to existing centralized accounting systems.

Need for Overall Organizing and Controlling Unit. Some agency must take the initiative in establishing such a system. In Canada, this was done by establishing a Crown corporation.²¹ It is unlikely that the United States would

¹⁹Lamb, Charles, and Donald F. Mulvihill, op. cit., pp. 44-45.

²⁰Op. cit., pp. 20-21.

²¹Op. cit., pp. 22-27.

sanction a quasi-monopolistic sales agency or that the fisheries industry might accept it if it was formed. As previously mentioned, there are no overall industry associations either in terms of all fish or all of the United States. Instead, organizations are based on specie or geographical area or both. (This situation gives rise to one of the final conclusions-- that such a system might be achieved if cooperatives become more dominant.) That such an orderly process for marketing communications and physical distribution for a perishable good is feasible is shown by the experience of the California Fruit Growers Exchange.

The California Fruit Growers Exchange: an Analogy

It is difficult to find any true analogy between the marketing of fresh fish and any other highly perishable product. Citrus fruit are not as perishable as fresh fish; if fresh strawberry growers had banded together to enter the market, a better analogy might have been possible. The fisheries industry probably will never be able to have as an assured supply as may be present in a farm production situation. Certain uncontrollable external factors (indicated in Chapter I and discussed briefly in Chapter V) may have a greater effect on this industry than on farming. Fish must be sought and caught. This may be hazardous at times and frustrating at others. It is natural, therefore,

that much of the research in the industry and sponsored by the Federal government should be on equipment and navigational devices, rather than physical distribution and marketing. An examination, however, of the citrus fruit industry may indicate certain similarities to the fisheries industry in terms of the requisite characteristics for an efficient, orderly system.²²

History. At the turn of the century, relatively few oranges were grown in California and Florida. Matured fruit were sold locally except for that packed and shipped to Eastern markets. In the early 1900's, fifth per cent of the crop was handled by a cooperative association, the California Fruit Growers Exchange,²³ that used national advertising and a brand name, "Sunkist," to promote the sales of oranges to household consumers. From 1905 to 1925, the consumption of oranges increased from 600 million to 1,800 million pounds.

²²The presentation that follows is based primarily on Vaile, Roland S., E.T. Grether, and Reavis Cox, Marketing in the American Economy, New York: Ronald Press Company, 1952, pp. 5-11; Duddy, Edward A., and David A. Revzan, The Physical Distribution of Fresh Fruits and Vegetables, Chicago: University of Chicago, Studies in Business Administration, Volume VII, November 2, 1937; Alexander, Ralph S., Frank M. Surface, Robert F. Elder, and Wroe Alderson, Marketing, Boston: Ginn and Company, 1944, pp. 336-348; and an interview with Herbert O. Weinrich, district manager, Sunkist Growers, Inc., Cleveland, Ohio.

²³Now Sunkist Growers, Inc., but still a cooperative association.

In 1933, the total orange crop was about 3,600 million pounds, all sold as fresh fruit. Cooperative efforts resulted in about 80 per cent of California orange sales in that year. Although the total crop continued to increase, by 1945 approximately 30 per cent was sold in other forms such as canned fruit juice, dehydrated juice, or marmalade. Two great changes came in the decade of 1935-45: the frozen concentrate process was perfected and Florida production increased greatly. In 1949, frozen orange concentrate was seven per cent of the total sales and today it is well over fifty per cent.

The California Fruit Growers Exchange was made up of local associations that are grouped into districts. Each local group had its own packing house. The sales department sold into the large centers of the United States to wholesalers and large retail chains. The traffic department directed the flow of each carload to its destination. District managers or agents in large market centers fed back to the central headquarters estimates as to amounts that were salable. This eliminated "glutting" any market and hence kept local prices up. Diversion-in-transit privileges permitted cars to start movement to the East and be diverted to a specific destination while en route. Sufficient leverage based on the high volume of traffic brought about blanket rates into the Midwest and beyond to the East, hence making

transportation costs a constant rather than a variable cost.

Requisite Characteristics. If a comparison is made of the activities of the California Fruit Growers Exchange and the requisite characteristics cited above, it will show how it was possible to have an orderly, controlled marketing communications and physical distribution network in this industry. There was and still is little variety in the oranges offered in the market; quality is ascertainable by inspection; standards are present and grading takes place by mechanical sorting and observation; branding is possible (it took much experimentation to perfect a machine to brand the orange without damaging it); market information is available through the Exchange and the United States Department of Agriculture; and the requirements of the middlemen can be matched by the fruit being shipped to the East. So well organized was the distribution process and so definite the information available to buyers that experiments were made of a Dutch auction taking place while the oranges were in transit. By use of telegraphic lines, bidders were able to register their bid at a central point as the price clock hand moved downward from the high starting price. The oranges were then directed to the successful bidder wherever he was in the East.²⁴

²⁴Vaile, Roland S., E.T. Grether, and Reavis Cox, op. cit., p. 384.

The development of the necessary rolling-stock to move perishable fruits from the West coast to the Midwest and beyond started before 1900. Cold storage warehouses date back to that time also. Through the years, better insulation, temperature control systems, and better handling equipment have become available.

A system of collection and payments was established by the Exchange. Perhaps most significant is the fact that, in the citrus fruit industry, leadership was provided by the Exchange to organize and control the marketing communications and physical distribution system.

All these attributes made for a highly organized and controlled structure which might be emulated by others. It may be that the fisheries industry is now in the same phase as that of the citrus fruit industry when the frozen concentrate process was perfected. By using the flash frozen process, the risk of spoilage is almost eliminated, the fish are easier to handle, and the product quality perhaps is not lowered sufficiently to lose a high volume of sales.

Chapter IV will present a possible communications system related to the physical distribution system and relate the characteristics and attributes needed for such a system to be used for fresh fish.

CHAPTER IV

A SCHEMATIC MODEL FOR A COMMUNICATIONS SYSTEM

This chapter deals first with a schematic model of a marketing communications system that might be established for the sale and physical distribution of fish, particularly fresh fish. The advantages favoring such a system are presented followed by the relevant disadvantages. The point of view taken in this chapter will be a domestic one; certain world market problems that effect even the domestic market will be presented in Chapter V.

A Marketing Communications Model

It is desirable that any proposed system not be too disruptive of the existing one. This is true particularly when there is a great diversity of elements. Figure 1 in Chapter II portrays the alternative physical flows of fish from the sources to the ultimate household consumers. The schematic model for communications flow presented here uses the existing agencies with the imposition of a central data gathering agency. Figure 2, therefore, appears quite similar to Figure 1 except for the units considered as sources. This emphasis is realistic since it appears that the producers or processors are what are referred to as "channel captains" which means that they are the organizers of activity

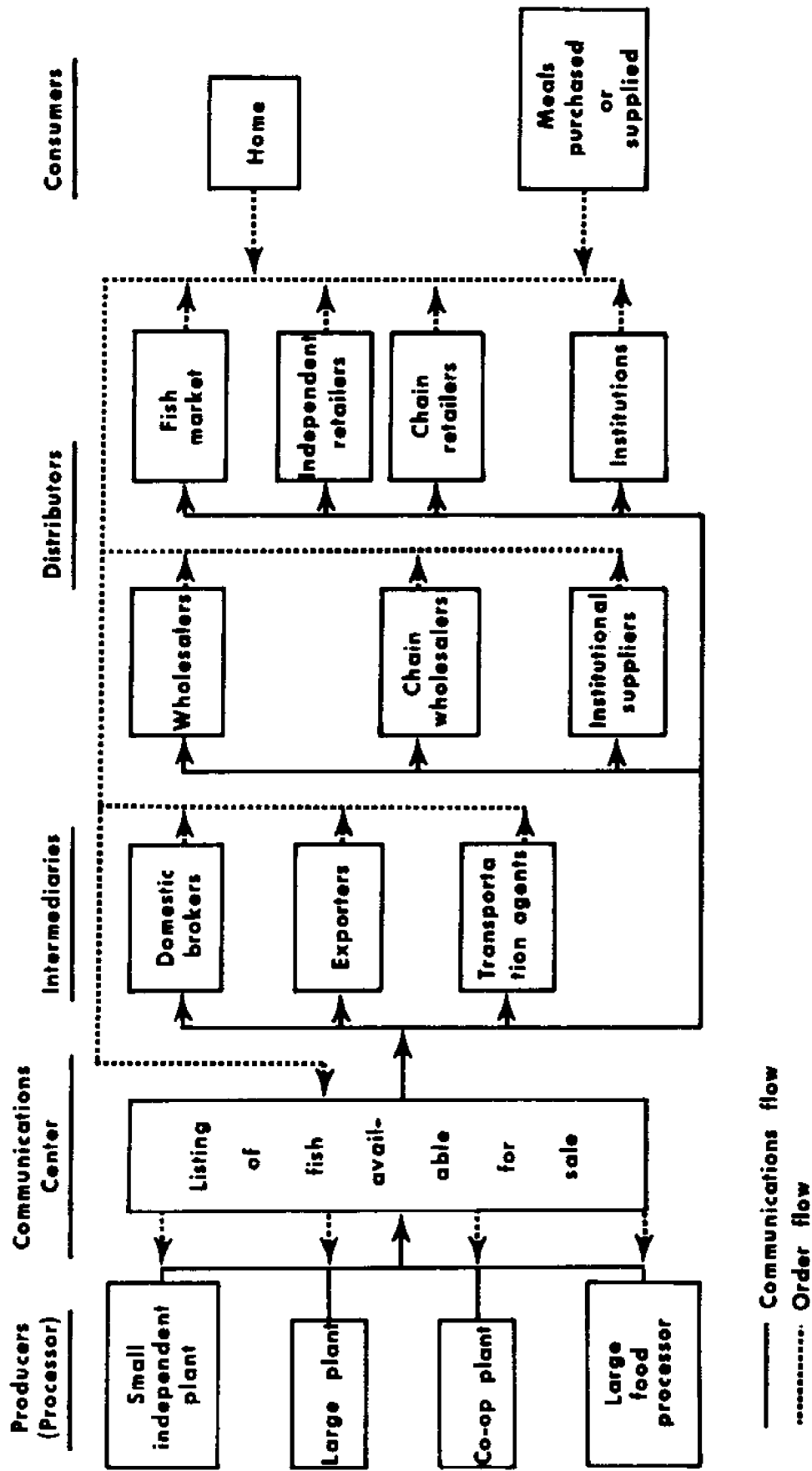
(see Chapter II). Undoubtedly this will become more true in the future.

The model has as a focal point a communications center. Into it would flow data from the processors as to the fish they have available in terms of specie, quality, and quantity. The intermediaries and distributors receive this information through a communications network and place orders in terms of their particular market. The orders then are matched against the available supplies and the physical flow may follow the paths shown in Figure 1, or a direct flow from processors to the retailers may be possible. To some extent, this direct flow might curtail the activities and importance of the wholesalers with a possible lowering of distribution costs. Of course, the distributors may place orders through the communications center without regard to the information received as to offerings.

The order flow, hopefully, starts with the preferences of the home consumer and those receiving institutional meals. Very little market research has been done in the area of consumer preferences or behavior regarding fish as a menu item. The work done at Kent State University by Sanchez²⁵ and

²⁵Sanchez, Peter, and Leonard J. Konopa, Fish as a Household Menu Item, op. cit.

FIGURE 2
Possible Communications and Order Flow in Fisheries Industry with Computerization



Machamer²⁶ cited in Chapter I show what may be done along this line. In reality, however, the fish offered in the markets today appear to be that which is available without much regard to what the household consumers really may want since these wants are unknown. Such an attitude by the sellers of fish is to be expected in a market where demand at least for certain types of fish appears to outrun the supply. In the case of fresh fish, most members of the channel can offset what might be a loss from spoilage by freezing the fish, hence putting it in another, lower risk market. As in Chapter III, much of the data presented here is based upon interviews and correspondence with members of the existing channel structure (see Appendix).

Factors Favoring the Establishment of a Communications System

Several advantages are present today that would make the establishment of a marketing communications system possible that a few decades ago were not present. The state of the arts concerning communications systems and computers has reached a highly advanced and efficient stage. Changes in

²⁶Machamer, Albert V., and Leonard J. Konopa, Market Segmentation of AID Analysis of Household Consumers of Fish, op. cit.

the physical distribution facilities in handling perishable products such as fresh fish now make it possible to couple the marketing information with the rapid movement of the good from sources to consumers. The cost of such movement, as shown by the transportation rate structure, also makes possible a competitive price for fresh fish even in Midwest markets as compared with meat, if not poultry.

Communications Networks. Not much need be said about the telephone or telegraph net that covers the United States. These lines may be used under rental contracts and are being used to transmit to and receive data from computer centers over long distances. The traffic done by such cables has been multiplied so that thousands of message units may be transmitted without interference or error. Even fishermen at sea by means of radio-telephone search out the best-paying processors before they decide which port should receive their catch.

Information Systems. The increasing capacity and rapidity of computers provide the basis for the information systems' "black box" which receives, stores, and, in the case of the model suggested here, matches data and then transmits its findings to the receivers at both ends of the communications chain. The problem of computer usage is not present; the problem is that of securing the flow of input data from the suppliers first and from the distributors second.

Efficiency of System. That such a system would be more efficient may be judged on the effectiveness shown by the system established by the California Fruit Growers Exchange that could not have the speed of communications that is possible today. By using their agents in large market centers, it was able to route shipments where there was a higher price possibility and not have an oversupply in any market which would lower the local market price. It may be assumed that such an efficient allocation of fresh fish would be obtained under the proposed model.

Physical Facilities. Nearly all of the fresh fish move from the two coasts by refrigerated vehicles, those from the East by trucks, those from the West by airplane. The problem of providing the proper temperature en route does not exist in either vehicle. Particularly for the air movement, containers have been devised that aid in the physical movement of this perishable product.

The increased road speed of trucks (only recently curtailed to save fuel) and the building of interstate highways and expressways makes it possible to lay down fresh fish in Toledo in 26 hours and in Chicago in 32 hours. Several East coast processors have regular scheduled runs of this nature and nearly all wholesalers and retailers in the sample area indicated that they were satisfied with delivery times and would not sell any more fresh fish if the delivery time were shortened.

The movements from the West coast are somewhat difficult to time advantageously because of time zone differences. In order to lay down fresh fish in Cleveland early in the morning, a flight from Seattle must leave there around midnight. This means that the fish must be ready for shipment in the early evening. Since fishermen usually return to port in the morning, this means that the fresh fish may wait one-half day or more until it begins to move to the Midwest. Because of good refrigeration controls, however, the loss by spoilage through such a delay is minimal.

At the beginning of the airlift of fresh fish, difficulty was experienced because of poorly insulated containers that leaked. Efforts by airlines, paper companies, and design engineers, attempted to produce containers that were serviceable and would aid in the movement of the fish.²⁷ Research also was done on containers by the old Bureau of Commercial Fisheries.²⁸ To do the job properly,

The ideal container would be one which, while protecting the quality and appearance of fresh seafoods, would be capable of maintaining a fixed internal

²⁷This brief statement on container development is based on a taped interview with Robert E. Metcalf, Associated Transportation Center, Seattle, October, 1972.

²⁸BCF Technological Laboratory, Gloucester, Massachusetts, "Improving and Expanding the Distribution of Fresh (Unfrozen) Seafoods by Means of Insulated Containers," Commercial Fisheries Review, March, 1968, pp. 39-42.

temperature, be entirely independent of external temperatures, be leakproof, be easily handled, be adaptable to small-order marketing and, most important, be inexpensive. It would be useful in rail, truck, and air shipments and be reasonably independent of any limitations as to time and distance in storage and transit.²⁹

To achieve such a container, employees of airlines, some of whom became workers for paper companies or independent consultants, engineers and others worked diligently. Airlines, although eager to get fresh fish movements as a "back-haul" item, could not afford to sideline a plane whose freight area was contaminated by leaky fish containers. St. Regis Paper Company developed wet-lock boxes that provided a suitable container. Some of those perfecting this box shifted to the Menasha Corporation Container Division. The cost of the containers has been low enough that coupled with their efficiency they make air movement possible. Much of the original use by airlines was for shipments along the Pacific coast from Alaska and Seattle. Presently the transcontinental lines such as American Airlines, United Air Lines, and the Flying Tiger Line are using containers with a selection of sizes to fit various plane contours.³⁰ The use of containers now makes it possible to move fresh fish easily

²⁹Op. cit., p. 30.

³⁰United's Lower Deck Containers (sales monograph), Chicago: United Air Lines, 1973.

and rapidly from the West coast to the Midwest. The smaller containers may be loaded into refrigerated trucks for local delivery while the larger "igloos" may be unloaded into the trucks.

Rates. Since this study is concerned primarily with fresh fish and incidentally with frozen fish, only the rate structure pertinent to fresh and frozen fish, not that for prepared fish, is relevant.³¹ Under the provisions of the Act to Regulate Commerce of 1887, as amended, Section 203(b) provides for the exemption of fresh and frozen fish from economic regulation by the Interstate Commerce Commission and makes them subject to individual carrier quotation. This same type of exemption is present in the acts governing the Bureau of Motor Carriers of the Interstate Commerce Commission. There is, therefore, no floor on the rates applied to the movement of fresh and frozen fish except that imposed upon the carrier itself based upon costs. Conversely, there is no ceiling either. If the carrier does not want such shipments, a high rate will discourage movement over any long distance. Since the airlines move much more non-exempt goods from East to West than from West to East, they will seek back-haul items to fill the plane.

³¹This discussion is based upon a working paper prepared by Clifford T. Hancock, at the time an assistant professor of transportation at Kent State University, who served as a consultant on the project.

Processors on the West coast, therefore, are in an advantageous position in negotiating for rates of fresh fish into the Midwest.

In determining laid-down costs of fish to the distributors, it must be recognized that the truck rate usually is for door-to-door delivery while the air rate will be from airport to airport, which means that facilities must be available to the processors to move the fish to the airport and for the distributors to pick it up upon arrival. Some movements by air may be on an intermodal bill of lading and the rate inclusive of door-to-door delivery. Although not practiced too much today, it may be the dominant way of the future.

Factors Not Favoring the Establishment of a Communications System

Certain reasons for not establishing such a communications system were found through interviews and the surveys. These included lack of refrigeration facilities at terminals, indifference of wholesalers and retailers towards handling fresh fish, lack of cohesion in the fisheries industry, and costs of establishing such a system.

Needed Facilities. In terms of truck movements from the East coast, the refrigerated vehicles are adequate for maintaining and controlling the requisite temperatures. For air movements, the planes and the containers used are now adequate.

There is a lack of cold storage space at the assembly point or at the terminal of the air flight. If timed properly so that there is no interruption in the physical distribution flow, such facilities are not needed, but often there is waiting time at either airport. Needed storage facilities might be provided by the airlines eager to obtain business or by public warehousemen.

Indifference of Distributors. As indicated in Chapter III, wholesalers and retailers in many instances would rather not handle fresh fish because of inconveniences in handling and risks of spoilage. Since household consumers demanding fresh fish are not too numerous, not much pressure is brought to bear upon the distributors to stock fresh fish. Only a rigorous educational campaign by home economists through demonstrations and newspaper releases might counteract this indifference, but it is doubtful that such a program will be forthcoming.

Lack of Cohesion in Industry. As previously indicated, the fisheries industry is not tightly organized. Associations of fishermen and processors are based on specie or by location. Even so-called national groups are concerned with one type of fish--tune, oyster, shrimp, or others. Even state and, to some degree, Federal agencies use specie categories as bases for research and attempts to stimulate the market. Lines of communication between distributors and

processors are already laid out and neither group probably could see positive gains to them by using such a system as proposed.

Costs. Probably the biggest factor to overcome in setting up the proposed system would be the initial cost of establishing the communications center. Even after this has been met, operating costs would continue. The question arises as to who will cover the costs--the processors so as to sell more fish or the distributors to be assured of a steady supply of fish. From what has been learned from the field study, it would appear that neither group would welcome this allocation of increased costs. Unless the Federal government would be willing to meet the initial costs and unless there could be more coherence within the industry, it does not appear that any strong group would provide the necessary impetus to finance such a program.

Summary

It would appear that there are many factors which seem to favor such a communications system as shown in Figure 2. These are the equipment needed to establish a communications center and its information network and the physical equipment to move the fresh fish from sources to distributors. The rate structure also appears to favor such a system, especially in dealing with Pacific coast shipments to the Midwest.

The factors that would have to be overcome in order to

have such a system successful include the lack of refrigerated storage facilities at airports, the indifference of distributors toward handling fresh fish, the lack of cohesion in the fisheries industry, and the costs. The first factor probably could be overcome easily but the last three present extremely difficult stumbling-blocks.

Chapter V will present some factors outside the domestic scene that may have a bearing on the proposed system. Certain questions raised at the beginning of this study will be answered and conclusions will be reached as to whether or not such a marketing communications and physical distribution system should be established. Finally certain alternative courses of action will be considered to achieve somewhat the same ends as those thought to be met by the proposal.

CHAPTER V

EXTERNAL FACTORS EFFECTING THE FISHERIES INDUSTRY; CONCLUSIONS; ALTERNATIVES

Before coming to a set of conclusions regarding the establishment of a marketing communications and physical distribution system as proposed, certain external factors effecting the fisheries industry must be recognized. These are action areas over which the members of the industry may have little, if any, control and over which perhaps the United States government policy may not be able to prevail since they concern other sovereign nations and their search for food. If the proposed system should not be established at present, perhaps there are alternative ideas that might be advantageous to the fisheries industry.

External Factors Effecting the Industry

Among the external factors over which even the Federal government may not have much control are the invasion by foreign fleets of what have been considered United States waters and their disregard of covenants governing fishing; the greater demand abroad as shown by prices received; and the diminishing stocks of fish throughout the world.

Foreign Fleets in United States Waters. With the development of better boats and gear, foreign fishing fleets have

taken a heavy toll of fish in American waters. Soviet fleets operating from factory ships have systematically gone after one specie and then another.³² By this method of operation, they concentrate their activity in an area until it is fished out and move on to another. Whether or not proper conservation methods are followed does not concern them. The Japanese, like the Russians, needing a source of protein for a huge population, similarly have acted contrary not only to agreements as to areas to be fished but also as to amount to be taken.

Coupled with the movements into traditionally United States waters by these countries' fleets and those of East Poland, Iceland, Spain, and others, has been greater efficiency by their fishermen. Few operate on an individual basis but operate as did the United States whaling expeditions in earlier periods. Other countries, particularly the Russians, operate factory ships that process, freeze, and store the fish brought to them by smaller vessels. Although two such operations in the United States were subsidized by the Federal government, one on each ocean, they did not appear to appeal to the United States fishermen and so were abandoned.³³

³²Alexander, Tom, "American Fishermen Are Missing the Boat," Fortune, September, 1973, p. 193.

³³Op. cit., p. 196.

Jurisdictional Problems. As the world appears to shrink because of more rapid communications and transportation and as the need for ocean resources becomes more apparent with increased populations and the growth of developing nations, the necessity of determining the rights to specific ocean areas gains greater importance.

Not just fish, but minerals, petroleum, control of pollution, rights of passage, are subject to the question of sovereignty. The old three-mile limit hardly exists; many countries accepted a 12-mile limit at the first United Nations Law of the Sea Conference in 1958. Many of the small developing countries, especially with long coast lines, claimed and enforce a 200-mile jurisdiction.³⁴ To aid the domestic fleet, Senator Warren Magnuson of Washington and Representative Gerry Studds of Massachusetts have co-authored a bill in Congress to extend United States fishing water to 200 miles.³⁵ It is doubtful if such a bill will pass because of the problems it would make for tuna fishermen on the West coast and shrimpers in the Gulf of Mexico. At best, the Law of the Sea conferences provide forums that focus upon the is-

³⁴An up-to-date summary of the situation at the Third Conference now being held in Caracas, Venezuela, will be found in "Who gets the oceans' economic wealth?" Business Week, June 22, 1974, p. 60-65.

³⁵"Failing Fleets," Time, June 3, 1974, p. 75.

sues that should be settled, but whose settlement probably will not be accepted by all 151 nations participating.

Greater Demand Abroad. Because of the greater need by many countries for protein-high foods, many exporters have found that the better fish such as the top-grade salmon steaks will bring a greater price and hence higher return if sold abroad. Many processors find this to be true also. Often the fish shipped fresh or quick-frozen overseas may return to this country in smoked or canned form. Although the per capita consumption in the United States is now 12.6 pounds, it represents approximately no more than one-fourth of the "meat" consumption here while in many countries fish is about 80 per cent of the meat intake.

Diminishing Stocks. Already certain specie are endangered. In spite of the protocol signed by whaling nations that provided a period in which whales would not be taken so as to make possible a future supply of meat and oil, it has been disregarded by some nations, particularly Japan, on the basis that the need transcends any treaty obligation. Other specie such as cod, haddock, and other finfish approach the limits of natural resupply possibilities.

Summary. All these facts above have a bearing on the United States market for fish. All of them are negative factors, diminishing the possible place of fish in the national diet and making a controlled system of marketing

more desirable. Whether or not this need will be recognized so as to change the structure of the industry remains to be seen.

Conclusions

When the study began, the major question was the feasibility of establishing a marketing communications and physical distribution system as proposed. To answer that, it was thought necessary to look at other questions. These were:

1. Is the demand for fresh fish sufficient to support a sophisticated distribution system?
2. Is the demand for fresh fish likely to increase if consistent supplies of high quality fresh seafood are available generally?
3. Is the supply likely to increase with additional demand or will additional demand only result in higher prices due to a proportionally larger increase in demand than supply?
4. Are the wholesalers and retailers prepared to participate in a more sophisticated distribution system, and are they willing to promote and offer more fresh fish?
5. Are there adequate facilities presently available to permit application of streamlined ordering and delivery scheduling systems--that is, computer technology and ad-

vanced physical distribution techniques?

6. Would the new system provide economic advantages due to lower costs, greater efficiency in processing, cold storage, transportation scheduling, and other factors?

Obtaining answers to these questions center around demand for fresh fish rather than the supply of it and formed the basis for the surveys done under this grant and whose results are published in a series of monographs. Direct answers are often difficult to sustain without attaching qualifying statements. Such statements are presented in previous chapters of this report. Based upon the findings of the research and particularly in light of the chaotic world fisheries industry, the conclusions following may be drawn:

1. The demand among household consumers for fresh fish does not apparently warrant a sophisticated (and more costly) distribution system.

2. Considering the present chaotic situation in the fisheries industry brought about by government controls and foreign exploitation of coastal waters, it is unlikely that consistent supplies of high quality fresh seafood may be obtained. Since this condition cannot be met, it is doubtful that, even if the demand were increased for a time, it would be a sustained increase.

3. The supply of fresh fish will not be increased even if there were an additional demand because of other factors

which will offset such a supply-demand shift (see Number 4 below).

4. Wholesalers and retailers would rather handle frozen fish because of ease in handling, less deterioration, and a more consistent supply; hence few, if any, would be willing to promote the sale of fresh fish.

5. Adequate physical facilities are available to provide the system proposed. Since many retailers already have 24-hour delivery service, it would appear that delivery systems are adequate at present.

6. Although lower costs of processing, physical handling, and transportation might be obtained by such a system, there would be higher cost to provide the communications network and order-filling process. No centralized agency appears ready to maintain and control such a system and it is doubtful that the Federal government, if it should establish it experimentally, would find it being used by the middlemen.

To answer the question as to the proposed system's feasibility in terms of the findings above and the overall fisheries study made through this research, it must be concluded that, considering the domestic situation, such a system, although technologically possible, should not be established at this time because of the nature of the product, which does not provide a stable, constant source; the structure of the industry with thousands of fishermen and vessels

of extreme differences in size and gear; and the indifference, at least, of Midwestern distributors and perhaps even of consumers.

Alternatives

What are the possible alternatives in the future which might change the answer to the question of feasibility of such a system? These might include subsidization of the fishing activity by the Federal government; the closer integration of the channel members through cooperative associations; or standardization of the product and the acceptance of underutilized specie.

Federal Subsidization. As in the case of the farmers in the period beginning with the economic depression of 1929-1933, fishermen might be given an assured price by a Federal agency for the catch. This price would be one that should be covered by the final market price. Advances of payment on this basis would either be repaid by the fishermen when the market price obtained is higher or by the Federal government taking the fish and selling it at a lower price and subsidizing the loss on the catch. Because of the nature of the product and the risk of spoilage for fresh fish, nearly all fish in the market would be frozen or canned. It is doubtful if this program would be readily accepted by the independent fishermen. An experiment somewhat along this line has been

attempted by Canada for the fishermen in the non-maritime provinces.³⁶ Only in existence for three years and without Crown subsidies, further study of it at a later date might be desirable.

Integration of Channel Members. The integration of channel members may take place through the organization of cooperative associations or by ownership being obtained by purchase of fleets or distributors. Examples of cooperative groups that appear to be quite successful are mentioned in Chapter II, page 19. Although not successfully documented, there appears to be a trend toward establishing fisheries cooperatives on a state-wide basis, rather than in terms of specie. Processors may reach back and purchase fleets or may integrate forward in the channel by buying or being bought by distributor groups. An example of this is the recent purchase by Star-Kist, Inc. of Ocean Fisheries, Inc., a San Diego fishing company. Star-Kist itself is a part of H.J. Heinz Company.³⁷

Such integration, particularly by the fishermen themselves, may be the way of the future. Greater attention might be paid to this alternative for the fisheries industry.

³⁶Lamb, Charles, and Donald F. Mulvihill, The Fresh water Fish Marketing Corporation of Canada, op. cit.

³⁷"A Merger in Tuna," Business Week, June 15, 1974, p. 40.

Standardization of Product. Since one of the goals for the future is more efficient use of protein sources in the diet and since the demand for fresh fish, at least in the Midwest, is not great, perhaps one alternative course of action is for the industry to devote itself primarily to the production of fish blocks that in turn may be used in portion-controlled meals. Whether or not they be sold in institutional meals, "fish and chip" houses, or as convenience prepared meals in the home, they would make possible the use of underutilized specie and provide more protein totally, perhaps in not the most desired form for some consumers. Such an alternative already is used by the Russians, Japanese, and other protein-poor nations. Although not in keeping with some characteristics of the United States marketing process, the future problems of matching supply with our increasing food demand may force its acceptance.

Only three alternative courses of action have been presented. These may not be the only ones that might be practiced in the future. It might also be that the future will see a more organized fisheries industry in which the proposed marketing communications and physical distribution system could be used profitably.

APPENDIX

LIST OF INTERVIEWS ON THE EAST AND WEST COASTS
AND IN CANADA

East Coast

- Allen, Kevin J., National Marine Fisheries Service,
Gloucester, Massachusetts, August 18, 1971.
- Andrews, B.H., B.H. Andrews Company, Philadelphia,
Pennsylvania, August 16, 1971.
- Charles, Gayle B., Provincetown Co-operative Fishing
Industries, Provincetown, Massachusetts, August 18, 1971.
- Cirillo, Harry, Booth Fisheries, New York, New York,
August 17, 1971.
- Dunn, Robert G., New England Fish Exchange, Boston,
Massachusetts, August 20, 1971.
- Dystra, Jacob J., Point Judith Fisherman's Co-operative
Association, Point Judith, Rhode Island, September 12,
1972.
- Earle, Frank, Gorton Corporation, Gloucester, Massachusetts,
August 18, 1971.
- Finch, J.V., Seaboard Fish Company, Baltimore, Maryland,
August 16, 1971.
- Gill, Robert, Turner Fisheries, Boston, Massachusetts,
August 20, 1971.
- Holas, Frank W., Booth Fisheries, Chicago, Illinois,
July 12, 1973 (in Seattle, Washington).
- McAvoy, Henry, National Marine Fisheries Service,
Gloucester, Massachusetts, August 18, 1971.
- McIntosh, William J., Eastern Air Lines, East Boston,
Massachusetts, December 29, 1971.
- McKee, D.H., D.H. McKee, Inc., Tampa, Florida, September 6,
1972 (in Winnipeg, Canada).
- Newmond, Hans, Danland Seafood Corporation, New York,
New York, August 18, 1971.
- O'Connor, Richard F., Eastern Air Lines, East Boston,
Massachusetts, December 29, 1971.
- O'Rourke, Hugh F., Massachusetts Seafood Council, Boston,
Massachusetts, August 20, 1971.

- O'Toole, Lawrence, Caribou Fisheries, Gloucester,
Massachusetts, August 19, 1971.
- Ritchie, John W., Mrs. Paul's Kitchens, Philadelphia,
Pennsylvania, August 16, 1971.
- Shackelford, Charles H., The Great Atlantic and Pacific Tea
Company, Boston, Massachusetts, August 20, 1971.
- Shinney, Frank, Rich Fisheries, Boston, Massachusetts,
December 28, 1971.
- Skinner, Austin, New Bedford Seafood Union, New Bedford,
Massachusetts, September 12, 1972.
- Steinberg, Harry, American Seafood Distributors, New York,
New York, August 18, 1971.
- Stasiukiewicz, Leonard J., Point Judith Fisherman's
Co-operative Association, Point Judith, Rhode Island,
August 18, 1971.
- Swain, Paul, National Oceanic and Atmospheric Administration
New Bedford, Massachusetts, September 13, 1972.
- VonGlahn, John, Fulton Fish Market Association, New York,
New York, August 17, 1971.

West Coast

- Beckman, Robert, Flying Tiger Line, Portland, Oregon,
July 13, 1973.
- Ferris, Frank, United Air Lines, Seattle, Washington,
July 16, 1973.
- Gilbert, William, Washington Fish and Oyster, Seattle,
Washington, July 16, 1973.
- Grimm, Terence, Flying Tiger Line, Seattle, Washington,
July 16, 1973.
- Hickok, David M., Alaska Sea Grant Program, Anchorage, Alaska,
July 13, 1973 (in Seattle, Washington).
- Kelliher, William J., New England Fish Company, Seattle,
Washington, July 12, 1973.

- Lay, R. Stuart, Bumble Bee Seafoods, Astoria, Oregon,
July 13, 1973.
- Marion, D.W., Flying Tiger Line, Seattle, Washington,
July 16, 1973.
- Metcalf, Robert E., Associated Transportation Center,
Seattle, Washington, October 18, 1972 (taped interview).
- Mosness, Katherine F., National Federation of Fishermen,
Seattle, Washington, July 12, 1973.
- Persitz, Benno, consultant on air cargo, Seattle,
Washington, July 13, 1973.
- Peyton, Patricia, National Marine Fisheries Service,
Seattle, Washington, July 12, 1973.
- Strand, Bruce G., United Air Lines, Seattle, Washington,
July 16, 1973.

Canadian Interviews

- Brooker, Raymond, Freshwater Fish Marketing Corporation,
Winnipeg, Canada, September 6, 1972.
- Corney, D.F., Freshwater Fish Marketing Corporation,
Winnipeg, Canada, September 6, 1972.
- John, Joshua, Department of the Environment, Ottawa,
Ontario, September 13, 1972 (at New Bedford, Massachu-
setts).
- Siquursoon, S.T., Freshwater Fish Marketing Corporation,
Winnipeg, Canada, September 7, 1972.

(Other Canadian sources are listed in Lamb, Charles, and Donald F. Mulvihill, The Freshwater Fish Marketing Corporation of Canada, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.)

(Note: This list does not include the more than 200 wholesalers, retailers, and transportation companies interviewed in the Midwest. The date given is that of the first response whether by person or telephone.)

SELECTED BIBLIOGRAPHY

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PUBLISHED MATERIAL

- Alexander, Ralph S., Frank M. Surface, Robert F. Elder, and Wroe Alderson, Marketing, Boston: Ginn and Company, 1944.
- Alexander, Tom, "American Fishermen Are Missing the Boat," Fortune, September, 1973, pp. 192-197, 244-248.
- BCF Technological Laboratory, Gloucester, Massachusetts, "Improving and Expanding the Distribution of Fresh (Unfrozen) Seafoods by Means of Insulated Containers," Commercial Fisheries Review, March, 1968, pp. 39-42.
- Duddy, Edward A., and David A. Revzan, The Physical Distribution of Fresh Fruits and Vegetables, Chicago: University of Chicago, Studies in Business Administration, Volume VII, November 2, 1937.
- "Failing Fleets," Time, June 3, 1974, p. 75.
- Fisheries of the United States, 1973, National Marine Fisheries Services, National Oceanic and Atmospheric Administration, Washington, D.C.: U.S. Department of Commerce, 1974.
- Gaston, Frederick L., and David A. Storey, "The Market for Fresh Fish that Originates from Boston Pier Landings," in F.W. Bell and J.E. Hazelton (eds.), Recent Developments and Research in Fisheries Economics. Dobbs Ferry, New York: Oceana Publications, Inc., 1967, pp. 65-83.
- Gillespie, Samuel M., and Jon L. Gregory, A Study of the Marketing Channels for Fresh Finfish in the Texas Fishing Industry, College Station, Texas: Texas A & M University, 1971.
- Kelly, J. Steven, Attitudes about Water Pollution and Fish Consumption, Working Paper, Kent, Ohio: Center for Business and Economic Research, Kent State University, 1972.

- Konopa, Leonard J., Survey of Selected Retail Food Stores Handling Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.
- Konopa, Leonard J., Survey of Wholesalers Handling Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.
- Lamb, Charles, and Donald F. Mulvihill, The Freshwater Fish Marketing Corporation of Canada, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.
- Logar, Cyril M., and Donald F. Mulvihill, Survey of Institutional Users of Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1973.
- Machamer, Albert V., and Leonard J. Konopa, Market Segmentation by AID Analysis of Household Consumers of Fish in Cuyahoga and Summit Counties, Ohio, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.
- Sanchez, Peter, and Leonard J. Konopa, Fish as a Household Menu Item, Kent, Ohio: Institute for 21st Century Business, Kent State University, 1974.
- United's Lower Deck Containers (sales monograph), Chicago, Illinois: United Air Lines, 1973.
- Vaile, Roland S., E.T. Grether, and Reavis Cox, Marketing in the American Economy, New York: Ronald Press Company, 1952.
- "Who gets the oceans' economic wealth?" Business Week, June 22, 1974, p. 60-65.

UNPUBLISHED MATERIALS

- Glude, John B., "A Proposal for a Nationwide Distribution System for Fresh Seafood," Unpublished memorandum, January 7, 1970.
- Schary, Philip B., Linn Soule, and Robert E. Shirley, "Analysis of the Distribution System for Northwest-Originated Fresh and Frozen Salmon." Preliminary draft, Corvallis, Oregon: Oregon State University, 1970.

