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Seafood Retailing Manual

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CHAPTER 1: SELLING THE SEAFOOD CONCEPT

This manual is designed to help you more profitably satisfy the consumer. Notice that the emphasis is on the consumer. Your rewards will come naturally, if the consumer is pleased with the products and services you provide.

To satisfy the customer more profitably, you sell seafood not fish, and you inventory, promote, sell, and merchandise the "seafood concept." The seafood concept is the total set of cues (symbols, colors, signs, interior design posters, recipes, price markers, display case, work area, personnel, advertisements, market name, and other items) that make up what the consumer sees, hears, and smells. These cues tell the customer that the seafood is fresh, sanitary, top quality, fun to prepare, and a joy to eat. By selling the seafood concept, and not just fish, you do not disappoint your customer. Nor should you be disappointed at the end of the month when you look at the bottom line of your profit-and-loss statement.

Calling the market a "fish market" is not selling the seafood concept. You merchandise much more than fish. You offer a wide assortment of fresh and frozen, freshwater and saltwater, fish and shellfish from all parts of the world. When you name your shop "Joe's Fish Market" or put a FISH sign above the seafood section in the supermarket, you have hurt both yourself and your customers. Your customers suffer because you fall to provide the allure of a seafood product assortment rather than a fish product assortment. You suffer financially because they are not satisfied. By promoting fish rather than seafood you limit the set of images which come into the customer's mind. Think about it. Don't you visualize a more inviting market interior if someone names his market Fulton's Pier, Newport Wharf, Pier 21, or Neptune's Galley, rather than Joe's Fish Market?

Throughout this manual there is no reference to a fish market. The manual refers only to a seafood market. Hopefully, you will visualize your business as a seafood operation. Fish is only one part of the seafood concept. Other seafood products and the market's name are also important parts of the overall seafood concept.

FUNDAMENTALS IN MARKETING THE SEAFOOD CONCEPT

Before reading the following chapters you will need to master a few fundamental principles - the "Trinity of Marketing Decisions." Applying these principles to marketing seafood help you become a more successful retailer.

The Trinity of Marketing Decisions

The seafood retailer has three major decisions to consider: 1) to whom am I trying to market my product?; 2) what should my product mix include to satisfy profitably this selected customer target market?; and 3) what various marketing tools and strategies do I have at my disposal to persuade my customer to start coming, and to return repeatedly to my store for seafood requirements?

The following diagram illustrates these three fundamental decisions. Notice that the arrows point in both directions. This implies not only that the customer target market dictates the specific types of seafood you might carry, but also that your product mix has an impact upon customers. The same holds true with the nature of marketing strategies you apply to ensure that your target market continues to do business with you.

```
Selecting a Customer ←→ Product Mix ←→ Market Strategies
Target Market

- Assortment
- Brands
- Depth, Width and Consistency

- Pricing
- Promotion
- Supply & Storage
- Services
```
Customer Target Market

When making decisions about the target market, a market owner hopes to identify customers and their locale. Chapter 2 treats this problem.

Product Mix Strategies

Product mix decisions are critical. You must determine the product assortment that will attract target customers to your store. You will be concerned not only with the number of seafood species to carry (the width of the product line), but also with the various forms of each seafood to offer your customers (the depth of the product line). For example, in the case of fresh rockfish, you may carry this species in the round, filleted, steaked, breaded, or ready-for-pan-frying forms. Needless to say, since it is possible to carry a limited amount of the species assortment, it is important to choose carefully the width and depth of your product mix.

The width and depth of your product mix decision leads to another decision: consistency of the product mix. How closely related is the total product assortment to seafood products in general? For example, the decision to sell fishing licenses dilutes the seafood market to a "bait-house" image. Selling knick-knacks and trinkets in your market is not in line with the seafood concept. However, offering complementary items such as breading, sauces and spices, garnishes, seafood cooking utensils, recipe books, smoking grills, wines, and gourmet foods all seem to reinforce the image you are trying to convey. Chapter 6 helps you determine your product mix.

Marketing Strategies

The marketing strategies you choose must be tailored to present the product effectively to your customer. These strategies include: an effective retail price that assures a fair return on your capital and personal investment; creative and motivating tools of PROMOTION (including properly selected and trained personnel) to attract customers to your store; reliable sources of SUPPLY to ensure adequate product assortments; and provision of numerous CUSTOMER SERVICES that range from a strong image of sanitation, to free filleting, and store hours to match your target market's purchasing habits. Chapters 3-5 and 7-8 aid in resolving these decision problems.

MONITORING YOUR BUSINESS PLANS

Naturally, you want to keep track of the success of your plans. Chapters 10-11 are designed to help establish basic tools for determining the achievement of your plans. Business records and financial tools which help analyze your performance are more than necessary evils. They help to analyze how well you have "played the game" once the Profit and Loss Statement and Balance Sheet have been completed for that month or planning period.

As you use this manual, keep the "Trinity of Marketing Decisions" in mind. You will find it a helpful reference point from which to begin developing your marketing effort. A well-defined and effectively implemented marketing effort (Product Mix, Pricing Strategies, Promotion Decisions, Supply Sources, and Customer Services) helps to attain your marketing goal. "Selling the Seafood Concept" is the marketing effort that accomplishes the goal stated in this chapter - satisfying consumers profitably.

PROFIT POTENTIAL OF THE SEAFOOD CONCEPT

Fresh and frozen seafood are profitable. Studies of meat departments in food stores grossing approximately $25,000 in weekly sales reveal that seafoods rank second only to variety meats in profitability (Massachusetts Division of Marine Fisheries, 1979). Seafood products offer food retailers an opportunity to increase sales volume at a gross margin substantially above average for all grocery items in the firm's product assortment. Any food item that can offer this potential reward needs special consideration.
Seafood can also be a high turnover item that lends itself to efficient use of investment dollars. Generally, a supermarket manager can expect a once-a-week turnover of the meat inventory dollar investment. Turnover of fresh seafood in a display case, in a well-managed store, can be as short as one day. Through skillful use of proven merchandising practices, consumer demand can be increased. With inventory control, this increased demand will result in a maximum turnover of seafood products inventory, and a higher return on inventory investment, two commonly used measures of efficient financial management.

Some merchandisers ignore seafood completely and declare that limited demand, special handling difficulties, and employee resistance raise barriers too costly to overcome. Some merchants carry fresh seafood, but view it only as a necessary item and not as a particularly favorable meat item among store clientele because its physical properties are radically different from red meat and poultry products.

Other merchants have viewed fresh seafood not as an impediment, but as an additional meat alternative for the consumer and as a money-making opportunity. These merchants have learned that a positive and innovative approach to food marketing has resulted in enhancing the store's total volume and profit performance. These far-sighted merchandisers perceive fresh seafood as a product that dramatically improves the store's "potency of assortment." The fresh seafood counter may not be the high-profit contributor as are some other sections of the store, but because the management does offer fresh seafood, customers are attracted who might otherwise buy from competitors. This increased store traffic adds dollar gross margin to a relatively high fixed cost operation that would not be available without the seafood counter. Where store management enthusiasm for fresh seafood is strong, this profit contribution can be substantial.

The overall profitability of seafoods makes them well worth promoting. Thus, the marketing objective for improved profits with seafoods is to have high quality products attractively presented through modern merchandising methods that will produce high sales volume and profits (USDI, 1970). Additionally, the modern retailer must use these skills to improve inventory turnover and to gain the most efficient use of his dollar investment.

In general, profit in the individual seafood market or seafood section is determined by policies, physical set-up, procedures, and promotions.

**POLICIES** include financing, accounting and general operations.

**PHYSICAL SET-UP** is simply the merchandising of seafood, including product assortment and display techniques.

**PROCEDURES** refer to buying of fish from quality sources and to the care of fish once it arrives at the retail store or supermarket.

**PROMOTION** includes in-store appeal, well-trained personnel, handout materials, and advertising.

When knowledge and utilization of the modern consumer's buying habits and attitudes are added to these major areas of profit determination, the retailer has at his disposal effective tools for a successful seafood department or store. The major portion of this manual is directed toward describing these tools and how they may be profitably employed. Of particular value is Chapter 12 - "Summary." It provides a perspective on what is contained in the previous chapters, and aids in answering major business questions that are central to your goal of a profitable seafood market.
CHAPTER 2: CONSUMER ATTITUDES AND BUYING HABITS

One of the "Trinity of Marketing Decisions" for seafood retailers is to select a target market. If a firm intends to put together a product assortment which would come close to meeting the wants and preferences of its customers, the firm must first have an understanding about the basic characteristics of its market, and how consumers go through the purchase decision process that leads them to purchase food items. This chapter is designed to help you understand consumers' attitudes toward seafood, and how you might use this information to improve your retailing strategies.

CONSUMER CONSUMPTION PATTERNS

In a recent study, household consumers were asked: "What is the percentage of consumption in your household for the following meats, poultry and seafood?" (Better Homes and Gardens, 1982). They responded with the following:

<table>
<thead>
<tr>
<th>Table 2.1. Percentage of Consumption for Meat Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
</tr>
<tr>
<td>Poultry</td>
</tr>
<tr>
<td>Fish and seafood</td>
</tr>
<tr>
<td>Pork</td>
</tr>
<tr>
<td>Other meats</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Percentage of Consumption</td>
</tr>
<tr>
<td>40%</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>14</td>
</tr>
<tr>
<td>2</td>
</tr>
</tbody>
</table>

Add to these observations the following information on red meat poultry, and seafood consumption (USDC, 1984):

<table>
<thead>
<tr>
<th>Table 2.2. Per Capita Consumption of Meat Items in 1983</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red meats (carcass weight)</td>
</tr>
<tr>
<td>Beef (carcass weight)</td>
</tr>
<tr>
<td>Pork (carcass weight)</td>
</tr>
<tr>
<td>Poultry (ready-to-eat)</td>
</tr>
<tr>
<td>Seafood (edible weight)</td>
</tr>
<tr>
<td>Weight</td>
</tr>
<tr>
<td>176 pounds</td>
</tr>
<tr>
<td>106 pounds</td>
</tr>
<tr>
<td>66 pounds</td>
</tr>
<tr>
<td>66 pounds</td>
</tr>
<tr>
<td>13 pounds</td>
</tr>
</tbody>
</table>

We can see that seafood is not as popular a food among the general public as other meat items. A partial answer to this is probably cultural. Americans are red meat oriented. The ubiquitous hamburger, hot dog, and pizza are symbolic of our culture. However, if we multiply 13 pounds of seafood per capita times the population of the United States (232 million in 1983) you are still talking about a very big seafood market, exceeding 3 billion pounds of seafood consumed annually! And the size of the market is expanding. In a recent study, a significant percentage of consumers (47.2%) were buying more seafood today than they did two years earlier (Better Homes and Gardens, 1984).

The Consumer Purchase Decision Process

Before discussing additional consumer consumption patterns and perception of seafood, you should be familiar with the purchase decision process consumers go through when buying seafood (or any item for that matter). The process has five major sequential steps. The process may take a very short period of time because it has been repeated often and therefore very routine, or it may be an extended process which requires much deliberation at each step of the process. The five steps are:

1. Problem Recognition: Becoming aware of the problem of what to serve at some future meal.
2. Search: Looking for alternative meats and recipes for some future meal.
3. Evaluation: Using some set of criteria or standards to determine which alternative meats and recipes to use.

4. Purchase: After evaluating various meat choices, deciding on which to buy.

5. Post-Purchase Evaluation: After consumption, determining if meat will be purchased again.

Since the retailer isn't sure where the consumer is in the process, a smart strategy is to have information available for each stage of the purchase decision process. This information may be in many forms: recipe suggestions; price markers; tags identifying species; tags identifying previously frozen products; or advice, suggestions, and encouragement from the person behind the counter.

From a marketing perspective it is the retailer's responsibility to take the customer from the first step of the process to the purchase stage. This task can be called AIDA:

**Awareness:** Making the customer aware that seafood is a good protein choice for family meals.

**Interest:** Developing an interest in seafood or some specific seafood item by demonstrating its benefits such as price, nutrition, healthfulness, ease of preparation, taste, uniqueness, or variety.

**Desire:** Gaining customer confidence that this seafood item is a good choice so that the consumer will buy it and try it.

**Acceptance:** Having the customer like the product and want to buy it again.

Notice the parallel between the consumer's purchase decision process, and the AIDA process the retailer must follow. The retailer must provide different kinds of information at each step of the process so that the customer will purchase and then repurchase on a routine basis.

The post-purchase evaluation that consumers go through should not be taken lightly. Often consumers are not sure a right choice has been made. You should take special care to reinforce their choice by assuring them that the product will be easy to prepare, that it is a good buy, or that their family will like it prepared the way you suggested. When they return to your store, you should inquire about the purchase and reassure them that they made the right choice. If the consumer was unhappy with the outcome, don't be afraid to ask why. You may be able to provide a solution, or it can help you decide on whether you might want to make changes in your product assortment or other merchandising strategies. You must help consumers solve their meal selection problems. How well you do this is reflected in how well you recognize the kind of problem they have, and how well you develop product and merchandising strategies to resolve them.

**CONSUMER ATTITUDES AND BUYING HABITS**

Much of the discussion in the rest of the chapter focuses on consumers' thoughts about seafood. The information is from a study of seafood consumption among 445 members of the 1,000 member Better Homes and Gardens Consumer Panel (Better Homes and Gardens, 1982). Keep in mind that the findings are a generalization over a wide range of consumer life styles, and that for your particular consumer market some of the generalization may not fit your market. In most instances, however, these consumer purchase and consumption patterns are held by the majority of U.S. consumers. Thus, the information can help you determine the kind of information customers need to assist them in their purchase decisions.

**Seafood Consumption Outside the Home**

When the respondents dined out, 74% of them did so at least several times a month, they ordered seafood with some regularity. Thirty-three percent ordered seafood at least half
the time or more frequently, and 28% did so about 25-49% of the time. About 35% ordered seafood less than one-fourth of the time, and about 4% never ordered seafood.

Trying a new species of fish or shellfish was not a high priority among the panel members, and only about 8% said they did so at least once a month or more. This answer may be somewhat deceptive, since the respondents mentioned that they eat 38 varieties of seafood plus seven kinds of combinations or preparations. The most popular seafood mentioned included shrimp (93%), lobster (72%), crab (67%), seafood platter (67%), scallops (65%), and fast food breaded/battered portions (55%).

Seafood was consumed most often in family restaurants (72%), followed by white table restaurants (64%) and fast food restaurants (35%).

Seafood Consumption at Home

Seafood was a staple item in the households' menus at home. Over 71% served seafood at least once a month, 51% served seafood several times or more a month, and almost 25% served seafood once or more a week. Half of the panel said that if recipes were available where they purchased their seafood, it would encourage them to buy more seafood.

The most frequently mentioned way of preparing seafood at home was "baked" (70%), followed closely by "pan-fried" (63%), and then "broiled" (47%). Eighteen percent cooked their seafood in a microwave oven. The favorite method of preparing seafood at home was "pan-fried" (31%).

In trying new species of seafood at home, panel members were slightly less daring than when eating out, but the range of fish and shellfish they prepared at home was equally as wide. The most popular seafoods prepared and served at home included canned tuna (87%), shrimp (75%), fish sticks (64%), canned salmon (60%), crab (42%), and frozen prepared fish entrees (37%).

On the cost of seafood per serving basis, almost half (47%) of the respondents believe seafood and beef are comparably priced. The balance of the panel were split evenly between believing that either seafood or beef is more expensive than the other.

Seafood Purchases

In the study, seafood purchases were most frequently made in supermarket chain stores (56%), followed closely by local supermarkets (56%), and then specialty seafood markets (18%), wholesalers (4%), and butcher shops (2%). Quality was the most important consideration when purchasing seafood, and taste the most important quality in enjoying seafood. In both cases, the price of seafood was considered second most important. The quality of seafood purchased was rated highest in specialty seafood markets (87%), followed by wholesalers (67%), butchers (64%), local supermarkets (46%), and supermarket chains (41%).

USING SEAFOOD CONSUMPTION INFORMATION

How important are these findings about consumers to your own local market? The findings indicate that people like fish and shellfish. In a similar study it was learned that over 80% of those interviewed like fish and shellfish. However, they tend to eat it away from home more than in the home. Why? In part, it is because the consumer has a limited experience with seafood. A perceptive and aggressive merchandiser would turn this problem to an advantage by offering the customer information on various ways to prepare seafood, many species to choose from, and a variety of product forms. By encouraging the consumer to try different types of seafood, as well as simple-to-prepare seafood meals, you demonstrate that seafood can be used as an extender food. Thus, the consumer can provide a high nutrition food at a very reasonable cost.

The study on consumers does not tell you everything about your specific customers. In each city there are market segments which behave differently in the market place. The income level, education, childhood experiences in the family, and family life cycle all contribute to patterning consumer behavior. You, the retailer, must take it on yourself to learn about the unique characteristics of your market.
Remember, in learning about potential customers, you are interested in answering three basic questions: 1) Who are they? – this can easily be determined through various city, county, and census data; 2) Why do they behave toward food, meats, particularly seafoods, the way they do? – this is much more difficult to measure accurately, but the early sections of this chapter are designed to help analyze your potential market; and 3) Why do they prefer shopping at a given food store, particularly a given seafood store or department? – this we have come to label consumer patronage motives. These facts are not too difficult to come by if you are inquisitive and willing to ask many of the consumers in your potential market why they like certain food stores more than others. If you can determine these whos and whys, then this important market information can be used wisely to guide seafood merchandising activities.

One final point. People enjoy shopping for seafood because of the limited experience they have with it. Consequently a clean, cheerful and friendly atmosphere, knowledgeable store staff, a wide assortment of fresh, easy to prepare recipes, a good variety of fresh, frozen, smoked, and canned seafood can reinforce this shopping experience to the point where you have cultivated a patronage loyalty that means repeat business week after week. Just as people identify with certain groups of people or ways of life, they also identify with certain types of retail stores. If you make consumers successful at the dinner table, they will make you successful at the bottom line of your profit and loss statement! (Gillespie and Houston, 1975).
CHAPTER 3: BUYING SEAFOOD

Most seafood arrives at the retail store after moving from a harvesting vessel to a processor, to a wholesaler or agent, and then to the retailer. It is important that seafood quality be maintained throughout this distribution chain, if the consumer is to receive a top quality seafood product. Quality is one of the key elements that results in increased retail seafood sales, for it is remembered long after the price is forgotten. Remember that the average consumer depends on his retailer for proper selection and quality assurance.

Quality at the retail level begins by knowing how the seafood was handled in transit, and whether it was properly packed and adequately refrigerated. Normally, you won’t be able to observe the handling and refrigeration practices on board fishing vessels or in processing plants. Therefore, the selection of a reputable supplier is critical: Always buy from a high quality source. You can judge your suppliers’ buying and handling practices by examining the quality of incoming seafood, and by observing product shelf life during the time the seafood is held in your store under proper refrigeration. Examine seafood products carefully before accepting delivery. If you doubt their freshness or quality, or if the products do not meet your specifications, reject the order. You cannot improve the quality of the seafood you accept, you can only maintain it.

Order seafood in amounts and varieties that will give the consumer a broad selection and yet maintain a quality product. Under favorable circumstances, fresh fish can only be held at the retail store about five days before quality begins to fall (Ronivall, 1982). If the highest quality is to be maintained, fresh seafood should be ordered for not more than a four-day period, and should not be carried over into the next week. Keeping accurate records on the movement of all seafood products will eliminate over-stocking and carry-over. Frequent deliveries eliminate excessive in-store handling of fresh and frozen products. Daily deliveries of fresh products is ideal, but this may be difficult to achieve; hence, adequate storage facilities including proper refrigeration, must be available.

RECOGNIZING QUALITY

The quickest way to check the quality of fish and shellfish is to observe their appearance, texture, and odor. The following are guidelines for judging the quality of fresh and frozen fish and shellfish.

Fresh Whole Fish

**Eyes:** Bright, clear, full, and often protruding. As fish lose their freshness, the eyes turn pink and become cloudy and sunken.

**Gills:** Red and free from slime. The color of the gills fades with age to pink, to gray, and finally to brown or dark green.

**Odor:** Fresh and mild. With decreasing quality, a strong fishy odor develops.

**Skin:** Shiny, with bright colors. As fish lose quality skin colors fade.

**Flesh:** Firm, elastic, and not separating from the bones. As fish age, the flesh changes color and appears dried out.

Fresh whole fish should have clear eyes, red gills, and a bright appearance.
Fresh Eviscerated Fish

The quality characteristics for whole fish apply as well to eviscerated fish. In addition, the following characteristics should be noted.

**Appearance:** Smooth cuts, with no discoloration, ragged edges, or dehydration.

**Body cavity:** Clean with all viscera removed. Rib bones should be firmly attached and not protrude into the belly cavity.

Fresh dressed fish should have smooth cuts, all viscera removed, and a bright appearance.

Fresh Fillets and Steaks

**Flesh:** Fresh-cut in appearance with a firm and elastic texture.

**Odor:** Fresh and mild.

**Color:** Bright and shiny, with no traces of browning, dehydration, or blood spots. A reddish-brown discoloration is most often caused by bruising and accumulation of blood. A yellowish-orange discoloration indicates oxidation of the natural fat in the fish, and rancidity development.

Fresh fillets should appear moist and freshly cut, as does the bottom fillet in the picture above. The fillet on top has been thawed after one year in cold storage.

Tray-Packed Fish

**Flesh:** Fresh-cut in appearance with a firm and elastic texture.

**Package:** There should be little or no air space between the fish and the wrapping, and little or no liquid in the package.

Fresh tray-packed fish should be tightly wrapped with little or no liquid in the container.
Frozen Fish

**Flesh:** Solidly frozen. Voids or hollow places in fish flesh are considered defects. Voids are unsightly, and if filled with ice cause incorrect net weights. Cut surfaces should have a glossy appearance, and there should be no abnormally white or dark spots, papery surfaces, discoloration, or other signs of dehydration.

A yellow or orange discoloration indicates the chemical breakdown or oxidation of the fat in the fish during prolonged or improper storage. The higher the fat content of the fish, the more likely rancidity is to occur.

White cottony signs of "dehydration" or "freezer burn" are caused by prolonged exposure of unwrapped or poorly wrapped flesh to mechanical refrigeration. Samples of frozen fish should be thawed to determine if dehydration or deterioration has taken place.

**Package:** A tight fitting moisture and vaporproof wrapping. Ice crystals inside the package indicate the product has been stored improperly. Vacuum packages should be skin tight. A loss of vacuum indicates improper storage, or damage to the packaging material.

**Coating:** Breaded or battered products should have a clean uniform appearance. Individual pieces are easily separated and not frozen together. Breading or batter should be firmly attached to the fish, and should cover the product completely. Consumers may not be able to detect coating defects until they get home, and incoming shipments should be sampled for coating defects.

**Smoked Fish**

Smoked fish should have a bright, glossy appearance, a firm elastic texture, and no traces of blood or dark spots. The odor should be smoky and clean.

**Live Shellfish**

Live lobsters and crabs should be heavy for their size and show leg movement. The tail of a live lobster curls under the body and should not hang down when the lobster is picked up.

Live oysters, clams and mussels should have hard, well-cupped shells. A gaping shell which does not close tightly when tapped indicates that the shellfish is dead and no longer edible.

**Fresh Shellfish**

Shucked oysters are plump and have a natural creamy color and clear liquid. There should be no more than 10% liquid, by weight, when oysters are purchased in a container.

Shucked clams are plump and have a light pinkish yellow color, and clear liquor.

Scallops are firm, have a sweetish odor, and are practically free of liquid. Sea scallops are white, orange or pink. Bay scallops are smaller than sea scallops, and are creamy white, light tan, or pink.
Fresh shrimp have a mild odor and a firm texture. The shell is not slippery. The shell may be greyish green, pinkish tan, red, or light pink in color. When shrimp deterior ate, bacterial action causes the color of the shell to darken and the flesh to become soft and mushy.

Black Spot, caused by an enzyme reaction after the shrimp die, becomes more pronounced as shrimp age. Black spots first appear on the shell, then on the shrimp meat, and are considered a defect.

**Frozen Lobster**

Frozen spiny lobster or rock lobster tails have clear white meat, and are hard frozen. They have a fresh and mild odor.

**Cooked Crab and Lobster**

Cooked crabs and lobsters have bright red shells, and snowy white to creamy white meat, depending on the species. Frozen cooked crab and lobster are solidly frozen with no discoloration. A bluish to black discoloration of the meat of frozen cooked crabs indicates that the crabs were undercooked before being frozen. The odor of cooked crab and lobster is fresh and mild.

**ADDITIVES, PARASITES, AND PARALYTIC SHELLFISH POISONING**

**Food Additives**

Food additives and preservatives are added to some seafood products to prevent the growth of food poisoning bacteria, or to improve the quality and shelf life of the product. These food additives are approved for use in foods by the Food and Drug Administration (FDA). When additives are used in food products, their use must be stated on the product label, including the label on products packaged or overwrapped in retail food stores. The lack of such labeling constitutes misbranding. Some examples of additives used in seafood processing include:

- **Sodium bisulfite** and other sulfiting agents are often used on shrimp to retard oxidation, and to reduce or prevent "melanosísis" or black spot. Currently, the FDA permits a
maximum sulfite residue of 100 parts per million (ppm) in shrimp. Some people are sensitive to sulfiting agents and experience severe reactions when food containing sulfites is consumed. Because of this, FDA is reviewing the use of sulfiting agents by the food industry, and food additive regulations for sulfiting agents may change in the future.

Sodium nitrite is added to some smoked seafood products to retard oxidation, and to prevent botulism. The presence of nitrite in these products provides a safeguard against mishandling by processors, distributors, retailers, or consumers (American Meat Institute, 1978).

Polyphosphates are sometimes used in the processing of shrimp, fish fillets, and frozen seafood products to maintain quality and freshness, and to inhibit moisture loss during thawing of frozen products.

Sodium phosphates, citric acid, and potassium sorbate are sometimes used in the processing of fish fillets to retain moisture and to extend product shelflife.

Parasites

Seafood, like all living organisms, can be infected with various parasites. Because fish and shellfish are wild animals, we have little or no control over their environment, and this makes it difficult to avoid an occasional encounter with a naturally occurring parasite.

The most commonly observed parasites in marine food fish are small roundworms called nematodes. These nematodes are often called "cod worms" or "herring worms." Nematodes rarely cause health problems, but under some circumstances, swallowing a live nematode larva can cause severe gastric upset and abdominal pain. Other fish, especially freshwater and anadromous fish, may carry larvae of the tapeworm Diphyllobothrium. These small, whitish, and somewhat flabby worms are especially common in salmon from Alaska. These tapeworms can infect people, if a living larva is swallowed. The tapeworm may live in the intestine for several years, causing no symptoms or, in some cases, causing abdominal pain, weakness, loss of weight, and anemia.

According to most authorities, cooking seafood to an internal temperature of 140°F will kill all nematodes and tapeworms. Hard-salting of fish before pickling, and freezing to a center temperature of 0°F for 24 hours will also kill the parasites. In home freezers, four to five days may be required to freeze a fish to a center temperature of 0°F. Advise customers against eating raw or lightly marinated fish unless they are sure the fish is free of parasitic larvae. While only a small percentage of fish are infected with larvae, they may be present but hard to detect (Hilderbrand et al., 1984).

Paralytic Shellfish Poisoning

During certain times of the year, tiny one-celled organisms called dinoflagellates may grow rapidly in coastal waters. A few species of dinoflagellates produce a toxin, and when clams, mussels, scallops, and oysters consume these dinoflagellates the shellfish become toxic to humans. The toxin, paralytic shellfish poison, does not harm the shellfish, but the powerful nerve poison can cause temporary paralysis and even death in other animals including man, if enough poison has been consumed to paralyze the breathing mechanism. Abalone, crab, shrimp, and fish do not feed on dinoflagellates, and there is no danger of poisoning from them.

Public health officers conduct surveillance programs for shellfish growing areas, and close growing areas when paralytic shellfish poison is detected. All commercially grown shellfish in the U.S. are subject to federal and state regulations designed to ensure that only safe, wholesome, and nontoxic shellfish are available to consumers (Price, 1983).
U.S. GOVERNMENT INSPECTED SEAFOOD PRODUCTS

Two federal government agencies are involved in seafood inspection. The FDA inspects seafood plants and seafood products on an as-needed basis. It also monitors imported seafood products at the port of entry. State agencies, in cooperation with FDA, monitor shellfish growing areas to ensure the safety of clams, mussels, and oysters.

The United States Department of Commerce (USDC) through the National Marine Fisheries Service (NMFS) provides another official inspection service for seafood products. Fresh and frozen seafood products that are processed in government-registered plants, and that meet high quality standards at the time of inspection, may be identified with the Packed Under Federal Inspection (PUFI) government inspection symbol. The PUFI seal indicates that USDC inspectors were assigned to the processing plant at all times during operation to check the quality of materials, plant and conditions, and the processing and packaging of the product. If the seafood products you handle are government inspected, you should feature this fact in your advertising.

Grade "A" means top quality. The USDC has developed a series of product specifications to enable seafood product grading. Products processed in an inspected plant, and which meet the highest quality standards, may carry a Grade A shield. Grade specifications are available for many frozen and fresh seafood products.

In addition to plant inspection and grading, the USDC also offers inspections on specific lots of product. This inspection can be based on specifications set by the purchaser of the inspection service. Buyers and sellers who wish to establish the quality of their seafood may request this service.

Inspection by government agencies is only part of the answer to maintaining high quality. After the seafood has arrived in good condition, the best way to ensure continuous top quality is regular in-store quality control.

SETTING SPECIFICATIONS

To eliminate disagreements between buyers and sellers, it is important that you develop specifications for the seafood products you buy. These specifications should be included with your seafood orders as rejection criteria. Use your suppliers, if you need more information, to help develop your specifications.

Your seafood specifications could include requirements in the following areas:
- Quality
- Weight
- Size
- Temperature on arrival
- Product form or cutting style (V-cut, 3/4 nape, J-cut, head-on, etc.)
- Breading or coating percentage
- Sauce percentage
- Glaze percentage
- Packaging (IQF, shatter pack, vacuum package, etc.)
- Acceptable food additive levels
- USDC Inspection, grading

With clams, mussels, and oysters, be sure that the delivered product bears a shippers' certificate from the FDA's Certified Shellfish Shippers list.
POPULAR SEAFOOD PRODUCTS

When buying fish and shellfish for sale in retail stores, it is desirable to have some idea of the wide varieties available. The following list identifies some popular fish and shellfish:

**Seawater Fish**

**Albacore**

Albacore are members of the tuna family. Albacore caught off the Pacific coast average 10 to 20 pounds in weight. The flesh is firm, and mildly flavored. Albacore are available fresh in season from June through October, and frozen, smoked, or canned year-round. Only albacore can be sold as canned "white meat" tuna.

**Black Cod**

Market name for sablefish.

**Bluefish**

Bluefish occur almost worldwide. They have dark meat with a high fat content and a light to moderate flavor, and are available fresh and frozen as fillets year-round. Bluefish are also known as blue snapper, skipjack, taylor, fatback, or snapping mackerel.

**Butterfish**

Market name for sablefish. A small west coast pompano is sometimes sold with the market name of Pacific butterfish or Pacific pompano. On the East Coast, butterfish are a small silvery fish with a thin deep body.

**Cod**

Atlantic cod are abundant in North Atlantic waters. They range in size from three to 20 pounds, and have white, firm, and lean meat. Atlantic cod are available fresh, frozen, canned, and smoked year-round. Pacific cod are close relatives of Atlantic cod, and average from five to ten pounds in weight. They have a mild flavor, and tender soft white meat that flakes easily when cooked. Pacific cod are available fresh and frozen year-round.

**Dolphinsfish**

See Mahl-mahl

**Finnan Haddie**

Market name for hot-smoked haddock.

**Flounder**

Two families of flatfish, right eye flounders and left eye flounders, include most species of soles, flounders, and halibuts, and occur worldwide. Local names may vary, but nearly all flatfish are flounders. Many species of sole and flounder are practically identical in appearance, texture, and flavor and are often substituted for one another. Sole and flounder average from one to 12 pounds in weight, are usually marketed as fillets, and are available fresh year-around.

Pacific species include arrowtooth flounder, dover sole, English sole, petrale sole, rex sole, sand dab, sand sole, and sturry flounder. Atlantic species include American plaice, blueback or winter flounder, fluke or summer flounder, grey sole or witch flounder, lemon sole or blackback flounder, and yellowtail flounder.

**Grouper**

See Sea bass
Haddock are relatives of cod, and in the same family as Pacific whiting and pollock. They occur in North Atlantic waters, and have very lean white meat, with a mild flavor. Haddock are available fresh in season from April to December, and frozen year-round.

See Whiting

Halibut species include the largest member of the flatfish family. Halibut range from five pounds to over 800 pounds in weight, and have tender white flesh. North Pacific halibut are available fresh from May to September, and frozen year-round. California halibut are available fresh from May to September, and are usually sold as fresh fillets. Atlantic halibut are not common in the U.S., and imports from Canada are usually available fresh from April to December, and frozen year-round.

Herring occur off the Atlantic and Pacific coasts. The meat is high in fat. Herring are available fresh, smoked, salted, and pickled.

Lingcod are not true cod, but are one of a number of species called greenlings. They occur off the Pacific coast, and average five to 40 pounds in weight. Lingcod have white tender flesh. The flesh may have a harmless blue or green tint which disappears during cooking. Lingcod are available fresh and frozen year-round.

Mackerel belong to the large family of fish that includes the tunas. They average from one-half to 25 pounds in weight, and have a high fat content with firm flesh. Pacific coast mackerel include the Pacific mackerel, also known as blue or American mackerel. Atlantic coast mackerel include King mackerel, Atlantic mackerel, and Spanish mackerel. Mackerel are available fresh, frozen, canned, and smoked year-round.

The Pacific jack mackerel (also called Spanish mackerel), is not a mackerel, but is a member of the jack family. They are high in oil, have tender flesh, and are available fresh and canned year-round.

Mahi-mahi, also known as dolphinfish or dorado, are fish and not mammals. They occur in tropical waters throughout the world, and are usually imported to the United States. The flesh is firm and white, with a delicate, sweet flavor. Mahi-mahi are available fresh from June to October, and frozen year-round.

Monkfish are large Atlantic fish, with a large head and a flat thin body. The flesh is firm, white, and has a mild lobster-like flavor. Monkfish are available fresh and frozen year-round.
Ocean Perch

Pacific ocean perch are members of the Pacific rockfish family. They have firm, white, lean flesh, and are available fresh or frozen year-round. Atlantic ocean perch, also known as rosefish, redfish, and red perch, have firm, white, lean flesh, and are available fresh from March to June, and frozen year-round.

Pacific Snapper

See Rockfish.

Pollock

Pollock are members of the cod family, and occur off both the Pacific and Atlantic coasts. Alaska or walleye pollock average four to 12 pounds in weight, and have firm-textured white flesh with a mild taste. Alaska pollock are available fresh and frozen year-round. Atlantic pollock average four to 12 pounds in weight, and have firm-textured white meat with a mild taste. Atlantic pollock are available fresh from May through December, and frozen year-round.

Rockfish

Over 60 species of rockfish or rockcod occur along the Pacific coast. Rockfish have firm, white, fine-textured flesh, and are available fresh and frozen year-round. One species of rockfish is marketed as Pacific ocean perch.

About 13 species of Pacific rockfish are sold under the market name of Pacific snapper. These species include: bank rockfish, black rockfish, bocaccio, canary rockfish, chilli pepper, cow cod, olive rockfish, shortbelly rockfish, speckled rockfish, vermillion rockfish, widow rockfish, yellowscale rockfish, and yellottail rockfish. Pacific snappers are not related to the Atlantic and Gulf red snappers.

Sablefish

Sablefish occur off the Pacific coast, and average eight pounds in weight. The meat has a moderately high fat content, and a mild, delicate flavor. They are available fresh, frozen, and smoked year-round. Sablefish are often marketed as butterfish or black cod.

Salmon

Five species of Pacific salmon and one species of Atlantic salmon are marketed on the West coast. Chinook or King salmon average from five to 30 pounds in weight, and have a high fat content, an excellent flavor, and a softer texture than the other salmon species. Flesh color ranges from deep salmon to white. Chinook salmon are available fresh in season from May to October, and frozen, canned, and smoked year-round.

Chum salmon average from seven to eight pounds in weight, and have a lower fat content than other salmon. Flesh color is light pink. Chum salmon are available fresh from June to December, and canned, smoked, and frozen year-round.

Coho or Silver salmon average from four to nine pounds in weight, and have a high fat content. Flesh color ranges from light to dark pink. Coho salmon are available fresh in season from June to September, and frozen year-round.

Pink, humpy, or humpback salmon average about four pounds in weight, and contain very little fat in comparison to other salmon species. The flesh is softer than that of other salmon species. Pink salmon are available fresh from June to December, and canned and frozen year-round.
Sockeye or red salmon average from four to 12 pounds in weight, and have ruby-red flesh with a high oil content. Sockeye salmon are available fresh in season from June to November, and canned, frozen, and smoked year-round.

Atlantic salmon are more closely related to trout than the other salmon species. They average five to ten pounds in weight, and have pink flesh and a delicate flavor. Most Atlantic salmon are reared in pens in Scandinavia. They are available fresh year-round.

Sanddab

Sea Bass

The sea bass family contains several species from the Atlantic and Pacific oceans.

Black sea bass occur off the Atlantic coast, and average about one and one-half pounds in weight. The flesh is firm, white, and delicately flavored. Black sea bass are available fresh in season from January to November, and frozen year-round.

Groupers average from three to 20 pounds in size, and have lean, firm, white meat with a rich flavor. Groupers are available fresh and frozen year-round. Groupers include Baquette, red grouper, New Zealand grouper, Florida grouper, and several hundred species worldwide.

Striped bass occur off the Atlantic, Gulf, and Pacific coasts. All Pacific coast striped bass are aquaculture products. They average one to 15 pounds in weight, and have flaky, white meat with a medium amount of fat. Striped bass are available fresh in season from June to April, and frozen year-round.

White sea bass occur off the Pacific coast. They are not true sea bass, but are in the croaker family. White sea bass average ten pounds in weight, and are available fresh and frozen year-round.

Scrod

Shad

Shad are members of the herring family, and occur off the Atlantic and Pacific coasts. They average three to four pounds in weight, and have a high fat content. Shad are available fresh in season from March to June, and frozen year-round.

Shark

Shark occur worldwide, and have flaky, firm meat with a light flavor. Shark are available as fresh and frozen steaks and fillets year-round. Commercial species include soupfin shark, thresher shark, mako shark, leopard shark, angel shark, sand shark, and tiger shark.

Smelt

Smelt occur in both freshwater and saltwater. They have a high fat content, and a rich, mild flavor. Smelt are available fresh in season, and frozen year-round.

Sole

See Flounder
Striped Bass

See Sea Bass

Swordfish

Swordfish occur worldwide, and average 200-300 pounds in weight. The meat is firm, with a medium fat content. Swordfish are available usually as steaks, fresh and frozen year-round.

Tilefish

Tilefish occur off the Atlantic and Gulf coasts. They range from four to seven pounds or more in weight, and have firm flesh and good flavor. Tilefish are available fresh and frozen year-round.

Whiting

Whiting is a common name for many of the hake species found throughout the world. Whiting species vary in their edibility characteristics. Common species include North Atlantic whiting, Pacific whiting, and white hake. Whiting are available fresh from April to January, and frozen year-round.

Freshwater Fish

Buffalofish

Buffalofish occur in the Mississippi River and its tributaries, and average ten pounds in weight. The meat is firm with a medium fat content. Buffalofish are available fresh, frozen, and smoked year-round.

Carp

Carp occur throughout the U.S., and average two to eight pounds in weight. The meat is firm and lean. Carp are available fresh in season from December to June, and frozen and smoked year-round.

Catfish

Channel catfish are raised commercially in the southeastern states and in California. They average one to four pounds in weight, and have firm meat with a high fat content. Catfish are available fresh year-round.

Rainbow Trout

Rainbow trout are raised commercially in ponds or raceways. They are commonly sold weighing five to ten ounces, and have excellent flavor and delicate flesh. Rainbow trout are available fresh and frozen year-round.
Lake Perch

Lake perch or yellow perch occur throughout the U.S., and average one-quarter to three-quarters of a pound in weight. The meat is firm, white, and lean. Yellow perch are available fresh from April to November, and frozen year-round.

Shellfish

Abalone

Abalone are single-shelled molluscs, and occur in California and throughout the world. Abalone meat is firm, creamy white in color, mild in flavor, but can become tough when overcooked. Abalone are available fresh most of the year, and frozen and canned year-round.

Clams

Clams are bivalve molluscs, and occur worldwide. Popular Pacific coast clams include: butter clam, little neck clam (native, and Japanese or Manila little neck), gaper or horse neck clam, razor clam, softshell clam, and geoducks. Atlantic coast clams include: hardshell clam (from smallest to largest: little neck, cherrystone, and quahog or chowder clam), softshell clam, and surf clam. Clams are available live, shucked, and canned year-round.

Crabs

True crabs are crustaceans with rounded bodies, five legs, and an abdomen or tail folded up under its body. Crabs occur in all coastal waters. Popular Pacific crabs include: Alaskan king crab, rock crab, Dungeness crab, and snow or Tanner crab. Atlantic crabs include: blue crab, Jonah crab, red crab, and stone crab. Market forms include live, whole cooked, softshell (blue crab), cooked legs, claws, and body meat, frozen cooked, and canned. Crabs are available fresh in season, and canned and frozen year-round.

Crayfish

Crayfish are small freshwater lobster-like crustaceans. They are harvested wild and raised commercially throughout the world. The meat is similar to lobster and shrimp. Crayfish are available live from March to September, and cooked, frozen year-round.

Lobster

There are two types of lobster: American or Maine lobster which have large claws, and spiny or rock lobster which do not. American lobster occur off the North Atlantic coast, and usually weigh one to five pounds. American lobsters are available live, whole cooked, as cooked meat, and in specialty items such as soups, bisques, and dips year-round. Spiny lobster occur primarily in tropical and subtropical waters throughout the world, and are usually marketed as frozen lobster tails. The tails range in size from about two ounces to two pounds. Lobster meat is snow white and lean.

Mussels

Mussels are bivalve molluscs, and occur worldwide. The meat has a tangy, almost smoky flavor, and the meat color ranges from pale beige to deep orange and tan. Mussels are available live, shucked, frozen, and canned year-round.
Octopii are eight-armed molluscs related to squid. The meat is firm and sweet, and becomes tough when overcooked. Octopii are available whole or eviscerated, fresh or frozen, year-round.

Oysters are bivalve molluscs. They are harvested in the wild on the Atlantic and Gulf coasts, and farm raised on the Atlantic and Pacific coasts. Three oyster species are most common: Eastern oysters from the Atlantic and Gulf coasts; Pacific oysters from the Pacific coast; and Olympia oysters from Puget Sound. Oysters are available live, shucked, and canned year-round.

Shucked oysters are sold on the basis of size. For Eastern oysters, Extra Large is not more than 160 per gallon, Large is 160–210 per gallon, Medium is 210–300 per gallon, Small is 300–500 per gallon, and Very Small is more than 500 per gallon. For Pacific oysters, Large is not more than 64 per gallon, Medium is 64–96 per gallon, Small is 96–144 per gallon, and Extra Small is 144 or more per gallon.

Scallops are bivalve molluscs, and occur throughout the world. Three species are most common in the U.S.: Bay scallops from off the south Atlantic coast; Calico scallops from off the Florida and Gulf coasts; and Sea scallops from off the north Atlantic coast. Sea scallop meat ranges in size from 10 to 70 count per pound, and bay scallop meat from 70 to 120 count per pound. Calico scallops are related to bay scallops, but are slightly larger. Scallop meat is firm, low in fat, and has a sweet nutty odor. Scallops are available fresh and frozen year-round.

Shrimp are crustaceans, and occur worldwide. Several varieties of shrimp are harvested in the U.S., and other varieties are imported from around the world. Shrimp have a distinctive flavor, and creamy-white, firm meat. Shrimp are available fresh, frozen headless, peeled and deveined, cooked, battered/breaded, and canned year-round.

Shrimp are sold by size (number of shrimp per pound). For raw headless shrimp: Extra Colossal, less than 10 per pound; Colossal, 10–15 per pound; Extra Jumbo, 16–20 per pound; Jumbo, 21–25 per pound; Extra Large, 26–30 per pound; Large, 31–35 per pound; Medium Large, 36–40 per pound; Medium, 40–50 per pound; Small, 50–60 per pound; Extra Small, 61–70 per pound; and tiny, more than 70 per pound.

Squid are molluscs with ten arms, and occur worldwide. Squid range in size from one inch to more than 50 feet in length. Squid meat is firm, white, and lean, and can become tough if overcooked. Squid is available fresh in California from November to June, and frozen year-round.
SEASONAL SUPPLY OF SPECIES

Seasonal availability of most seafood species is not a serious problem. Nearly all species can be purchased fresh or frozen year-round. For example, some state laws close public oyster reefs to commercial fishing from about the first of May to November, however oysters are available year-round from other states so that the retailer's supply of oysters need not suffer.

A key to solving supply problems is to develop good relationships with suppliers. Ideally, the retailer wants to purchase only the quantity needed for one or two days, but rarely is this possible. However, if the retailer builds good relationships with his suppliers, they will most likely provide him with the seafood he needs to meet expected and unexpected demands. The retailer, in turn, should aid the supplier by purchasing excess quantities of seafood that the supplier will have from time to time.

By working together in this way, each link in the distribution chain contributes toward maximum efficiency of the total marketing channel. A sound business relationship among all members of the marketing channel, from fisherman to consumer, is a vital marketing activity that is too often ignored. Naturally, there seems little you can do to improve business relationships with suppliers several states away from your firm. But keep in mind that you must depend upon one another if the consumer is to be completely satisfied. A satisfied customer means a successful retailer.

There is a moral to this discussion of good channel relationships. A seller becomes "rich" by making his customers "rich." It all begins or ends with the consumer. If you make the consumer a success at the table, the consumer will make you a success in your market.

Seasonal Availability of Fresh Seafood

Depending on location within the United States, certain species may or may not be available fresh during the whole year. The following chart gives general information on the seasonal west coast landings of some popular seafood species.

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Clams, Pacific cod, jack mackerel, lingcod, oysters, Pacific ocean perch, rockfish, sablefish, shark, sole, and rainbow trout are landed on the west coast year-round.
CHAPTER 4: HANDLING SEAFOOD

Proper handling and temperature control are essential from the time seafood is harvested to the time it is prepared, to minimize changes that lower its quality, or make it unusable as food. Handling practices, and the length of time seafoods are handled and stored, determine to what extent flavor, odor, and texture will change. At best, low temperatures only slow or retard microbial growth and the chemical and enzymatic reactions which cause deterioration and spoilage. Of these three types of deterioration, microbial growth is the most important.

The flesh of freshly caught seafood is virtually sterile, but bacterial contamination is inevitable as the product is handled, eviscerated, and filleted. These bacteria may die, remain dormant, or grow, depending on their type and on storage conditions. Low temperatures markedly reduce the rates at which bacteria grow and reproduce, and good sanitary practices in handling, processing, and storage help minimize the level of bacterial contamination. In addition to keeping seafoods cold, they should be handled as quickly as possible, because spoilage rates are dependent on time as well as temperature (Ronsivalli et al., 1978).

Improper storage or handling of seafoods can also permit the growth of food-poisoning bacteria. As temperatures increase above 40°F, these organisms start to grow at an increasing rate. If storage temperatures are high enough, and storage time is sufficient to allow substantial growth, they can pose a serious public health problem.

Seafoods are also subject to chemical and enzymatic changes during storage, causing off-flavors, off-odors, and loss of texture. These unwanted changes effect the proteins and oils of the seafood, and are minimized by reducing storage temperatures.

FACTORS THAT AFFECT SEAFOOD QUALITY

Kind of seafood. Different seafoods and even different species of the same seafood may differ considerably in their acceptability to consumers or in their perishability. Characteristics of the seafood, its chemical composition, and even its size, may affect the ultimate quality and shelf life of the product.

Condition of the seafood. The condition of the seafood at the time of harvest has a decided effect on the acceptability and shelf life of the final product. The quality of water from which it was taken, the type and amount of feed it had been eating, its phase in the life cycle (molting or reproductive), and even the method of harvesting (trap, net, or line) influence either the product's ultimate quality or its shelf life, or both.

Handling after harvest. Seafoods must be promptly and properly handled aboard the fishing vessel and throughout processing. If the quality of the product is to be maintained, conditions that lead to crushing, bruising, or any damage to the skin or mucus membranes will reduce the final product's shelf life.

Temperature. For all seafoods, the most important factor in preservation is temperature control. Refrigeration or freezing merely retards deterioration, it cannot prevent it. Temperature control must be accompanied by prompt, rapid, and careful handling from harvest to consumption to ensure that the consumer receives high quality seafood products.

HANDLING FRESH SEAFOOD

Fresh seafoods spoil mainly because of bacterial activity. When a fish or shellfish dies, bacteria on the skin or shell, on the gills, and in the intestines continue to grow and feed upon the flesh. The speed with which bacteria grow on fresh seafood depends upon storage temperature.

Edible shelf life is defined as the length of time a seafood product can be held and still remain edible. High quality shelf life, during which the product remains at the U.S. Grade A level, is about 60% of the edible shelf life. The shelf life of seafood products is
Cleaning Water Temperatures
82°C (180°F) or above
Water for cleaning equipment, floors, walls, etc., must be a minimum of (180°F) 82°C at point of contact.

Danger Zone
(40°F to 140°F) 40° to 60°C
Within this range, food-spoilage and food-poisoning bacteria grow rapidly. Temperatures above (140°F) 60°C kill most bacteria; temperatures below (140°F) 40°C retard the growth of food-poisoning microorganisms. Therefore, foods should pass through the Danger Zone as rapidly as possible.

Critical Zone
(40°F to 100°F) 40° to 38°C
This is the growth range of most food-poisoning bacteria.

Fresh Storage Zone
(30°F to 40°F) −10° to 4°C
These temperatures minimize the rate of food spoilage. Rule of thumb: for every (10°F) 6°C rise in storage temperature, shelf life is reduced by half.

Freezing Temperatures
(27°F to 30°F) −10° to −3°C
At these temperatures, seafoods freeze, and most of the water is converted into ice.

Frozen Storage Temperatures
(0°F to −20°F) −18° to −29°C
To maintain quality, frozen seafoods should be stored within this temperature range. Storage life doubles for every (10°F) 6°C decrease in temperature.

Quick Frozen
(−20°F) −29°C or lower
This term denotes the use of low temperatures and rapid freezing rates.
primarily dependent upon storage temperature. For example, if cod are taken out of the sea, gutted, immediately buried in ice, and kept at 32°F, they will remain edible for about 14 days. If the fish are stored at 42°F, they will remain edible for only about five and one-half days (Ronsivall, 1982). Therefore, the first essential in handling fresh seafood is to keep it always as close to 32°F as possible (Burgess et al., 1967).

The bacterial count on fresh seafood can also be reduced by washing the catch with water and by keeping sufficient ice on top of the product. The melting ice will continually wash the product where bacteria are likely to be found. Storing whole or dressed fish head down in a vertical position in ice makes this washing phenomenon more efficient, thus prolonging storage life.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Approximate Edible Shelflife</th>
<th>Approximate High Quality Shelflife</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
<td>days</td>
</tr>
<tr>
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<td>26.7</td>
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</tr>
<tr>
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<td>15.6</td>
<td>2.5</td>
</tr>
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<td>42</td>
<td>5.6</td>
<td>6</td>
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<tr>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>29</td>
<td>-1.7</td>
<td>3-4</td>
</tr>
<tr>
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<td>-12.2</td>
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<td>-17.8</td>
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</tr>
<tr>
<td>-10</td>
<td>-23.3</td>
<td>2</td>
</tr>
<tr>
<td>-20</td>
<td>-28.9</td>
<td>&gt;2</td>
</tr>
<tr>
<td>-40</td>
<td>-40</td>
<td>indefinitely</td>
</tr>
</tbody>
</table>

* Adapted from Ronsivall (1982)

Of course, the retailer does not receive his merchandise straight from the sea. Because of the time-lapse between landing and delivery to the retail shop, it is best to hold fresh seafood stocks no longer than four days. This means fast turnover and frequent deliveries.

The following guidelines should be followed to ensure proper handling and care of fresh seafood:

**Seafood Deliveries**

Make sure seafood products are delivered in a properly refrigerated truck, even for short hauls. Upon delivery, open containers of seafood and inspect for condition and quality. Check product temperature with a thermometer. Reject any fish that show signs of spoilage. Reject the entire shipment, if the product temperature is significantly higher than that agreed upon with your supplier.

**Fresh Fish**

Whole or dressed fish that will not be immediately processed and displayed should be washed with a 100 parts per million (ppm) chlorine solution, packed into a clean box or tray with plenty of flaked or crushed ice, and quickly placed in a cooler. Positioning the whole fish vertically or with head lower than tail allows better drainage of melting ice and bacteria through the abdominal cavity. Avoid rough handling, since bruises and flesh punctures hasten spoilage.

See that whole and dressed fish in the storage cooler are well iced. Mechanical refrigeration draws moisture from seafood. Ice prevents this dehydration and rinses the fish as it melts. Surround fillets and steaks with ice, but keep them from direct contact with the ice to prevent loss of soluble food elements. This separation can be accomplished by placing butcher wrap or similar material between layers of fillets.
Rinse whole and dressed fish with ice water before putting them into the case. Rinse fresh fillets and steaks before placing them on trays and embedding them in ice. Do not stick spike tags in fish; spike holes allow easy access for bacteria.

Sticking spiked tags into raw flesh is not only poor merchandising. It’s highly unsanitary and damaging to the product. Lemons or artificial fruit are much cleaner and have more eye appeal.

Keep fresh cooked and unfrozen fish products under refrigeration at all times. The temperature of the fish should be checked several times a day, preferably in two places. The best refrigeration practice is to maintain the storage temperature at a constant 31°F. Do not allow uncooked products to come in contact with cooked products because this can cause spoilage and contamination that may be dangerous.

Prepackaged Fresh Fish

Prepackaged fresh fish should be held as close to 32°F as possible, and should be sold within two days. If you package fresh fish for self-service display cases, do not package more than one day ahead of sales.

Fresh fish prepackaged in vacuum packages or under modified atmospheres should be purchased only from seafood plants under U.S. Department of Commerce Inspection. Under USDA provisions, processors may use fish no older than five days from time of catch for vacuum packaging, and the vacuum packages must be date-coded with a ten day shelf life (Foley and Rice, 1984).

Live Shellfish

Keep live lobsters and crabs cool and moist by storing them in their shipping containers at 35°F, or in tanks of aerated saltwater. They will not live in fresh water. By checking lobsters and crabs daily, and by using the weakest specimen first, some can be kept on hand for a week or longer. Store live oysters, clams, and mussels in a cool damp atmosphere at about 35°F. Do not allow them to come in contact with fresh water or ice, because this will kill them. Properly refrigerated, shellfish will stay alive for a week or more.

Fresh Shellfish

Freshly shucked oysters, clams, scallops, and mussels, and fresh raw shrimp, will keep for seven to ten days at 32°F. Cooked shellfish have a shorter shelf life than fresh shellfish, and should be held no longer than three or four days at 32°F.

Stock Rotation and Overnight Care

Adhere to a strict rotating system on all seafood products to guarantee first-in, first-out sales. Fresh fish and shellfish retain good quality for only a limited period of time with even the best care. Although the sale of poor quality products may add to current profits, it will discourage repeat sales.

At night, remove unpackaged fresh fish from the display case, ice them down, and store them in the cooler at 31°F. Remove fresh shellfish and packaged seafood from the display case, and store them in the cooler, or cover display cases to maintain storage temperature.
Before closing shop for the weekend, discard any fish of border-line quality. Wash left-over unpackaged fish of good quality in 100 ppm chlorine, re-ice, and store in the cooler. Carefully inspect the fish again before beginning business the next week. Note that effective ordering will ensure a minimum carryover into a subsequent week (Department of Fisheries, 1967).

HANDLING SMOKED, SALTED, AND MARINATED SEAFOOD

Keep unfrozen, unpackaged smoked seafood products under refrigeration, but avoid direct contact with ice. The smoking process, which involves salting, drying, and smoking, was originally used to preserve seafood against spoilage. Today, however, most consumers prefer lightly smoked seafood, and today's products do not remain edible for very long. Smoked seafood, therefore, should not be kept in the shop for more than three or four days. It is better to order small quantities more frequently. If not properly protected, smoked fish may develop molds readily, especially during warm and humid weather. Therefore, stock should be examined every day. Because smoked fish warms quickly, a minimum quantity should be displayed and the rest should be placed in cold storage at 31°F.

Vacuum packaged smoked fish must be stored at 31°F, and displayed at temperatures below 38°F to prevent growth and toxin production from the bacteria *Clostridium botulinum*.

Prevent direct contact of salted fish products with ice. Hard, dried, salted products such as dry salted cod need not be refrigerated, but do need to be protected from high humidity.

Keep marinated fish products, and all other prepared fish products that have not been frozen or heat-sterilized, under refrigeration.

HANDLING FROZEN SEAFOOD

Although it is true that freezing halts the aging process and retards rapid spoilage, chemical and physical changes can occur during frozen storage. A gradual toughening and drying out takes place, and the characteristic flavor that marks each species gradually disappears, leaving the product somewhat flavorless. Rancidity, evidenced by a strong fish flavor, may occur in any species. All changes that result in the deterioration of frozen seafood products are accelerated by raising the temperature above 0°F for brief time periods. These temperature changes have a permanent damaging effect on quality.

Inspect frozen seafood deliveries for quality and delivery temperature. Frozen seafood should be 0°F or colder. Seafood which is warmer than 10°F should be rejected or, if accepted, examined for acceptable quality before being offered for sale (Frozen Food Roundtable, 1985).

Move frozen products immediately from the delivery truck into cold storage or into the retail display case. Stack cartons of frozen seafood products at least two to three inches away from walls and ceilings, and off the floors in frozen food storage rooms. This practice favors circulation of cold air, thus increasing cooling efficiency.

Never allow frozen fish to stand at room temperature since thawing will begin. If thawing should occur, do not refreeze the thawed product, but sell as "defrosted fish." Refrozen seafood is still edible; however, the taste and texture of the product is significantly inferior.

Frozen packages should be marked and put into the display case as soon as they are brought from storage. If they are allowed to stand at room temperature, moisture released from the product due to thawing is trapped inside the package. After the product is re-frozen in the freezer case, this moisture forms ice crystals on the inside of the package. These crystals are a tip-off to harmful thawing/freezing (USDI, 1970).
Frozen Storage Life

Store all frozen seafood at 0°F or lower. Check the temperature of both storage and display facilities several times a day. The approximate frozen storage life at 0°F for fat fish is about three months; for lean fish, six months; and for shellfish two to four months.

Minimize fluctuations in storage temperature. Temperature fluctuations, especially above 0°F, cause enzymatic and physical damage to seafood, which in turn cause textural and flavor changes.

Preventing Dryness

Protect frozen seafood in storage from drying with undamaged moisture-and-vaporproof wrapping or by an unbroken ice glaze. Prepackaged frozen seafood should be vacuum packaged to maximize frozen shelf life, and minimize deterioration. "Glazing" of seafood simply means freezing the seafood and then spraying it with very cold water to form a protective icy glaze over the flesh. Reglazing may be necessary if storage is longer than thirty days.

Stock frozen display cases as quickly as possible. Unnecessary delays in transferring merchandise from one storage location to another are the most frequent causes of temperature damage. When restocking cabinets, place new merchandise under or behind old merchandise. Aim for weekly turnover of all packages.

Display of Frozen Packages

Place packages close together in display cabinet, but not so tightly that they are difficult to remove. A snug arrangement prevents air spaces, thereby reducing the chance of thawing. Dividers in cabinets are valuable in maintaining an orderly display. Do not allow frozen seafood display cabinets to become jumbled since the lack of neatness and order will be unappealing to customers and may result in lost sales. Thawed or unfrozen products should never be placed in a display freezer.

Always stack frozen packages below the load-limit in display cabinets.

Locate cabinets away from drafts and direct sun which will reduce display-case performance. Always stack frozen seafood within the designated load-limit line. Defrost non self-defrosting freezer cabinets at regular intervals and have facilities serviced according to a regular schedule to maintain a constant temperature (Department of Fisheries, 1967).

Customer Service: Thawing and Cooking for Better Quality

Advise customers that frozen seafood should be thawed overnight in the refrigerator in the original wrapper, or under cold running water. Thawing at room temperature is not recommended because thinner parts thaw faster than thicker parts, and quality is lost.

Frozen fish portions such as sticks, fillets, and steaks can be cooked without thawing if additional cooking time is allowed. Advise customers to read cooking instructions on the package for best results (USDI, 1970).
CHAPTER 5: SANITATION

The food preservation industry is based on the control of bacteria. The processes used in food preservation today originated for this purpose, although at the time without the knowledge of "why." These processes in one way or another control microbial growth and thus preserve food items: Salting, Pickling, Smoking, Drying, Curing, Chilling, and Freezing.

During food production and marketing today, we also control the shape, size, color, etc., but always under conditions which also control bacterial growth. Therefore, all individuals in the food industry must become familiar with the terminology and the fundamental aspects of bacteriology. Not as bacteriologists, but as professional food handlers.

BASIC BACTERIOLOGY

Characteristics of Bacteria

Microorganisms are everywhere - in and on everything. The term "microorganisms" includes bacteria, yeast, molds, virus, protozoa, etc. However, we shall consider only bacteria, yeast, and molds, and we are concerned primarily with bacteria.

Size of bacteria - One of the most important characteristics of bacteria is the size, which is measured in micrometers, 1/25,000th of one inch. We can illustrate this size by saying that a trillion bacteria would occupy one cubic inch and 400 million bacteria would occupy the space the size of one grain of sugar.

What temperatures do bacteria like? - There are generally three groups or classifications of bacteria in regard to their desired growth temperatures. There are those that love high temperatures, and grow best when the temperature is a torrid 130-140°F. Some bacteria in this group have been known to grow at temperatures as high as 185°F. The middle group of bacteria includes those that invade the human body. These grow best at 85-100°F, but will also grow at 60-110°F. The third group includes the cold-tolerant bacteria that will grow at or below 32°F.

Environments favorable to bacteria - Most bacteria, of course, require air to grow, but there are some bacteria that will grow only where there is no air. This is important because one of the most deadly microorganisms in the food industry, Clostridium botulinum which causes botulism, is one that grows under airless conditions. Airless conditions occur inside a mass of fish, meat or vegetable material, in the bottom of a pot of warm stew, and in other areas which are excluded from contact with air.

Some bacteria, when their environment becomes intolerable - too hot or too cold, not enough air or too much air, or not enough food - can form a "cocoon-like" spore and hibernate or survive until conditions are favorable again for growth. In this spore state, they are be extremely resistant to being destroyed by heat or sanitizing agents. Spores of Clostridium botulinum may survive six hours of boiling water.

What bacteria eat - Bacterial food requirements are generally simple - just meat, cooked or raw, or vegetable or fruit material. Some bacteria can live and grow in dirt. More important, some can and do live and grow on such things as rust on a pipe, in the salt deposits on aerator screens in faucets, in the recesses of drains and grease traps, in sawdust, in salt, in vinegar, etc. They can and do grow in grease-soaked wood, in droplets of condensed water on a cooler ceiling, on a speck of meat on a wall, in vegetable debris in the bottom of a display case, on a dirty cloth, etc.

How bacteria multiply or reproduce - Under ideal conditions, bacteria can double in numbers every 15 to 20 minutes. Let us take 15 minutes per generation, as an example, to see what this means. If we start at 9:00 a.m. with one bacterium, at 9:15 we would have two. At 9:30 we would have four; at 9:45 we would have eight; at 10:00 there would be 16 bacteria; at 11:00, or two hours later, there would be 256 bacteria; at 12:00 there would be 4,096, and at 1:00 in the afternoon there would be 65,000 bacteria.

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Remember how small these bacteria are? You can easily transfer 1,000 bacteria to a piece of seafood from your thumb. So, instead of starting with one bacteria, we start with 1,000, and after four hours we have 65,000,000 bacteria instead of 65,000.

This tremendous growth rate is not theoretical, but is exactly what is happening in and on the products in your stores today, if they have been contaminated and then mishandled by being left at the wrong temperature. All of these millions upon millions of bacteria are living and excreting on the food you are hoping to sell.

If you place bacteria in a new environment — from your thumb, for example, to the surface of food — they must adapt to the new environment before they can start to grow rapidly. This is called the lag phase of bacterial growth. Many factors cause this lag phase to vary in time from 1-1/2 hours to 18 hours, or many days in some cases. In the food industry we use four hours as the average lag phase of bacteria with which we are concerned. This 4-hour lag phase before growth occurs is very important to you. We will use this fact later in the control of bacteria in your stores.

How bacteria travel - Bacteria cannot travel far by themselves, but they are easily transferred — via a cough, sneeze, rat, mouse, roach, fly, fingers, clothing, splash droplets, or by direct contact — from place to place, and from food to food.

Types of Bacteria

There are literally thousands of types of bacteria, but those which are important to food handlers can be placed into two general categories: food poisoning and food spoilage bacteria.

Food Poisoning Bacteria

Food poisoning bacteria are those organisms of public health significance. We are primarily concerned with only five:

Salmonella - These are a large group of related bacteria which infect the intestinal tract of man and warm-blooded animals such as cattle, sheep, swine, dogs, cats, birds, horses, mice, rats, etc. They are first cousins to typhoid fever. They may enter man’s intestinal tract via food or water, and grow there and cause severe illness. Salmonella food poisoning can result in death in children, the elderly, or in weakened individuals. Since this organism must grow in the intestines to produce illness, it is possible that one single salmonella on a ready-to-eat food item may cause this illness.

Salmonella also can live in the intestinal tract of man and animals for long periods of time without causing noticeable symptoms. Therefore, the primary source of Salmonella in food is direct or indirect contamination of the food by feces.

Salmonella are easily killed by sanitizing solutions, such as chlorine. They are also easily killed at temperatures of 161°F for 16 seconds, or at 145°F for 30 minutes. The main sources of contamination of cooked product in your store could be: 1) Unwashed hands of personnel; 2) Raw pork, beef, lamb, veal, etc., which was unavoidably contaminated with fecal material during slaughter; 3) All raw poultry; 4) Unclean footwear; 5) Rodents and insects; 6) Bird droppings; and 7) Uncleaned barrels from rendering plants.

You can always expect Salmonella contamination on raw meats of all types. You have to be aware of and minimize this hazard, although you may not be able to completely eliminate it.

Staphylococcus - This bacterium often causes infections of wounds, boils, pimples, and sore throats. It is commonly found on people’s skin. It is also the cause of many of the "food-poisoning" outbreaks you read about in newspapers which result in the prostration of many persons shortly after a banquet, picnic, or family gathering. You probably have experienced, at least once, the unpleasant "two-bucket" symptoms after eating some particular food.
When staphylococci grow on food, particularly cooked products, they produce a poison or toxin. You can heat or cook the food to kill the staphylococci, but the toxin remains unchanged and causes food poisoning shortly after being eaten.

Staphylococci may grow to enormous numbers on seafood without producing noticeable changes in color, odor, or taste of the product. Staphylococci cannot compete with the usual spoilage organisms found on fresh seafood. The growth of spoilage organisms prolong the lag phase of the staphylococci. Therefore, food poisoning usually occurs when cooked ready-to-eat food (spoilage bacteria killed) is contaminated with staphylococci and then held between 45°F and 140°F.

Again, this organism is easily killed by sanitizers and by heat. The main sources of contamination in your store could be: 1) Unwashed hands of personnel; 2) Infected cuts and scratches, boils, pimples and nasal or oral discharges of personnel; and 3) Raw poultry.

*Clostridium botulinum* - This bacterium causes the deadly disease *botulism*. This microorganism, like the staphylococci, produces a toxin during its growth. There are, however, some vital differences.

Unlike staph, *Clostridium botulinum* is extremely difficult to kill. It forms a spore, and you cannot kill the spore of this organism with the strongest sanitizer that you can use in a food plant, or even with boiling.

The toxin it produces may be easily destroyed by boiling for 15 minutes. This is contrary to staph toxin which is difficult to destroy by heat. The toxin does not produce a gastrointestinal upset like the staphylococci, but instead attacks the nervous system and can cause creeping paralysis that leads to death.

*Clostridium botulinum* is found in most soils (dirt). Therefore, preventing product contamination from dirt helps. Fish are a prime source of this organism, therefore, fish should not be handled in conjunction with other meats. Soil from farm produce is another potential source, and should not be tracked throughout your store, especially in the delicatessen area.

One of the worst things about the botulism organism is that it will grow only in the absence of air. From this you may expect to find this organism growing and producing toxin in the bottom of unclean tubs, inside a mistreated mass of meat, in hidden meat crevices, in the bottom of warm pots of stew, in improperly stored vacuum packaged seafood, etc.

*Clostridium perfringens* - This bacterium produces heat resistant spores, grows at temperatures between 44°F and 124°F, and may double in numbers as often as every 18 to 30 minutes. It produces a toxin which causes a severe gastric upset similar to that caused by the staphylococci.

*Clostridium perfringens* is of great importance in the delicatessen area of stores. Heat resistant spores will not be killed in cooking, and subsequently may grow to enormous numbers when the food temperature drops below 126°F. Further, and more important, if contamination of chilled, cooked food occurs during holding time, and the food is then reheated, this heating stimulates the spores into rapid growth.

This organism is widespread in nature and impossible to keep out of your store. The main sources for contamination of your delicatessen items could be: 1) Soil or dirt from the produce department; 2) Fresh meat, poultry and fish; 3) Spices; 4) Unwashed employees' hands; and 5) Soiled employees' clothing.

*Vibrio parahaemolyticus* - This is a marine bacterium found on most raw seafoods, and identified as the causative agent in many "food poisoning" outbreaks from eating seafood. *Vibrio parahaemolyticus* can grow rapidly on seafood, and can overgrow spoilage bacteria. It is usually associated with food poisoning outbreaks which occur after cooked seafoods have been cross-contaminated by contact with raw seafoods. It is easily killed by heat, and grows very slowly at refrigeration temperatures.
Food Spillage Bacteria

Of the many types of bacteria that contribute to food spillage, the group known as pseudomonads are the major concern of the market operator.

Pseudomonads - This family of bacteria is a primary cause of food spilage and discoloration. They are present in the air, in water, and in the soil; despite the wide practice of chlorination, the pseudomonads are commonly present in municipal water supplies.

Many strains of pseudomonads survive and actively grow at refrigeration temperatures. Introduced by careless handling into a retail package of meat, poultry, seafood, or produce, the pseudomonads can induce spillage at a rapid rate. The control over the cost associated with food spillage and discoloration largely lie with a market's ability to control the frequency with which foods are contaminated with pseudomonads while being packaged for retail display cases. Because of the prevalence of these bacteria and their hardiness, their control depends upon good sanitation practices.

Yeast, molds, and bacteria from other families also contribute to food spillage. Like the pseudomonads, these organisms grow well at cold temperatures. Cold-loving spillage bacteria - those that cause slime and off-odors - will grow on damp cooler surfaces, in grease-soaked wood and in uncleaned equipment. These organisms then contaminate all meat entering the cooler and shorten its keeping time by many hours and days.

For example, a beef quarter entering a cooler with only 1,000 bacteria per square inch on the surface may easily have its surface count increased to 100,000 per square inch by contamination from the millions and billions of spoilage bacteria living on uncleaned cooler surfaces.

Seafood are a source of both putrefying and slime forming spoilage organisms that grow at refrigeration temperatures. The economic loss from seafood spoilage varies greatly from store to store. However, whether it is great or small, it can be prevented by good sanitation practices aimed at eliminating the sources of these microorganisms in coolers.

Photobacterium - This marine bacterium is commonly found on raw seafood. Photobacterium is luminescent, producing visible light when growing on seafood. It is usually responsible for incidences of seafood "glowing in the dark" in walk-in coolers. Photobacterium requires salt to grow, and usually causes spoilage of cooked crab meat, shrimp, or fish fillets which have been cooked or dipped in salt solutions during processing.

Control of Bacteria - 3 Important Rules

There are three important rules to follow to control bacteria in retail food stores. If these rules are followed, your products will undergo less spoilage, a longer shelf life, and will give you more economic return with little chance of causing human illness.

1. Minimize the entry of bacteria into the store. Require clean materials and supplies from reliable suppliers. Insist that delivery vehicles are clean, sanitized, and refrigerated. Promote personal hygiene for all employees entering the store, and require that store personnel wear clean clothes. Control personnel traffic into the sensitive cooked food delicatessen area.

2. Prevent the growth of bacteria that inevitably will enter the store. Make the store environment hostile to bacteria. Good food handling conditions make bad bacterial growth conditions. Hold product below 45°F or above 140°F. Remember that these are minimum temperature recommendations. Handle products quickly, if they must be handled between 45°F and 140°F. Quickly means that the product must not be in this temperature range for more than four hours. If it takes one hour to chill a warm or hot product to below 45°F, you must include this time in the 4-hour interval.

3. Prevent product contamination from bacterial sources within the store. Clean up food particles and grease before bacteria can grow in them, and sanitize to kill bacteria that may be growing. Prevent rodents and insects from entering the store. Do not allow direct or indirect cross-contamination from raw products to cooked products. Require that personnel wash their hands, especially after handling contaminated surfaces or raw meats.
and before handling ready-to-eat cooked meats. Control incidental contamination from the
water supply by cleaning and sanitizing "aerator" screens on a regular basis. Above all,
remember that food poisoning and food spoilage bacteria are transmitted by both direct and
indirect contact.

A few examples that violate the above rules are:

- Fresh meat contacting soiled or slimy cooler surfaces.
- Fresh produce seeded with spores from mold growing on cooler ceiling and walls.
- Cooked ready-to-eat product being cut with saws or knives that have not been cleaned
  and sanitized after use on raw meat or poultry.
- Cooked delicatessen items handled on table surfaces or cutting boards that were not
  cleaned and sanitized after use with raw meat.
- Cooked delicatessen items contaminated with dirt from product supplies being carried
  through delicatessen area.
- Personnel handling raw meat, raw fish, or produce and then handling cooked ready-to-
  eat products without washing and sanitizing hands and changing aprons.
- Storage of ready-to-eat product in contact with, or exposed to, raw materials.

The above rules, which are founded on the basic bacteriological concepts you have
learned, must be expanded into specific guidelines and detailed procedures. However, you
can see that you are no longer concerned only with visible or surface cleanliness. The
emphasis today is on procedures and their relation to sources and routes of contamination.
You must be concerned with operations involving personnel, equipment, cleanliness, handling
practices, and time-temperature relationships. You must critically observe many details you
never thought of before.

PERSONNEL SANITATION

Washing and Sanitizing Hands

All personnel handling ready-to-eat or perishable products, or contacting equipment
handling these products, must wash their hands with soap, preferably antiseptic or germicidal,
from a dispenser (preferably foot or remotely operated) and then dip them in a 25 ppm
iodophor or other suitable sanitizing solution when: 1) Starting to work in the morning; 2) After
break time; 3) After lunch; 4) After leaving and then returning to work station; 5) After
touching the floor or dirty area; and 6) After handling uncooked product, etc. It is
preferable not to wipe the hands after using a sanitizing dip.

Disposable plastic gloves may be used in lieu of hand washing and sanitizing. Gloves
must be discarded for new ones at the same intervals as indicated above for hand washing.

Paper towels should be used instead of cloth to prevent contamination. Hands should
never be wiped or dried on aprons.

Clothing

General - Personnel handling any food products, raw or cooked, must wear clean outer
clothing. This means daily laundering, and includes maintenance personnel working in the
food departments on equipment contacting any final product, cooked or raw. Outer or street
clothing such as jackets, sweaters, galoshes, etc. are not to be worn as outer garments in
any edible food department. All other personnel must wear obviously clean clothing.

Gloves and guards - Gloves and other guards required for handling products, cooked or
raw, must be laundered or washed on a daily basis or however more often the job requires
changing of gloves. Only white gloves may be used (unless disposable gloves are used).
Leather products, such as wrist guards and aprons must be replaced with plastic or other
materials that can be washed with hot detergent and sanitized daily. Where aprons are
referred to later, either washable rubber or plastic or disposable aprons are recommended.

**Head coverings** - All personnel present in departments where product is exposed and/or
handled must wear head coverings to prevent hair falling into product.

**Laundering Instructions** - One or two quarts of hypochlorite bleach, containing 1% of
available chlorine, must be added per 100 lbs. of fabric during the bleach operation. At
least one rinse must be at a temperature of at least 170°F for a minimum of three minutes.

**Use of Tobacco**

Personnel must not use tobacco in any form while in food processing, food storage, or
equipment and utensil washing areas. (Dry grocery warehouse areas are not included in this
requirement.)

**Disease**

No person affected by disease in a communicable form, or while a carrier of such
disease or while affected with boils, sores, severe acne, infected wounds, sore throats,
colds, diarrhea or other abnormal sources of bacterial contamination should be permitted to
work in an area where cooked or raw food is exposed.

**Personal Habits**

Spitting on the floor is prohibited. The mouth must not be used to temporarily hold
tags, pins, cards, etc. Unsanitary practices, such as placing the fingers in the mouth or
nose, uncovered sneezing or coughing, scratching the head, etc. must be controlled. Em-
ployees must not be allowed to eat, drink or taste any products while working. Lunches must
be eaten only in a designated area away from food-handling areas. Employees must not store
or hold their lunches or drinks in the coolers, refrigerators or ice chests with product
that is to be sold. A specific cooler shelf or area, used for nothing else, may be design-
nated by the management for this purpose.

**Summary**

The area of personal cleanliness is a most difficult field in which to obtain effective
action. Bad habits must be eliminated, and rigid rules of personal hygiene and practice
must be instituted. It is the responsibility of store management to set standards at the
highest level.

The above personnel requirements must be required of all "outside" visitors, such as
management people, salesmen, service men, fire inspectors, health inspectors, demonstrators,
etc. that enter food-handling areas. In these cases it may be advisable for management to
provide extra white frocks and disposable head covering for these people.

**CLEANING AND SANITIZING COMPOUNDS**

To sanitize means to adequately treat cleaned surfaces by a process that is effective
in destroying bacteria. The key phrase in this definition is cleaned surfaces, since
sanitizers are ineffective against bacteria in the presence of grease, soil or product
debris. Unfortunately, many people involved in sanitation programs still confuse ordinary
soaps and cleansers with disinfectants and sanitizers. Detergents clean greasy soils and
remove some bacteria, but they do not destroy bacteria. Sanitizers kill bacteria, but only
if they are used correctly in a sanitation program. Sanitizers are not cleaners; they have
no detergent power.

There are many chemicals available for use as cleaning or sanitizing agents. To be sure
that the correct compound is used, you should request technical advice from a reputable
cleaning and sanitizing compound manufacturer, rather than using items from the grocery
shelves that may not do the job and may be much more expensive to use. Any cleaning or
sanitizing product under consideration should be checked against the USDA list of approved general and germicidal detergents or sanitizers before being used (USDA, 1985).

**General Purpose Detergents**

**Mildly alkaline detergents** are commonly used to remove most food deposits. They are slightly or noncorrosive, and usually contain one or more of the following: sodium metasilicate, trisodium phosphate, sodium carbonate, or tetrasodium pyrophosphate. They also contain wetting agents and water conditioning agents. Such compounds are available as powders; they find wide application as cleaners in areas handling cooked or processed food and for processing glassware, silver and general food handling equipment which must be treated with a sanitizing rinse following cleaning so as to conform with local public health regulations.

Some mildly alkaline detergents contain chlorine to aid in protein removal. These detergents are not germicidal detergents, and a sanitizer must be used following cleaning procedures. Mildly alkaline detergents can be corrosive to tin and aluminum surfaces.

**Mildly acid detergents** are used to remove alkaline and hard water deposits. They are slightly corrosive, and usually contain one or more of the following: hydroacetic, levulinic, or gluconic acid. The household type acid cleaner should be avoided as they often contain materials that cannot legally be approved for use in food establishments.

Acid detergents are usually applied on a weekly basis as follows: 1) Remove gross soil by hand; 2) Apply the standard procedure for cleaning and sanitizing; 3) Rinse; 4) Flood equipment with warm (125-130°F) acid cleaner and allow to stand 5-15 minutes; 5) Scrub away softened deposits with a stiff fiber or nylon brush; and 6) Rinse. Heavy deposits may require more than one application of acid cleaner.

**Germicidal detergents - one step cleaner/sanitizers** are available on the commercial market. They are available in a variety of detergent/sanitizer combinations, and their effectiveness depends upon the specific equipment to be cleaned.

**Sanitizing Agents**

When using sanitizing compounds, remember that thorough cleaning is essential before sanitizing. The effectiveness of sanitizers is greatly reduced if food particles or dirt are present. Most sanitizer solutions are calculated in "parts-per-million." One measure of a chemical to one million measures of water equals 1 ppm. A 1% solution of chemical equals 10,000 ppm. Never use more than the recommended amount of a sanitizer.

**Chlorine sanitizers** - Chlorine-based sanitizers are the most commonly used sanitizers in food plants. They are effective against all bacteria, and are generally the most economical. In diluted form, they are relatively nontoxic, colorless, nonstaining, and easiest to prepare and use. Solutions of common household bleaches such as "Clorox" or "Purex" that contain approximately 5.25% sodium hypochlorite may be used as a sanitizer as follows:

**Hand sanitizing:** Wash hands with soap, rinse, dip and rinse hands in 50 ppm chlorine. Hands need not be dried or rinsed in water afterwards. Chlorine solutions may be irritating to some people's skin.

**Equipment and working surfaces:** Use a solution containing 200 ppm chlorine for all equipment or product-contact surfaces.

**Treatment of mold:** Use a solution containing 500 ppm chlorine for treatment of mold on cooler surfaces or other special uses only.

To prepare approximately 50, 200, and 500 ppm chlorine sanitizing solutions from household "bleach" containing 5.25% sodium hypochlorite, or from other liquid chlorine solutions, use the following formula. The "dilution factor" to use in the formula depends on the most convenient units for dispensing the hypochlorite solution.
$\text{ppm in final chlorine solution} \times \frac{\text{gallons of solution being prepared}}{\text{dilution factor}} = \frac{\text{quantity of concentrated sanitizer to be added}}{\text{to water}}$

<table>
<thead>
<tr>
<th>Units</th>
<th>Dilution Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>milliliters</td>
<td>2.64</td>
</tr>
<tr>
<td>teaspoons</td>
<td>13</td>
</tr>
<tr>
<td>tablespoons</td>
<td>38</td>
</tr>
<tr>
<td>ounces</td>
<td>78</td>
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<tr>
<td>pints</td>
<td>1,250</td>
</tr>
<tr>
<td>quarts</td>
<td>2,500</td>
</tr>
<tr>
<td>gallons</td>
<td>10,000</td>
</tr>
</tbody>
</table>

For example: to prepare 50 gallons of a 200 ppm chlorine solution from a 5.25% sodium hypochlorite solution, measuring the sodium hypochlorite solution in ounces, use the following calculations:

\[
200 \text{ ppm final solution} \times \frac{50 \text{ gallons}}{\text{50}} = \frac{200}{\text{78}} \times 5.25 = 24.4 \text{ ounces of hypochlorite}
\]

Commercial quantities of sodium hypochlorite solutions are available containing 4 to 16% sodium hypochlorite. The three concentrations recommended above may be made from these bulk quantities according to label directions. Since chlorine in strong stock solution is readily lost, not more than a 30-day supply should be on hand and then kept only in a cooler. The 50, 200 and 500 ppm solutions above should not be kept more than 4 hours and must be discarded whenever the solution becomes soiled with food materials. Food such as grease, meat and vegetable materials rapidly inactivate chlorine. Generally, no water rinse is required if chlorine solutions do not exceed 200 ppm.

**Quaternary ammonium compounds** - Quaternary ammonium sanitizers, in diluted form, are odorless, colorless, and nontoxic. They are stable at high temperatures and in the presence of organic soils. They are effective against most bacteria, but are slow acting against the most common seafood spoilage bacteria. Their antibacterial properties are often diminished by contact with the mineral salts of hard waters, and they are neutralized by contact with the more commonly used cleaners and germicidal detergents.

Alkylidimethylbenzylammonium chloride and dimethylethylbenzylammonium chloride are examples of quaternary ammonium compounds. They are often mixed with chemicals such as tetra sodium pyrophosphate or ethylenediaminetetraacetate.

The quaternary ammonium compounds have a long-lasting effect and may be used at 500 to 800 ppm for walls and ceilings of coolers for mold control. Dilute these compounds according to the manufacturer's directions. Although no water rinse is required if quaternary ammonium compound solutions do not exceed 200 ppm, they may leave objectional films which should be rinsed off equipment surfaces with cold water. Quaternary ammonium compounds may impart a bitter flavor to foods.

**Iodine sanitizers** - Iodophors are a combination of iodine and a solubilizing agent that releases free iodine when diluted with water. Iodophors are fast acting and effective against all bacteria. In diluted form, they are nonstaining, relatively nontoxic, nonirritating to the skin, and stable. Iodophors are widely used in hand sanitizing solutions at a 25 ppm concentration.
CLEANING AND SANITIZING PROCEDURES

An effective sanitation program must include cleaning procedures which quickly remove greasy soils and solid waste materials from food-contact and other surfaces, and procedures to adequately control bacterial contamination.

Selecting Appropriate Techniques

A one-step cleaning and sanitizing procedure can save up to 50% of the time needed to clean and sanitize by the standard or traditional procedure. This is accomplished by using germicidal detergents which combine the cleaning and sanitizing operation. Combining these operations means that the destroying of bacteria is taking place while the cleaning is being accomplished. This "one-step" procedure, however, must be tailor-made for specific needs. Consult equipment manufacturer's recommendations, and request the technical advice of a reliable cleaning and sanitizing compound manufacturer. Select cleaning and sanitizing compounds from USDA's list of approved cleaning and sanitizing compounds (USDA, 1985). The steps involved in cleaning and sanitizing are:

<table>
<thead>
<tr>
<th>Standard Procedure</th>
<th>One-Step Cleaning-Sanitizing Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Rough clean - broom, brush, etc.</td>
<td>1. Rough clean</td>
</tr>
<tr>
<td>2. Alkaline detergent cleaning</td>
<td>2. Germicidal detergent cleaning and sanitizing</td>
</tr>
<tr>
<td>3. Rinse</td>
<td>3. Rinse (if needed)</td>
</tr>
<tr>
<td>4. Sanitize</td>
<td>4. Air dry</td>
</tr>
<tr>
<td>5. Rinse (if needed)</td>
<td></td>
</tr>
<tr>
<td>6. Air Dry</td>
<td></td>
</tr>
</tbody>
</table>

There is some disagreement between supporters of the two procedures listed above. The supporters of the Standard or Traditional Procedure say that the cleaning and sanitizing steps must be separated for maximum effect in the reduction of bacterial levels, and there is no acceptable short cut to good sanitation. The supporters of the One-Step Cleaning-Sanitizing Procedure claim that the new modern germicidal detergents combine the operations with equal effectiveness in destroying bacteria and also save up to 50% in labor. Either procedure will do the job effectively for the supermarket, if combined with correct cleaning and sanitizing practices. Documented savings are available using either program. Both are approved. It is always wise to consult a USDA list of accepted materials before deciding on a product. A breakdown of the above two cleaning and sanitizing procedures is described in detail in the following sections.

Standard Cleaning/Sanitizing Procedure

1. **Rough clean.** This is the preliminary step to all cleaning and sanitizing procedures. The elimination of the bulk of food materials aids in subsequent cleaning and prevents floor-drain clogging. Without use of water, use hands, brushes, brooms, squeegees or scrapers as applicable to collect and dispose of all large debris. Where blood is a problem, such as on beef-cooler floors, hose down with cold water to finish rough cleaning. For equipment and all other floors, flush with warm (125-130°F) water to complete rough cleaning. If drains are available.

2. **Alkaline detergent cleaning.** Prepare and apply detergent with hot (155-160°F) water. This step may be accomplished by: using mechanical pressure equipment; by hand, in a sink, tank or tub in which case scrubbing by brush is required; by bucket and brush; or by bucket and mop.

3. **Rinse.** Rinse with hot (155-160°F) water. Check thoroughly that all grease and particulate matter have been removed. If not, wash again. Remove excess water by clean squeegee, disposable paper towelling or power vacuum and allow to air dry. Portable equipment must be placed on cleaned racks, pegs, hooks or drain boards to dry.

4. **Sanitize.** Apply 200 ppm sanitizing solution at room temperature. On some equipment it may be necessary to remove excess water before applying sanitizer.

5. **Rinse.** Rinse with cold water (not necessary on floors and walls).

6. **Air dry.**
One-Step Cleaning-Sanitizing Procedure


2. Cleaning and sanitizing. Prepare and apply germicidal detergent with hot (155-160°F) water; using mechanical pressure equipment; by hand, in a sink, tank or tub in which case scrubbing by brush is required; by bucket and brush; or by bucket and mop.

3. Rinse. Rinse with hot (155-160°F) water. Check thoroughly that all grease and particulate matter have been removed. If not, wash again. Remove excess water by cleaned squeegee, disposable paper toweling or power vacuum and allow to air dry. Portable equipment must be placed on cleaned racks, pegs, hooks or drain boards to dry.

4. Air dry.

Special Instructions for Specific Areas, Equipment and Products

Cooked and ready-to-eat products: equipment and areas. If area temperature is 45°F or below, wet all surfaces and equipment with 200 ppm sanitizing solution for 5 minutes prior to start in the morning, rinse and remove excess water. At end of the working day, follow the standard procedures for cleaning and sanitizing. If area temperature is above 45°F, an additional cleaning and sanitizing is necessary every 4 hours that equipment is being used.

Equipment, such as slicers and saws, must be disassembled as far as possible when being cleaned and sanitized. Wooden cutting boards in good condition must be cleaned daily, immersed in 500 ppm chlorine or other suitable sanitizing agent for 30 minutes, and stored on edge to dry overnight without rinsing. In the morning, put board through the regular 200 ppm sanitizing and rinse procedure.

Knives with twine-wrapped handles are uncleanable and should not be used. Plastic or rubber matting and plastic ornaments for the display counters must be cleaned daily following the standard instructions for cleaning and disinfecting. Cleaning and sanitizing of all cooked product equipment should be done in a separate area from raw product washing area.

Raw products: equipment and areas. If area temperature is 50°F or below, follow standard cleaning and sanitizing procedures daily, at end of shift. If area temperature is above 50°F, an additional cleaning and sanitizing period must be scheduled at noon or mid-shift.

All equipment must be disassembled completely for cleaning and sanitizing. In addition to routine cleaning and sanitizing schedules, all surfaces should be rinsed with 200 ppm sanitizer before start of operations in the morning.

Coolers: floors and walls. Rough-clean floors without water at least every four hours. Following cleaning, the floor, walls and ceilings must be wet down with sanitizing solution which is left on.

In fish coolers and in areas where poultry is held after rough-cleaning, flush floors daily with warm (125-130°F) water followed by applying 200 ppm sanitizing solution. To remove mold, scrub with detergents, rinse, and spray with 500 ppm chlorine solution.

Realizing that there are stores within companies that are not equipped with floor drains or the latest in wall and floor materials that make for easy cleaning and sanitizing, this section is devoted to alternate ways of getting the job done with satisfactory results.

1. Wood floors should be treated after finishing or refinishing with a waterproof non-porous sealer. Clean and sanitize with hot (155-160°F) water, using mop or similar floor-scrubbing appliance, and a bucket on wheels with preferably two compartments. Soak up excess water on floor and air dry.

2. Concrete or cement floors without drains. Clean and sanitize with hot water, using a mop or floor scrubbing machine if available. Rinse with warm (125-130°F) water. Air dry after removing excess water; use water vacuum if available.

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3. Linoleum or asphalt tile floors without drains. Follow instructions for concrete and cement floors. Special caution should be taken here not to use so much water as to loosen floor tile.

4. Floors with drains. Clean and sanitize according to general instructions using a mechanical high-pressure spray machine, if steam and condensation are not a problem. Floor drying may be aided by using very hot (170-180°F) water as a final rinse.

Dry-storage areas. Dry rough-clean daily. Weekly, follow instructions for cleaning and sanitizing. At least every two weeks, move all skids and racks so the entire floor may be cleaned.

Miscellaneous Cleaning Instructions.

Barrels or containers for waste, scrap or rendering materials must be cleaned after each emptying and at least weekly, following the standard procedure for cleaning and sanitizing.

Small equipment, such as knives, mesh gloves, small pans, strainers, etc. may be sprayed with or immersed in 180°F water after cleaning and sanitizing procedures.

Can openers must be cleaned and sanitized daily. A small stiff-bristled brush is required for cleaning crevices.

Ice manufacturing machines should be cleaned and sanitized weekly. Turn off the water and power; empty and drain. Clean inside thoroughly, following cleaning and sanitizing instructions, including circulating the cleaning solution through the machine. Sanitize and rinse thoroughly.

If conveyor belts in perishable product processing areas are to be unused four hours or more after cleaning and sanitizing, supply facilities so that the belt is held up to permit drying of the bottom of the belt.

Roller conveyors are difficult to clean, but can be cleaned by: dividing them into small enough sections so they may be taken to a sink for washing; using power washing equipment in place; or taking long sections to a cleaning area sufficiently large to handle them.

Heavy plastic or smooth rubber aprons (if disposables are not used) may be cleaned according to the standard instructions for cleaning, and sanitizing by repeated dipping into and out of fairly large containers of germicidal detergent, followed by a rinse in water.

Air returns and grills in display counters and on refrigeration units must be cleaned weekly with a vacuum hose.

Rest rooms, lunch rooms, and equipment within them, must be cleaned daily according to the instructions for cleaning and sanitizing. Hand-sanitizing solutions should be placed in small stainless steel pans near hand washing sinks. There are sinks available with small containers attached alongside the wash basin. A dispenser with antibacterial soap is strongly recommended.

Vehicles should be rough-cleaned daily, and cleaned and sanitized on a weekly basis. Vehicles that are used for perishables must be cleaned and sanitized daily.

All racks, flats, pallets and skids must receive the same cleaning procedure and frequency as does the floor in the area they are used.

Water Temperatures for Cleaning and Sanitizing

The temperature of the water used in cleaning and sanitizing procedures is highly important, and cleaning personnel must be trained to use thermometers, and to control water temperatures used. Water above 130°F is too hot for hand immersion, and water below 140°F will not cut fat and grease film effectively. Water much above 160°F will "cook" protein material to surfaces and also precipitate water hardness onto equipment, and water in the
170°F and above range produces too much steam and condensate in refrigerated areas. Even 200°F water is an ineffective sanitizing agent for large pieces of equipment.

SANITATION EQUIPMENT

Brushes should be designed for their intended use. Soft-fibered or uncleanable brushes such as whisk brooms should not be used. Brushes of white nylon or abrasive fibers are types that can be used effectively.

Scouring pads of the "Chore-Boy" or "Scouring Cloth" type may be used where absolutely necessary on bright stainless steel only. Nylon web scouring pads are preferable. Steel wool and wire brushes must not be used for cleaning.

Cloths and towels should not be permitted as an aid in cleaning equipment or wiping. Cloth towels or rags are too often held and reused to the extent that bacterial contamination occurs. High wet strength disposable paper towels should always be used.

Squeegees are an invaluable aid for removing water from large equipment surfaces. Squeegees, brushes and other aids for cleaning equipment, boards, tables, etc. must never be allowed to contact floors.

Hoses for use in food preparation areas should be white and always hung between uses on a wall rack.

Mechanical pressure cleaning equipment is available in many sizes and complexities. High pressure for washing may be developed by use of: built-in electric pump, separate compressed air source (80-100 lbs.), separate steam source (90-100 lbs.) or built-in steam source. Nozzles will produce anything from a small single jet to a wide sweeping pattern. The type of detergent used should follow manufacturer's recommendations. The temperature of the water coming from the unit should follow recommendations in this document. Minimum requirement for a high-pressure washer should be a nozzle pressure of at least 250 pounds per square inch and a flow rate of at least 1-1/2 to 2-1/2 gallons per minute.

A hand sprayer is recommended for applying sanitizing solutions to walls, ceilings, and equipment.

Most floors will at least initially require the use of a floor scraper.

Stiff, floor scrub brushes and floor brooms are excellent aids for wet sweeping (Super Market Institute, 1973).
This chapter emphasizes the importance of properly presenting seafood to the customer, or MERCHANDISING. In addition, there are suggestions for choosing which seafood products to carry, how they should be priced, and where to locate the display equipment necessary to merchandise them. Hopefully, these suggestions will contribute toward satisfying your customer’s needs and improving your firm’s sales and profits.

MERCHANDISING THE FRESH PRODUCT ASSORTMENT

"As the heart is to the body, the service-display case, properly stocked with fresh seafoods, is central to the vitality of a service retail seafood market. From a physical standpoint it is the heart of the business and should, therefore, be viewed as the focal point around which other business matters revolve. Neglect it and the business immediately becomes anemic, to eventually wither and die."

The foregoing statement was made by a highly successful retailer, and serves to articulate the importance of fresh merchandise display to the overall health of the service seafood market. Unfortunately, too few retailers have a proper appreciation of this concept and the dramatic influence that a good display can have on sales, particularly impulse sales.

To maximize the effectiveness of the product display a retailer must constantly be mindful of the two cardinal principles of seafood display: Keep the Display Case Full of Merchandise and Offer as Wide a Variety of Seafood as Possible. Customers do not like to see a display case half empty because it gives them the feeling they are getting the "tail end" of the merchandise. A customer is much more likely to respond to a display case with the look of abundance.

The second principle - offer a wide variety - is often referred to as Potency of Assortment, and offers the following benefits to the customer and to you: 1) customers receive the impression that you are dedicated to offering them a host of seafood varieties; 2) a wide product assortment appeals to a wider market segment and presents a greater opportunity for you to increase volume; and 3) wider variety increases frequency of purchase and amount of purchase by individual consumers. In short, if the principle of "potency of assortment" is properly applied, greater sales volume can be expected, producing greater profits.

In addition to these basic principles, however, there are numerous techniques and details that should be employed to enable the product selection to "communicate" positively with the customer. What it should say is "take me, I'm irresistible." Such a romance between customer and merchandise is the very essence of effective retail display.
THE DISPLAY ENVIRONMENT

Equipment

A good seafood display begins with the right display case. There are several opinions as to what type of case is best for fresh seafood, but, generally, the case should have: 1) a gravity-flow refrigeration coil (no fans); and 2) an integral, insulated stainless steel "wet pan" capable of holding eight or more inches of bed ice at the center. Preferably, the unit should have enough refrigeration capacity to deliver up to 280 btus per hour at 100°F ambient temperature, per running foot of case. This would mean approximately a 1/3 h.p. refrigeration unit for an eight-foot case, and 1/2 h.p. for a 12-foot case.

If the case is not so equipped, it should be modified to house two rows of fluorescent lighting. Most standard cases come with only one row of lights and ordinarily do not provide sufficient lighting for maximum visual impact of seafood products. The fluorescent lights should be "deluxe cool white" in color to give the seafood a balanced natural appearance.

Lighting

A display problem, which is consistently overlooked, is the glare on the front glass of the service case. Typically, this glare is a result of ceiling lights (usually fluorescent fixtures) that reflect off the glass and obscure the product display from clear view.

When building a new facility or remodeling an existing one, this problem can be eliminated by constructing an overhang to extend out and over the display case. The overhang shadows the display case from ceiling lights the same way the bill on a baseball cap shades the wearer's eyes from the sun.

In existing retail shops, glare problems can usually be decreased simply by reducing the level of lighting in the customer area. Incandescent spots or recessed fixtures which can be adjusted to direct lighting onto desired areas are also helpful. Use of indirect side wall lighting instead of ceiling lights is another possible way to solve the problem.

Whichever method or technique is used, the main idea is to make the fresh seafood display the center attraction - the brightest, most visible feature in the store. Good light engineering and layout planning are crucial to the accomplishment of this goal.

Dressing Down the Case

Ice is the foundation of any good fresh seafood display, so naturally it is important to keep plenty of it on hand at all times. Use only clean ice, and dump any remaining ice at the end of the day. Even if the display case is refrigerated, displaying fresh seafood without ice is not recommended. Ice, or ice in combination with mechanical refrigeration, is the quickest and best way to lower the temperature of fresh seafood, and maintain that temperature at a constant 33°F. Unlike refrigeration obtained strictly from mechanical sources, ice keeps seafood moist, and the melting action of ice continually washes surface bacteria from whole fish which are in direct contact with it.

Ideally, a retailer should have access to two types of ice - flaked and cubed. Flaked ice is easy to manufacture in large volumes, and very simple to handle and shape. Consequently, this type of ice is best suited for building the ice bed upon which seafoods are presented. Because flaked ice is relatively soft, products in contact with it retain their natural shapes and are easily nested or imbedded in it. However, in spite of its excellent handling qualities, flaked ice has very little natural eye appeal and, therefore, does little to enhance the visual impact of the product presentation.

To remedy this deficiency, aggressive merchandisers have discovered that small, clear ice cubes sprinkled sparingly on top of and around seafoods greatly enhance the appearance of the overall display. This is because cubed ice has a "sparkle" or jewel-like quality which tends to "bring the produce selection to life."
Now that the environment is ready to accept the product selection, the following techniques should be employed to maintain highest saleability, product quality, and handling efficiency when serving the customer.

TIPS TO HELP CREATE AN EFFECTIVE PRODUCT DISPLAY

Display for greater "see-ability". Bank seafoods in cases on slanted beds of ice for maximum visibility.

Display merchandise in narrow vertical rows or "ribbons" running from the front to back of the display case. The width of each ribbon is determined by the number of products you wish to display in a given length of case.

Always place the freshest merchandise at the front of the ribbon and older merchandise toward the back. Merchandise should always be pulled from the back of the ribbon whenever possible.

Place ribbons consisting of fast moving merchandise in the most accessible positions relative to case doors and scales.

Do not build high displays or piles of merchandise. The ice bed should be completely covered, but in most cases, products should not be more than one layer deep (two layers for fillets). Otherwise, products on "top of the heap" will become warmer than those on the bottom which are next to the ice.

Arrange ribbons to contrast with one another. For example, two items of the same color should not be displayed side by side unless they are presented in such a way as to distinguish them from each other - one ribbon could consist of rolled fillets, while the next one might consist of fillets displayed flat. With whole or drawn fish, contrast could be achieved by displaying one species vertically and the next species horizontally.

Display merchandise by "commodity". Place all fillets in one section of the case, all whole fish in another section, all cooked seafoods together, etc. This allows the customer who is shopping for a certain market form to see all the varieties available. Minor exceptions to this policy are acceptable, however, in order to maintain sufficient contrast between products.

Do not display fillets and steaks directly on the ice bed, but rather on waxed butcher paper or flat metal trays. The melting action of the ice has a tendency to leach out various water soluble flavor nutrients from exposed meat leaving them with a somewhat "flat" taste. Shallow trays used to display fish or shellfish should be free of water and seafood juices. This can easily be accomplished by placing the product on trays which have been turned upside down.

Drill small holes in metal pans and trays used to display green shrimp and other raw products to allow drainage.

Display live clams and oysters at the end of the display case and away from cooked and filleted products. These particular molluscs have a sandy nature about them and, if this sand is transferred to other items, considerable customer dissatisfaction may result.

Garnish your display with fresh lemons, parsley, case borders, plastic price markers and greenery strips. Cooked king crab legs make an excellent garnish, as does an occasional live Maine lobster snugly enthroned on the natural seaweed utilized in its transport. Sliced lemons and limes should not be allowed to contact fillets or steaks, since they can alter the natural flavor of the flesh. Make sure all garnish materials - especially plastic price markers and greens - are kept clean and bright. Nothing turns customers away faster than dirty garnishing.

Never stick plastic price markers into a product since the resulting spike holes damage flesh and allow bacteria to enter and thrive. Instead, place the spike tag in a lemon or lime and place it in front of the ribbon. In some display cases, it is possible to suspend the price markers from the metal light fixture or cooling coil by using magnetic clips. Price markers should be sanitized at least twice a week.
Display both randomly sized and weight proportioned fillets. Most of the time a customer wants a variety of sizes and weights to choose from. However, some seafood customers do not know how many fillets to buy. For those customers, suggesting individual portions is best. Tall and odd sized pieces are typically utilized in "heat-and-eat" items such as gumbo. They can also be cut into bite-sized pieces and merchandised as "fondue fish cubes" or "fish nuggets."

Display salmon and other large fish used for "steaking" with head and collar removed, and with the tail facing toward the rear of the display case. This gives the customer a cross-section view of what the steak will look like.

Do not merchandise smoked fishery products in the same case with raw products unless separated by a full-length, plastic partition. Furthermore, smoked and other cooked seafood should never come into direct contact with ice.

Each hour, spray fresh fillets and whole fish with a small amount of ice water from an atomizer bottle to retain the fresh bloom appearance of the display.

When setting up a fresh seafood display, always evaluate your progress by viewing the display from the customer's perspective - in front of the case!

TIPS TO SUPPORT DISPLAY SALES

Offer a true boneless fillet. A very real barrier to increased per capita consumption of fish in the United States is the consumer's fear of bones. Although a little more labor is required to cut and process a boneless fillet, repeat sales and increased customer confidence and satisfaction more than make the additional effort worthwhile.

Always handle fillets carefully with both hands. Not only does such meticulous care impress the customer, it also prevents breaking of tender fibers which can cause an unsightly appearance.

When wrapping fillets, do not roll them or wad them up into a small package. A wider flatter package gives the appearance of greater value and also allows for better cooling of the product while in the refrigerator.

If supply is "long" on a specific fresh item, increase the size of the display for that item and "talk it up" with customers. Stretching the width of the ribbon and placing a "talking card" on the item calls the customer's attention to the long suit. Ingenuity and good salesmanship are called for in an overstocked situation.

Scale whole fish under a cold-water shower. This is a highly desirable practice if whole fish are to be scaled in view of the customer. It not only prevents scales from flying, but also simultaneously washes surface bacteria from the product.

"Straighten the fur" after scaling a fish. Run the scaler or a knife from the head to the tail to lay the skin back in its natural position. Grooming of a fish in this manner makes it much more appealing to the customer.

If a sale involves several items, identify each package with dip-mark, or another suitable marking pen. This prevents the customer from having to unwrap each package at home in order to identify the contents. Make the customer's seafood experience as pleasant as possible from service counter to table.

Consider merchandising your product selection by geographic region – Gulf of Mexico, Pacific Ocean, North Atlantic, Great Lakes, etc. This type of merchandising is particularly effective in large metropolitan markets where a large portion of the population consists of people who have relocated from other states.

Offer free cooked samples of new products to interested customers. This is a very effective way to develop demand for an underutilized seafood such as shark or rock shrimp. By using a microwave oven, a bite size sample can be prepared in seconds.
TIPS TO INCREASE PROFIT MARGIN

Sell all the fish you paid for. It may be surprising to some that throats, frames, and even fish heads are usually marketable, though at a relatively low cost. If a display space or volume does not allow selling of these items directly from the service case, they may be bulk packed and frozen in five-pound cartons for sale by special request, or by lot sale to a more appropriate outlet. Most fish roe is also highly marketable and can usually command a price equivalent to that of whole fish.

Fillet the "fat" fish, but sell the thin ones whole. When filleting whole fish for counter display, yield is all important to profit margin. Since fat fish generally produce a greater yield of filleted meat, it makes good sense to select these fish for processing.

Weigh each can of fresh crabmeat. If offering fresh-cooked crabmeat both in the original container and piceamene or loose from a secondary container in the display case it is ordinarily worthwhile to weigh each can of crabmeat when received. If scales are sensitive enough - as are electronic scales - overweight containers can easily be separated and emptied for use in piceamene sales. With this technique, retailers actually recover slightly more saleable weight than they paid for. At the price of crabmeat, the fractional ounces involved can generate a sizeable "bonus profit" over a long span of time. This technique is not applicable to all retail firms, however, due to some city ordinances which forbid repackaging of cooked crabmeat or other ready-to-eat shellfish.

Display whole fresh fish with scales-on. Not only does this practice deliver more saleable weight, it also provides greater protection to the fish and enhance its natural eye appeal. Of course, once the whole fish has been weighed for sale, it should be scaled or "skinned" and processed according to the customer's order.

When preparing cooked shrimp for sale, cool it as quickly as possible after cooking. Cooked-weight yields as high as 80% are possible when shrimp are cooked rapidly, and then immediately and thoroughly rinsed under cold running water. If they are left in their cooking vessel to cool, 10% or more of their weight will be lost in the form of steam. To put it another way - 60 to 70 cents per pound will go up in "smoke."

Sell shell-on, cooked "creole shrimp" for 100% shrimp-weight recovery. This is possible because of the other ingredients which are cooked and sold along with the shrimp. Typically, 20% of creole shrimp consists of lemon slices, celery, onions, and possibly other vegetables.

If city ordinances allow, offer fresh crabmeat and oysters from an open container. Many times a customer is unwilling to buy or does not need a full pound of crabmeat, but will readily purchase a lesser amount of it given the opportunity. Oysters dipped from a stainless steel bucket have a much stronger consumer appeal than do those sold in sealed glass jars.

Offer prebreaded fillets and shellfish in the fresh service case. There are at least two good reasons for doing this. First, such a product is ideal for those customers interested in convenience; and secondly, breaded products generally yield better profit margins due to a high percentage by weight of low-cost breading.

TIPS TO CONTROL FRESHNESS

Always sell the oldest product first - first in, first out (FIFO). This is extremely important when dealing with fresh seafood due to its high degree of perishability. One shipment should never be mixed with another shipment, and each container in a shipment should be clearly identified as to date and time of delivery. Platter paper makes excellent sign material for this purpose.

Practice FIFO when selling from the display case. Generally the oldest products should be positioned toward the rear of the display case and tendered first to the customer. If two shipments of the same fillets are put on display at the same time, they should be layered and separated by parchment paper so as not to become mixed. In the case of whole fish, cut off a small piece of tail from each fish on display prior to adding fish from a more recent shipment. This is called "bobtailng" and distinguishes the whole fish from the oldest shipment.
Store fresh whole fish to allow drainage of the belly cavity at all times. If moisture collects in the belly cavity, rapid deterioration of the fish results due to the high numbers of bacteria in this area. Reportedly, some Japanese firms have recently begun packing fresh whole fish in ice in a vertical position, with heads pointing down. Not only does this allow for excellent drainage, but it also prevents the contaminated drainage melt from ever contacting the more valuable parts of the fish.

Store fresh canned and jarred oysters in slush ice. Slight changes in temperature cause accelerated deterioration of fresh oysters. Keeping their containers packed in ice slush (ice and water) assures a constant $33^\circ$F holding temperature, maintaining peak quality.

Keep a record of all products that must be discarded and the total dollar sales lost as a result. This will help identify weaknesses in quality control procedures and keep personnel frequently reminded of the importance of freshness control.

Freeze trimmings and heads prior to their disposal. This is highly important in the control of "fishy odor." By using a relatively small waste receptacle lined with a plastic bag, personnel will be "forced" to dispose of odor-causing wastes several times each day. Wastes should always be sealed in plastic bags prior to being placed in the storage freezer, and should be held only until the next garbage pickup.

### A MODEL STOCK OF ASSORTED SEAFOOD PRODUCTS

<table>
<thead>
<tr>
<th>Shellfish</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Abalone, fresh or defrosted</td>
<td></td>
</tr>
<tr>
<td>2. Clams, live</td>
<td></td>
</tr>
<tr>
<td>3. Crabs</td>
<td></td>
</tr>
<tr>
<td>a. Dungeness crab</td>
<td></td>
</tr>
<tr>
<td>(live, whole cooked,</td>
<td></td>
</tr>
<tr>
<td>cooked meat)</td>
<td></td>
</tr>
<tr>
<td>b. King crab</td>
<td></td>
</tr>
<tr>
<td>(cooked legs or crabmeat)</td>
<td></td>
</tr>
<tr>
<td>4. Octopus, fresh or defrosted</td>
<td></td>
</tr>
<tr>
<td>5. Oysters, live or shucked</td>
<td></td>
</tr>
<tr>
<td>6. Scallops, fresh or defrosted</td>
<td></td>
</tr>
<tr>
<td>7. Shrimp</td>
<td></td>
</tr>
<tr>
<td>a. Jumbo/with shell,</td>
<td></td>
</tr>
<tr>
<td>fresh or defrosted</td>
<td></td>
</tr>
<tr>
<td>(size 15-25)</td>
<td></td>
</tr>
<tr>
<td>b. Medium/with shell,</td>
<td></td>
</tr>
<tr>
<td>fresh or defrosted</td>
<td></td>
</tr>
<tr>
<td>(size 25-35)</td>
<td></td>
</tr>
<tr>
<td>c. Pacific, cooked,</td>
<td></td>
</tr>
<tr>
<td>fresh, or defrosted</td>
<td></td>
</tr>
<tr>
<td>8. Squid, fresh or defrosted</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Finfish</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Butterfish (sablefish) fillets</td>
<td></td>
</tr>
<tr>
<td>2. Corvina, drawn or dressed</td>
<td></td>
</tr>
<tr>
<td>3. Flounder, fillets</td>
<td></td>
</tr>
<tr>
<td>4. Freshwater catfish,</td>
<td></td>
</tr>
<tr>
<td>drawn, dressed</td>
<td></td>
</tr>
<tr>
<td>5. Freshwater trout,</td>
<td></td>
</tr>
<tr>
<td>dressed</td>
<td></td>
</tr>
<tr>
<td>6. Hake, dressed, fillets</td>
<td></td>
</tr>
<tr>
<td>7. Halibut, steaks, fillets</td>
<td></td>
</tr>
<tr>
<td>8. Lingcod, steaks, fillets</td>
<td></td>
</tr>
<tr>
<td>9. Mahi-mahi, fillets</td>
<td></td>
</tr>
<tr>
<td>10. Pacific snapper, whole, fillets</td>
<td></td>
</tr>
<tr>
<td>11. Rockcod (rockfish),</td>
<td></td>
</tr>
<tr>
<td>whole, fillets</td>
<td></td>
</tr>
<tr>
<td>12. Salmon, dressed, steaks, fillets</td>
<td></td>
</tr>
<tr>
<td>13. Sculpin, drawn, dressed</td>
<td></td>
</tr>
<tr>
<td>14. Sea bass, steaks, fillets</td>
<td></td>
</tr>
<tr>
<td>15. Shark, steaks, fillets</td>
<td></td>
</tr>
<tr>
<td>16. Sole, dressed, fillets</td>
<td></td>
</tr>
<tr>
<td>17. Swordfish, steaks</td>
<td></td>
</tr>
<tr>
<td>18. Whiting, dressed</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frozen Seafood</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Dungeness crab</td>
<td></td>
</tr>
<tr>
<td>2. King crab meat</td>
<td></td>
</tr>
<tr>
<td>3. Snow crab meat</td>
<td></td>
</tr>
<tr>
<td>4. Fish 'n Chips</td>
<td></td>
</tr>
<tr>
<td>5. Fish sticks</td>
<td></td>
</tr>
<tr>
<td>6. Fillets of flounder,</td>
<td></td>
</tr>
<tr>
<td>ocean perch, catfish,</td>
<td></td>
</tr>
<tr>
<td>sole and cod</td>
<td></td>
</tr>
<tr>
<td>7. Stuffed sole</td>
<td></td>
</tr>
<tr>
<td>8. French fries</td>
<td></td>
</tr>
<tr>
<td>9. Fried fish fillets</td>
<td></td>
</tr>
<tr>
<td>10. Halibut steaks</td>
<td></td>
</tr>
<tr>
<td>11. Fish portions</td>
<td></td>
</tr>
<tr>
<td>12. Lobster tails</td>
<td></td>
</tr>
<tr>
<td>13. Octopus</td>
<td></td>
</tr>
<tr>
<td>14. Breaded oysters</td>
<td></td>
</tr>
<tr>
<td>15. Salmon</td>
<td></td>
</tr>
<tr>
<td>16. Scallops</td>
<td></td>
</tr>
<tr>
<td>17. Breaded shrimp</td>
<td></td>
</tr>
<tr>
<td>18. Cooked shrimp, salad</td>
<td></td>
</tr>
<tr>
<td>pieces</td>
<td></td>
</tr>
<tr>
<td>19. PDQ shrimp, peeled,</td>
<td></td>
</tr>
<tr>
<td>deveined, and</td>
<td></td>
</tr>
<tr>
<td>individually quick frozen.</td>
<td></td>
</tr>
<tr>
<td>20. Squid</td>
<td></td>
</tr>
<tr>
<td>21. Smelt</td>
<td></td>
</tr>
</tbody>
</table>
Canned Seafoods (partial list)

1. Sardines
   a. Green chile pack
   b. Mustard pack
   c. Olive oil pack
   d. Tomato pack

2. Salmon
   a. Pink
   b. Red
   c. Silver

3. Tuna
   a. Albacore
   b. Light meat
   c. Water pack
   d. Oil pack

4. Shrimp
5. Mackerel
6. Specialty or Gourmet Items
   a. Kippered herring
   b. Shad roe
   c. Smoked clams
   d. Finnan Haddie
   e. Smoked oysters
   f. Smoked salmon (lox)
   g. Smoked albacore
   h. Marinated herring
   i. Stuffed squid

The retailer may wish to prepare some of the items for the frozen fish case himself. If so, special care should be given to packaging, weighing, and marking the contents. However, most items are available from frozen food wholesale sources in a prepackaged form.

Along with the basic product assortment of fresh and frozen food seafood, the retailer should stock complementary items such as tartar sauce, lemons, bloopings, cocktail sauces, seasonings, and shrimp peelers. Although of secondary importance in product assortment decisions, these items can add substantially to sales volume over a period of time, generally at a good gross margin mark-up.

PRICING CONSIDERATIONS

Although the procedure for dressing fish remains basically the same for most species, differences in costs involved in the operation can be very important when pricing your product lines. The following example may help to illustrate this point. Assume that, for a given retailer, the following statements are true:

<table>
<thead>
<tr>
<th>Species Information:</th>
<th>Species A</th>
<th>Species B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per pound</td>
<td>$ .57</td>
<td>$ .57</td>
</tr>
<tr>
<td>Delivery cost per pound</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>LANDED COST PER POUND</td>
<td>$ .60</td>
<td>$ .60</td>
</tr>
<tr>
<td>Dress-out (% salable meat)</td>
<td>66-2/3%</td>
<td>40%</td>
</tr>
<tr>
<td>Filleting time (No. fish/hour)</td>
<td>32</td>
<td>8</td>
</tr>
<tr>
<td>Labor costs/hour</td>
<td>$ 4.00</td>
<td>$ 4.00</td>
</tr>
</tbody>
</table>

Suppose further that a shipment of 1,000 pounds of each species arrives and that the average weight of the fish is four pounds. How should the fillet price per pound be determined? As you know, cost often serves as an indicator of the lowest price to charge, allowing the seller to break even. The question is which costs to include and how to determine them? For example:

<table>
<thead>
<tr>
<th>Dressing-Out:</th>
<th>Species A</th>
<th>Species B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dress-out factor</td>
<td>66-2/3%</td>
<td>40%</td>
</tr>
<tr>
<td>Amount purchased (lbs.)</td>
<td>1,000</td>
<td>1,000</td>
</tr>
<tr>
<td>Amount available for sale (lbs)</td>
<td>667</td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>Species A</td>
<td>Species B</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Original purchase price</td>
<td>$600.00</td>
<td>$600.00</td>
</tr>
<tr>
<td>(1,000 lbs. at $ .60)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$/lb. available for sale</td>
<td>$.90</td>
<td>$1.50</td>
</tr>
<tr>
<td>($600/667)</td>
<td>($600/400)</td>
<td></td>
</tr>
</tbody>
</table>

**Filletting Costs:**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fish Filleted per hour</td>
<td>32</td>
<td>16</td>
</tr>
<tr>
<td>Number of fish</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>(1,000 lbs/4 lbs per fish)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hours of labor required</td>
<td>8</td>
<td>15.6</td>
</tr>
<tr>
<td>(250/number of fish per hour)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor cost at $4.00 per hour</td>
<td>$32.00</td>
<td>$62.40</td>
</tr>
<tr>
<td>Labor cost per pound of salable product</td>
<td>$ .048</td>
<td>$ .156</td>
</tr>
<tr>
<td>(Labor cost per hr./pounds available for sale)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cost per pound of salable meat</td>
<td>.90</td>
<td>1.50</td>
</tr>
<tr>
<td>Total cost/lb. of salable meat</td>
<td>.95</td>
<td>1.66</td>
</tr>
<tr>
<td>Profit to attain 40% margin on selling price</td>
<td>.63</td>
<td>1.11</td>
</tr>
<tr>
<td>Selling price per pound</td>
<td>$1.58</td>
<td>$2.77</td>
</tr>
</tbody>
</table>

Notice that all the costs are necessarily based on some marketable weight, not on the original pounds purchased. Remember that you can only get return on the pounds you sell, and not on the ones you have thrown away. While this example is exaggerated, it illustrates that cost differences of whole fish that are similarly priced can become very great after processing. For profitable filleting, a merchant should be aware of the various yields that he can expect from different fish.

When pricing seafood, a retailer can be too conscious about his customer's reaction to the cost of the product. Marketing studies reveal that consumers have relatively limited information on prices. Typically, consumers designate a store as "relatively low priced" when the items they most frequently purchase are competitive with other stores. In reality, the store may be priced higher on its product assortment, except for these popular items. However, because of this "price image" in consumers' minds, they continue to shop at the store.

It follows that a "selective" pricing strategy rather than a "blanket" pricing strategy is wise and appropriate. Hence, it would be prudent for a retailer to price competitively on more popular seafood items and enjoy higher margins on items which sell more slowly. The key to selective pricing is to equate tonnage movement with gross margin for each product. Low pricing on fast movers may lead to such a low gross margin that profits are negligible; a relatively high price on slow-moving items will give you high unit markup, but volume of the item contributes little toward total gross profits. By sitting down with pencil and paper, or a computer spreadsheet program, and estimating various dollar sales at different prices for the products in your inventory, you can estimate the gross margin you will need to cover the cost of doing business, and to provide a necessary profit level. Prices which actually generate the necessary profit level are determined ultimately in the market place.

What is the optimum average markup at retail selling price in your seafood business? A conservative estimate is to attempt to maintain a 40% markup on selling price. That is, for every dollar you receive from the sale of seafood items, you should retain, an average of $.40 over and above the landed cost of the product; "landed cost" equals the amount the retailer pays for the product plus transportation costs. If sales volume is relatively
high, you may lower average prices or employ weekend price promotions to pass lower prices on to the customer.

Pricing as a competitive ploy can be dangerous. No one wants to get into a price war. If you wish to use price as a traffic-generating tool, use low-price tactics on special occasions or scatter low prices among various seafoods at different times during the year.

Keep in mind that a sound pricing policy is just as important as sound purchasing and product assortment policies. The retailer is wise to formulate a pricing policy; through experience and experimentations, he can refine this policy until it becomes a proven strategic tool.

IN-STORE LOCATION OF SEAFOOD CASE IN SUPERMARKETS

The position of the seafood case in a supermarket may depend to a large extent on whether management views its seafood customers largely as impulse buyers or as nonimpulse buyers. The management of a Dallas supermarket, for example, views its customers as impulse buyers of fresh seafood. Consequently, the fish display case is the first station in the "traffic flow" design of the seafood and meat department. On the other hand, a supermarket in Houston views its seafood customers as nonimpulse buyers; as a result, its seafood case is last in line in the seafood-meat department. Initially, the same Dallas supermarket that placed its seafood case at the head of customer traffic flow grossed nearly $3,000 in sales from the seafood counter during the first week of operation.

The retailer must make many decisions concerning merchandising methods, including the "best" arrangement of the seafood counter or counters to accommodate customer traffic flow. The retailer must be familiar with the various forms in which seafoods may be displayed. Even more important, the retailer must maintain a wide product assortment tailored to the store's particular customers, and then display this assortment in a clean, attractive manner.

Another good merchandising practice is to group related products in a central location. A smart seafood merchant (particularly a supermarket merchandiser) should locate all seafood products — fresh, frozen, and canned — at one focal point within the store. Such grouping increases the impact of the seafood section on the consumer.

Additionally, the consumer will develop the attitude that seafood is a main meal item if the counter is positioned closer to the red-meat counter than the cold-cut or delicatessen display. This is not meant to suggest, however, that seafood operations be an appendage to the red-meat section. Indeed, for good merchandising management and sanitation practices, experience has shown that red-meat and seafood operations perform best when kept separate, both physically and managerially.
CHAPTER 7: PROMOTING SEAFOOD SALES

Despite its potency, sales promotion is often viewed by the small retailer with considerable skepticism, or at best as a strategy to boost sales when times are bad. This is indeed an unfortunate attitude, since a well-planned promotion program can contribute handsomely to store profits by increasing sales volume. Promotion is also a service to the customer, since it helps one to make buying decisions by providing useful information about products. In the long run, promotion tends to lower prices by helping to expand markets.

WHAT IS PROMOTION?

When taken in a broad sense, promotion means any activity designed and implemented for the purpose of increasing sales. Using this definition, it can easily be understood that promotion is something the retailer should view with favor. Promotional activities do not always require large outlays of dollars, although such outlays should be viewed not as costs, but as tax-free investments.

Running an in-store "special" is, therefore, a form of promotion if the objective of the special is to increase sales. Likewise, newspaper advertising is a form of promotion if the main objective is to increase sales.

All seafood retail firms, regardless of size, should have a promotion program, including a sales goal, and a plan to obtain that goal. A firm can expect some business without any promotional effort, but its financial interests may not be furthered, if it continues to operate without purposeful (planned) activity to increase sales. For the most part, the size of a promotion program depends on how ambitiously a firm sets its sales goal. If a market which averages $1,500 a week in sales with little or no promotional effort wishes to increase sales to $1,600, a minimum-cost promotional program will probably do the job. On the other hand, if the goal is to double sales volume to $3,000 per week, a substantial and aggressive promotional program is needed. Every retailer, large or small, should use promotional tools tailored to accomplish predetermined sales objectives.

THE TOOLS OF PROMOTION

According to our previous definition, any activity designed and implemented to increase sales can be considered promotional. Therefore, it can readily be seen that good in-shop business practices are included in the arena of promotion, since such practices contribute to the overall level of business. A clean, odorless shop; consistent high-quality products; rigorous sanitation policies; and adherence to business hours are part of and prerequisite to an effective promotional program. There are, however, some specific tools available to promote a firm's product assortment.

Promotion through personal selling - The person behind the counter is a key figure in a good sales promotion program. This person's attitude is all-important and can "make or break" a sale. Therefore, begin your promotion program by encouraging counter personnel to become good salespersons as well as good butchers. Customers should always be greeted in a warm, friendly manner to let them know that their business is appreciated. Service to the customer is of utmost importance in building good will and in securing repeat sales. Customer service should not be compromised by practices such as charging extra for dressing whole fish. Remember that the customer views the person behind the counter as being a seafood authority; what the counter salesperson does or says has a great bearing on purchasing decisions. If a customer looks over a seafood display hesitantly, ask "Have you seen our fresh flounder today?" This is a much better selling technique than "May I help you," and gives the customer more information than "What kind of fish would you like?" When a customer is uncertain, such a general question may turn the customer away (National Fisheries Institute, 1970).

After the customer decides on a seafood item, find out how many people are to be served and suggest the quantity needed, perhaps mentioning another item to complement the first choice. If whole fish are chosen from the counter display, offer to dress or fillet the
fish free of charge. If encouraged to accept your offer, customers may avoid an unpleasant experience at home that might turn them away from fresh seafoods completely.

The person behind the counter is the key figure to a good sales promotion program, since attitude can often make or break a sale.

At this point, you may be asked for serving suggestions or recipes. Be prepared to deliver them both verbally and in printed recipe form. Remember that if you make customers a success at the table, they will make you a success in your business.

The most desirable promotion is favorable "word-of-mouth" advertising, satisfied customers telling their friends and neighbors about your friendly market. The most important way, indeed the only way to accomplish this is with competent and friendly personnel who can meet the public pleasantly, maintain an attractively displayed product assortment, and service "their trade.

Promotion through collateral materials - Sales can be influenced positively by liberal use of tasteful literature and display materials. Literature and displays do cost money, but it is important that this "cost" be measured in terms of results rather than production charges. Many fine promotional materials, free of charge, can be obtained through various government agencies and fisheries trade associations. The following is a list of in-store collateral materials which the seafood retailer might wish to consider:

1. Freezer strips and shelf talkers. These materials are generally used to offer serving suggestions and to focus attention on a particular item. They may also provide information to shoppers on handling and preparing techniques. For example, one such display might read "Thaw Frozen Seafood Overnight in the Refrigerator." Freezer strips vary in dimensions, but generally are 4 x 24 inches. They customarily have a self-adhesive backing and are displayed horizontally on freezer and display cases. Shelf talkers are small square or rectangular signs that are attached to shelves and draw attention to products thereon. Talkers are most commonly used along supermarket aisles, but are equally appropriate for display on shelves in independent seafood shops.

2. Charts and posters. These items add color and interest to your market and often provide helpful information to consumers. A series of colorful species identification charts are available from the National Marine Fisheries Service.

3. Recipes. No retail seafood market should be without recipe materials. Generally, American consumers do not know how to prepare seafoods, and any help you can provide will make them better seafood users. In addition, a "recipe of the week" or featured recipe contributes to impulse sales. Recipe materials are available in many forms - brochures, cards, booklets, sheets, etc. - and many of these can be obtained free of charge. At the end of this chapter is a list of government and industry trade groups that supply recipes, as well as other display materials.
Providing good seafood recipes to customers will help make them better seafood users.

4. Window and store displays. An ad in the front display window is an effective way to attract the attention of potential customers. You may then wish to use posters, signs, or secondary displays that invite the shopper into your market. In-store displays are highly effective and widely used in supermarkets. The purpose is to draw attention to a particular item or product in plentiful supply. During a recent merchandising study conducted in Bryan, Texas, sales of fresh oysters were tripled simply by creating a makeshift display from which shoppers could readily pick up "jarred" oysters.

5. Business cards. This promotional tool is often overlooked. Nevertheless business cards can help sales when they are distributed to customers. Customers refer to them when placing phone orders and when recommending the shop to friends.

6. In-counter items. In terms of eye appeal, seafoods and ice alone leave much to be desired. It is important, therefore, that additional color and warm lighting be introduced to your product display. The more eye-appealing your display, the more sales it will generate.

Price markers - Essential to effective product merchandising, these signs should be easy to read, constructed of plastic, and designed so that prices can be changed readily. Such markers are available from butcher supply shops. It is important to keep markers clean and displayed in front of the product. Do not mount "spear type" markers in the flesh of the product. The puncture holes resulting from this practice promote bacterial growth and cause foul odors. Price markers can be mounted in real or artificial citrus in front of the product. Not only is this technique superior from a sanitation viewpoint, but the colorful fruit also makes your display more appealing.

Product labels - Proper identification of each item in your product assortment lets the customer know exactly what is being purchased. At the same time labels increase consumer knowledge and confidence about fresh seafoods. The most common method of identification is to place the name of the species directly on to the price marker. Differentiate fresh products from those thawed for display in the fresh seafood case by placing small paper signs which read "Fresh" directly on top of those species that have not been frozen. Such a practice builds consumer confidence and loyalty and emphasizes the desirability of fresh seafoods over frozen. Counter personnel should encourage shoppers to purchase fresh seafoods as soon as possible - rather than first freezing them - for maximum eating enjoyment.

Display "greens" - Your counter display should be garnished to provide color and eye-catching liveliness. Lemon slices and parsley are excellent complements for your product display, but other items work equally well. Plastic greenery strips can be used to divide various products as well as to add color and liveliness to your display.

Case borders - Case borders are adhesive strips approximately six to eight inches wide that affix to the top and/or bottom of the glass display window. Borders run the length of
the counter. Their primary function, like greens, is to add color and liveliness to your product display. However, they can also identify products. Lettering the product name on the case border, then displaying that particular product directly behind or below is very effective for identifying components of a product mix. Case borders placed along the bottom edge of the display window can also indicate depth and level of the ice bed inside the case.

Warm lighting - it is best to illuminate your seafood display with warm lighting as opposed to "cold" white fluorescent lighting. Warm lighting makes white fish flesh appear more appetizing. If using fluorescent fixtures, you should specify "deluxe cool white" when purchasing tubes.

7. Custom wrap and packaging. Promoting your shop's name in the "outside" world can make mental impressions that will contribute to your business in the long run. An easy, inexpensive way to circulate your firm's name is to use custom wrap and packaging. Little additional cost is involved between buying printed wrapping paper rather than plain paper. When your company name or trade mark is printed on shopping bags, the customer "carries" your company name or trade mark for others to see. Your company image is also reinforced when packages are unwrapped just prior to preparation.

8. Sack stuffers. Stuffers are placed in the shopping sack at check-out time. Recipe brochures are excellent sack stuffers but other information can also be distributed in this way. A soon-to-open shop, a new line of merchandise, or new business hours can be effectively announced with sack stuffers.

9. Mailers and leaflets. Direct mail advertising is an excellent way to reach potential customers. Distribution can be accomplished by U.S. postal service, by private postal service (not available in all communities) or by individuals hired to deliver your communications from door to door. With direct mail you can be highly selective in distribution. Although placing your message at a prospect's front door is more expensive than handing materials to customers over the counter, remember that only a small percentage of potential customers visit your shop regularly. Direct mail is similar to sack stuffers because it often announces a new business, a new merchandise line, or price specials. However, direct mail attempts to enlist new customers, whereas stuffers attempt to maintain the regulars.

10. Coupons and premiums. Price coupons can also effectively increase sales. Because they are "spent" like money (psychologically this is much more potent than a "reduced price special" that is available to anyone), price coupons are used principally to attract new customers. Therefore, price coupons should be distributed outside your premises to prospective customers. This is often accomplished by direct mail or through newspaper ads from which coupons are clipped. Perhaps the most effective price coupon does not specify any particular product, but does allow a face value reduction on a minimum purchase. For example, a coupon worth $0.50 on any purchase of five or more dollars. More often, price coupons encourage current and prospective customers to buy a specific product, in which case it basically becomes a sampling device. Price coupons can also aid the retailer in systematically obtaining names and address of customers, both new and old, who are responsive to coupon ads. This can be accomplished by requiring customers to write their name and address on the coupon at the time it is presented for redemption. The retailer then has an excellent list to which additional advertising may be directed.

In addition to price coupons, "premium coupons" are another strategy. Premium coupons date back as far as 1851 when Raleigh cigarettes were first packed with a coupon "good for
premums" as an inducement for purchasers to continue using Raleighs until they were "hooked." Unlike the price coupon, the premium coupon is available on the premises at the time of sale. After accumulating a predetermined number of coupons, the customer can then redeem them for certain premiums or perhaps a fixed amount of credit.

11. Uniforms. Properly uniformed personnel can help a retailer convey a consistent, quality image. For this reason, attempt to provide some type of uniform dress for employees. By paying for employees’ uniforms, the retailer will find it easier to control the overall cleanliness and appearance of his crew. A "uniform" may not include an entire set of clothes. Disposable utility "jackets" and personalized service caps can provide an impressive appearance at minimum cost. One firm discovered that by hand-lettering employees’ names on their caps, customers are inclined to be friendlier and to communicate more openly with service personnel on a first-name basis. This type of relationship builds good will, and "repeat" business.

All personnel should be provided with uniforms or other custom utility garments to help convey a clean, consistent, and high quality image.

12. Samples. One sure way to move a product is to give it away. This may not be as obvious as it sounds, since giving by one party requires "taking" by another. Unfortunately, many people who profess dislike for seafood, may actually love it. However, these people have never experienced good seafood that was properly prepared.

A sampling promotion can and should provide them with a pleasant experience. The sampling promotion may be high-keyed or low-keyed, involving neither additional help nor the hiring of a professional home economist. Remember that you are trying to introduce customers to a new product or recipe which eventually will be reflected on cash register receipts. In a recent merchandising study conducted at a Texas supermarket, fresh seafood sales reached a record high for a single day when the sampling technique was employed. In fact, the market sold out of fresh fish, despite having an unusually large reserve inventory in anticipation of increased sales.

PROMOTION THROUGH SPECIAL EVENTS

Promotional success can also be enhanced by "tying-in" to a special event or season. For example, an effort to promote "Oyster Stuffing" for turkey is more effective at Thanksgiving or Christmas than in May or June. Below is a list of tie-in opportunities for each season, followed by a more comprehensive list of months:

1. Spring (Lent) - An effective tie-in is a good supply of Lenten specials with hot vegetable items, french-fried potatoes or chips, salad fixings, lemons, tartar sauce and a variety of sherbets for dessert. Check on tying-in with promotional opportunities of other food product advertisers (the National Fisheries Institute, National Marine Fisheries Service, or various state agencies that promote seafood.)

2. Summer - Now is the time for crisp seafood salads that can be served as the main course. Include eggs, tomatoes, celery, green peppers, mayonnaise, lemons, chips and crackers, assorted rolls, chilled fruit, juices and iced lemonade. Watermelon or cantaloupe are dessert-pleasers. Many families move outside for summer meals, so tie-in your seafood display with relaxed cook-out supplies (paper plates, cups, napkins, charcoal), as well as with traditional ingredients for crisp green salads, corn for roasting and marshmallows and fresh fruits for dessert.
3. Fall - Now is the time for seafood appetizers and oyster stuffing. Tie-in with national "October is Fish and Shellfish Month" promotions; promote all species.

4. Winter - Hearty fish dinners are just the thing after cold winter sports. Include all the trimmings for fish soups and chowders, oyster dressing for holiday turkeys and seafood canapés for appetizer trays at gala festive parties. Feature shellfish of all kinds.

Not only can effective promotions vary during the four seasons, but in-store displays can also differ each month. The following is a month-to-month suggestion of possible in-store displays and a chart of popular seafoods that may be featured each month.

JANUARY

"Have a Down East Feast" - January is an excellent month to feature fish and clams as a money-saving food, because of Christmas bills experienced by most families. Emphasize the abundance of inexpensive seafoods that can help balance those budgets after Christmas. Post signs that emphasize fish in both fresh and frozen forms, perhaps including a couple of serving suggestions.

"The Fabulous Fish-Wich" - Display the many kinds of fish that can be used for lunches, in sandwiches, or as a quick "heat-up" when the kids come home for lunch. Stock frozen soups by the seafood display case, as well as tartar and cocktail sauces. January is also a good time to feature fish and shellfish as change-of-pace taste from poultry.

FEBRUARY

"A Fine Kettle of Fish - Bouillabaisse" - Bouillabaisse, the French fish soup, usually takes about six different kinds of seafood. Mimeograph copies of a simple recipe for this tasty dish and hang them over your frozen seafood case. Group all the seafood ingredients for the recipe together.

"Ah, So Delicious! Oriental Fish Fillets" - Promote frozen (or fresh) fillets and bottled teriyaki sauce. Use a sign to suggest canned oriental vegetables and fortune cookies as go-togethers. Since February can be a dreary, chilly month, suggestions for bright and cheerful dinners will be welcomed. Check magazines for color pictures of seafood dishes; open a magazine to a specific seafood recipe and hang it above your fresh or frozen seafood case. If possible, place a small rack with salable copies of the same magazine nearby.

MARCH

"Elegant Dinners with Fish" - Watch for pictures in newspapers and magazines of special and unusual fish dishes. Feature main dish, frozen fish packages with signs suggesting menu tie-ins.

"Fish 'n Chips" - March is an in-between month, not yet spring but not winter. Give it some zip with the fish 'n chip theme, which you can merchandise with paper British flags and decorations. Display a picture of an English scene from a magazine to use on the freezer case. Promote Fish 'n Chips packaged dinners in your freezer, as well as breaded clam strips, fish sticks and portions, and frozen French fries. Demonstrate the deliciousness of Fish 'n Chips. Use a small oven to warm crisp frozen potato products and breaded fish. Fish sandwiches for lunch are still a good secondary theme.

APRIL

"Maine Dishes" - Plan family meals with seafood main dishes - emphasize the New England historical appeal of fish and seafoods with promotional materials or pictures. Advertise some products on special as "Sea Captain's Specials" or "First Rate for the First Mate."

"Lenten Luscious." - For the Lenten period feature seafoods from around the world! Emphasize your stock of fresh and fresh-frozen fish. Advertise the tremendous variety of
seafoods that are available. Point out the freshness and spring-like quality of seafoods. Watch for color pictures of luncheon type menus featuring fresh seafood.

MAY

"Party Perfect" - Offer luncheon suggestions and party uses for canned, fresh and frozen seafoods. For graduation parties, school ribbons may be pinned on a dummy package or a graduate's hat.

"Salads of the Seven Seas" - Emphasize the abundance of fresh shellfish to suggest salads and salad plates. Post tie-in signs around the produce section; perhaps even place one by the salad dressings.

"Fresh as the Season" - Any point-of-sale materials that emphasizes the fresh-caught flavor of seafood is advantageous. Signs like "Fresh frozen for the best flavor" or "Freshest taste - just heat and serve" draw attention to frozen seafood dinners.

"Seafood Fun-Fare" - Now is the beginning of the salad season, when people serve their families and club groups a variety of combinations. Shrimp, salmon, lobster, and crab are just a few of the seafoods that people traditionally think of for seafood salads. For your part, suggest quick and easy seafood dishes and salads. Have recipe pads or a sample mimeographed sheet made up for Lobster Newburg, Creamed Whitefish, etc. Continue this practice all summer and suggest seafoods your customers may not usually buy.

JUNE

"Weightless Wonders" - Emphasize simple, low-calorie meals with other dietetic products. Display signs to suggest complete, low-calorie dinners with products from your store. Read magazines for simple recipes, hopefully with color pictures to post by your seafood cases.

Have a two-week special on all forms of one kind of fish. Salmon, for instance, with an umbrella theme "Salmon is Supreme." Feature frozen salmon steaks, canned salmon and any fresh salmon available. Use signs that suggest salmon salad; tell how to brol salmon steaks; that indicate what weight equals one portion; and that list cooking methods! Feature salmon recipes in your weekly ads. Of course, advertise your special too.

"Seafood Fanfare - Everybody Applauds Quick-Cooking Seafood Dinners" - Emphasize the TV-type dinners in your case. Signs can show their cooking time and advertise that they are a delicious change of taste from meat. Beef and chicken, probably eaten in quantity all winter, may be less attractive at this time. Suggest that seafood can slip into the family menu many different ways, and at less expense than many meat cuts.

JULY

"Cool Cooking with Seafood" - Continue to feature low-calorie and nutritional aspects of seafood. Advertise the convenience of fish salads, and seafoods that can be cooked on top of the stove. Mount pictures of cold seafood plates, and hang them by the seafood counter and in the produce case for tie-ins with lettuce and other fresh vegetables.

AUGUST

"Super Shellfish Suppers" - Promote the use of chilled lobster, crab, shrimp, etc. for cold plate suppers or in sandwiches for kid's lunches. Most important, however, is the "quick 'n easy" dinner angle, during a month when consumers prefer not to cook.

"Have a Fish Fly-in" - Convince customers that seafood can be an exciting and easy way to break from usual eating habits. Build a promotion around fresh fish, perhaps trout, that you will have flown in daily or regularly. Advertise the specialty in your local papers, including recipes in your ads. Have recipes available at sales counters if possible; obtain color photographs that depict different ways to prepare fish. Convenience and ease of preparation are important points to stress. This type of promotion, properly handled, can be very successful.
SEPTEMBER

"Captain's Choice" - Suggest hearty dinners, and tie-in convenience foods with quick
dish products. Frozen, breaded seafood products, frozen potatoes, and other vegetables can
be promoted together as "quick family dinners that are delicious."

"Short-Cut Specials" - Offer lunch suggestions for school children. Hot sandwiches
made of different kinds of fish portions, teamed with frozen French fried potatoes are good
suggestions. Introduce your customers to heartier seafood dinners and the wide variety of
fish and shellfish available. Much of the summer heat has subsided and consumers are
enjoying cooking again.

OCTOBER

"Harvest from the Deep" - Using themes of abundance, call attention to the tremendous
variety of seafoods available in your store. Each week you can feature a certain type of
preserved fish (i.e., frozen, canned, smoked or salted). Watch for local newspaper or
national magazine articles on seafood and post them by your counters. October is a month
when appetites call for homemade stews, chili, and soups. Take advantage of this thought
trend by featuring easy-to-serve breaded fish portions of different species.

NOVEMBER

"Hearty Holidays" - Feature the same products that you will emphasize at Christmas -
oysters for dressings, stew or frying, shrimp and crab for cocktails and hors d'oeuvres.
Suggest seafood as an alternative to poultry.

"Snowflake Specials" - Highlight several kinds of frozen fish, breaded and unbreaded.
Decorate your cases with paper snowflakes or other winter scenes. If possible, put a rack of
tartar sauce, as well as various seafood seasonings near the case.

"Pacific Harvest" - Feature fish and shellfish from Pacific waters. Dramatize the
origin of fresh and frozen species with pictures of fishermen and fishing vessels. Continue
suggesting hearty seafood meals adding the thought that frozen seafood dinners save time and
trouble during the holiday rush. Of course, fancy fish and shellfish fit nicely into
Thanksgiving menus.

DECEMBER

"Christmas Companions" - Suggest oysters for stews, dressings, and frying for holiday
breakfasts. Suggest shellfish cocktails for holiday dinner accompaniment. Promote!

"Hurry-Up Holiday Dinners" - Emphasize frozen seafood dinners and frozen portions.
Heat-and-serve fish dishes (such as fish sticks) can be suggested for nutritious meals that
any family member can cook (National Fisheries Institute, 1970).

PROMOTION THROUGH MEDIA ADVERTISING

Display advertising in local newspapers, together with "spot" commercials on TV and
radio, provide profit-making opportunities to reach the greatest number of potential cus-
tomers at a proportionately low cost. Many customers use newspaper ads as shopping lists; to
many readers an advertised "sale special" is news.

To ensure the best newspaper promotion, ads should be run in selected editions as
determined mutually by you and the newspaper's display advertising manager. Frequency of
radio and TV advertising will probably be determined by cost factors since this type of
advertising is usually more expensive than newspaper space. Special seafood seasons such as
Lent, or special promotions such as "Summer Festival of Seafoods," demand more ads each week
to match heightened consumer interest in seafoods and to tie-in with promotions by govern-
ment and seafood industry groups.
Effective seafood advertising, whether in a newspaper, on radio or on TV, should always include one or more of the following concepts:

1. **Sell your "Image" as a seafood expert.** Use words and pictures that promote images of succulent seafoods harvested by hearty seafarers. Never forget that seafoods are surrounded by the excitement, adventure and romance of the sea. This uniqueness of the sea is a good selling point to feature in ads.

2. **Sell "value" in terms of quality, flavor, wholesomeness and variety.** Since most of your customers are budget-conscious, remind them that a pound of fish fillets or scallop meat is a full pound of edible food with no bones, fat or waste.

3. **Use colorful words and phrases to describe seafoods.** These words should create mental images of fresh, savory seafood that excites the taste buds. Appealing descriptions might include:

   "Tasty, tender, 'n plump!"
   "Sea-licious - with true sea-flavor locked in!"
   "Succulent, fresh-caught flavor!"
   "Foods from foamy seas - with fathoms of flavor!"
   "Heat 'em, eat 'em - savory seafoods in seconds!"

4. **Sell seafood's nutritional value.** Fish is low in cholesterol and calories and high in protein and other valuable nutrients. These healthful benefits are especially appealing to weight watchers. A National Heart Institute meeting produced a consensus that fish should be included in the diet four times a week. Promotional materials, including "Seafood Is Health Food" and "Seafood for Good Health," are available from the National Fisheries Institute.

5. **Tie-in with other food promotions.** Nationally promoted, seasonal seafood campaigns offer timely vehicles on which ads can "ride." Ads in August, for example, should feature scallops to tie-in with "Scallop Festival Days."

6. **Always have easy-to-read and easy-to-understand advertisements.** Advertising copy should be simple, to the point, and believable. The following poem by Orville Reed illustrates this point:

   "Copy that lilts like the song of a bird,
   Or flows like a brook in the spring,
   Syntax that sings - a job to be heard -
   I've found may not sell a darn thing.

   But stuff that informs is simple and plain,
   That says what it says and then stops,
   Is often the reason that sales show the gain
   That pays for the fine-written fops."

   Writing copy is a highly developed skill, and for the most part should be left to the professionals.

**SOURCES OF PROMOTIONAL MATERIALS**

There are many organizations that periodically offer different types of seafood promotional materials to help boost sales. Utilize promotional materials and recipes supplied by such associations, but do not use so many displays that customers become confused. Develop friendly relations with sources of materials because these organizations can provide attractive literature, most of which is free. Listed below are some groups from which promotional materials may be secured (Hasselback, 1984):

- **Alaska Seafood Marketing Institute**
  526 Main St.
  Juneau, AK 99801

- **American Catfish Marketing Association**
  P.O. Box 1609
  Jackson, MS 32905
American Shrimp Processors Association
P.O. Box 50774
New Orleans, LA 70150

British Columbia Seafood Exporter Assoc.
100 West Pender St.
Room 400
Vancouver, B.C.
Canada

Cape Cod Seafood Council
30 Kildee Road
Harwichport, MA 02646

Catfish Farmers of America
P.O. Box 34
Jacksonville, MS 39205

Florida Department of Natural Resources
Bureau of Marketing & Extension Services
3900 Commonwealth Blvd., Suite 905
Tallahassee, FL 32303

Food Marketing Institute
1750 K Street, N.W.
Washington, D.C. 20006

Great Lakes Fisheries Development Foundation
P.O. Box 658
Grand Haven, MI 49417

Halibut Association of North America
911 Western Avenue
Seattle, WA 98104

Maine Sardine Council
P.O. Box 337
Brewer, ME 04412

Maryland State Seafood Marketing Authority
Dept. of Economic & Community Development
45 Calvert St.
Annapolis, MD 21401

Massachusetts Division of Marine Resources
100 Cambridge St.
Boston, MA 02139

Mid-Atlantic Fisheries Development Authority
2200 Somerville Road, Suite 600
Annapolis, MD 21401

National Fisheries Institute
Promotions Division
2000 M. Street, N.W., Suite 580
Washington, D.C. 20036

New Bedford Seafood Council
17 Hamilton St.
New Bedford, MA 02740

New England Fisheries Development Foundation
280 Northern Avenue
Boston, MA 02210

North Atlantic Seafood Association
1220 Huron Road
Cleveland, OH 44115

Oregon Dungeness Crab Commission
635 Capital St., #210
Salem, OR 97310

Ottawa Fisheries Food Centre
Department of Fisheries and Oceans
Ottawa, Ontario, Canada K1A0E6

Rhode Island Seafood Council
3 Robinson St.
Warwick, RI 02879

South Carolina Wildlife & Marine Resources Dept.
P.O. Box 12559
Charleston, SC 29412

Virginia Marine Products Commission
P.O. Box 1248
Newport News, VA 23601

West Coast Fisheries Development Foundation
812 S.W. Washington St., Suite 900
Portland, OR 97205

The Pacific Sea Grant Programs are also a useful source of information, materials, and assistance:

Alaska Sea Grant College Program
University of Alaska
590 University Avenue, #102
Fairbanks, AK 99770

California Sea Grant College Program, A-032
University of California
La Jolla, CA 92093

California Sea Grant Program
Institute for Marine & Coastal Studies
University of Southern California
University Park
Los Angeles, CA 90089

Hawaii Sea Grant College Program
University of Hawaii
100 Pope Road, Room 220
Honolulu, HI 96822

Oregon Sea Grant College Program
Administrative Services Building - A320
Oregon State University
Corvallis, OR 97331

Washington Sea Grant College Program
College of Ocean & Fishery Science
University of Washington, HG-30
3716 Brooklyn Avenue N.E.
Seattle, WA 98105

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This chapter focuses on how a retailer might design a merchandising area and work space to maximize total revenue and to minimize operating costs. Here you will find a variety of approaches to a retailer's concern about facility and equipment floor plan, product flow configuration from receiving dock to display case, lighting, and odor control. All these concepts and innovations can be applied to new or remodeled facilities, to supermarket fresh seafood display counters, and to traditional independent seafood markets.

EXISTING FACILITIES

Fresh seafood facilities vary greatly in size, configuration, types of services provided, and product assortment offered. The following examples depict a variety of retail fresh seafood facilities in operation in supermarkets, independent retail markets, and market combination businesses in the United States.

Supermarkets

Fresh seafood centers in supermarkets vary in size from small refrigerated cases to high volume operations that are virtually large enough to stand alone as independent seafood markets.

Some supermarkets have self-service counters for fresh seafood. These installations require that the product be placed in containers, over-wrapped, weighed, priced, and then placed inside the self-service case. The customer benefits by being able to personally select his purchase, while the firm benefits by being able to serve more customers with less personnel and reduced labor costs.
Independent Retail Market

The independent retail market typically provides a relatively limited product assortment of locally available species. It normally provides few complementary items and little promotional support to enhance its potency of assortment. This merchandising approach severely limits a merchant's market potential, and often inhibits his chances to make a handsome rather than marginal profit. The following illustrations show retail markets that have become very profitable as a result of: a) developing a high volume shrimp wholesale/retail service; b) expanding the product assortment to appeal to a wide customer market; and c) offering a wholesale/retail seafood market plus a fast food and gourmet department. In all these situations the merchant relied on more than the basic fresh seafood retail market to generate revenue.

Independent Seafood Market

a) Market with High Volume Shrimp Wholesale/Retail Service.

b) Market with Expanded Product Assortment.

c) Market with Fast Food and Gourmet Department.
Market Combination Business

In some situations, fresh seafood markets have been developed in conjunction with restaurants and short order establishments. The seafood market illustrated below retails fresh seafood over the counter. The restaurant facility prepares its menu selections by drawing from the fresh seafood market. This procedure ensures fresh products for the restaurant customer as well as for the market customer. Work duplication is avoided because seafood market personnel prepare the fresh product both for the kitchen and for retail customers. There is investment saving because the cold room, freezer compartment, and processing areas are shared.

![Seafood Market Design.](image)

![Restaurant Design.](image)

**FUNCTIONAL LAYOUT**

In a fresh seafood market, the arrangement of the various work components should maximize labor efficiency. This arrangement should minimize product flow conflicts that may arise as the fresh product proceeds from entry at the receiving docks to the final state of being wrapped at the consumer counter.

Functional layout refers to the planned or implemented arrangement of work components used to carry out a given task. A functional layout should determine logical work stations that will minimize handling procedures, thereby allowing seafood marketing personnel more time to directly serve the customer.

![Schematic layout of work components.](image)

**MODEL SUPERMARKET LAYOUT**

The optimum location for a supermarket seafood market seems to be at a corner. A corner location provides access from two aisle directions and allows stocking from the rear.

The market facility located at a corner is oriented for visual awareness from both aisles. This allows graphics to be displayed "marquee-style" and to be visible the length of both main aisles.

By extending the ceiling of the seafood market over the aisle, and lowering it to an eight-foot height, reflection problems from the general lighting of the supermarket are eliminated.

![Corner location for maximum access.](image)
Proper lighting is achieved by recessed down lighting over work stations in the processing area. This system places light on working surfaces where it is needed. Accent lighting for graphics is provided by wall washers and adjustable spots. The product is illuminated by the refrigerated case lights.

Surface areas not used for storage provide additional opportunities for secondary graphics such as advertising specials, customer services, etc.

Designing the work area so that the customer can see the merchant processing his seafood purchase is a desirable feature which most markets implement. This benefit is provided in the model plan on the right by the unique location of the work area. In this plan the merchant takes the product into the preparation area and faces the customer while processing the food.

In facility design, opportunities for customers to observe seafood processing should be encouraged. Consumers enjoy seeing "artists" at work since for most buyers seafood preparation is a unique experience. Customer observation will generate an attitude of "keep it clean" among personnel at the processing stations.

The graphics of the facility should be uniform, from wrapping paper to the printed advertisements used in the daily newspaper. The graphic image may focus on a theme or name such as "TODAY'S CATCH" in order to imply freshness and methods of obtaining the desired product.

Notice that with this model plan, wood planking is placed on the floor to remind the customer of "walking on a pier." The floor material is another attempt to relate the consumer to a marine environment. Support items such as recipes and handouts are encouraged to expand customer knowledge on seafood preparation. These items must be considered during the design stages, to determine where they belong and how they should be displayed.

Major Construction Materials and Equipment Used in Supermarket Model Study

Construction Materials

Ceiling:
Baked Enamel Metal Panels - 494 sq.ft.
Air Curtain - 20.1 ft.
Sprinkler System - 4 heads
Lights: Recessed Cans - 9
Fluorescent Wall Washer - 9

Walls:
Baked Enamel Metal Panels - 648 sq.ft.
Shelves: Stainless Steel - 15 l.f.
Plastic Clad - 21 l.f.
Stainless Steel Counter Top/Base - 8 l.f.

Floors:
Concrete - 5.5 c.y.
Wood Docking - 162 sq.ft.
Floor Drain - 1
Finished (Hardened w/Integral Topping) - 332 sq.ft.

Equipment

1 - 6' x 8' Walk-In Cooler
1 - 6' x 8' Walk-In Freezer
1 - Ice Machine - 1,300 lb./24 hour
2 - 8' Refrigerated Cases w/Solid Ends
1 - Wall Mounted Sanitizing Sprayer
1 - Heavy Duty Mobile Sprayer, 600 psi, 200 gpm
1 - 8' Stainless Steel Sink & Counter Unit
1 - Electronic Scale
1 - Meat Lug Dolly w/lug (300 lb. Capacity)

Coved Concrete Bases - 81 l.f.
Wall Hung Lavatory - 1

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MODEL INDEPENDENT RETAIL LAYOUT

Although any number of layouts can be devised for a retail business, there appears to be a strong preference among newer seafood retailers for floor plans in the shape of a rectangle. Typically the short dimensions, or the ends of the rectangle, comprise the front and back of the retail facility.

A minimum floor-space layout for a seafood specialty shop.

A major reason for the "narrow front" design is the high cost of "front footage" commanded by prime commercial real estate, particularly suburban shopping center locations which parallel major boulevards. A second factor is that a minimum number of corners in a structure mean less dollar outlay for construction.

The model floor plan presented here is typical of a frontage-type location in a shopping center. In formulating the model floor plan, a primary objective was to determine the minimum amount of floor space required for an efficient, full-service* seafood retail business. Escalating utility and lease rates make "minimum space planning" an important factor, and the prospective seafood retailer is well advised to carefully combine efficiency and compactness when planning a store layout. A retailer should be mindful also, that the per square foot monthly rent applies the same to the floor in the back closet as it does to the floor in front of the display case. It makes good sense, then, to allow as much floor space as possible for the productive selling area, generally about 2/3 of the total space. Despite the relatively small dimensions of the model floor plan, up to 400 retail customers a day could be serviced properly by four employees.

*Full-service refers to a retail product offering consisting of live, fresh, frozen, and canned seafoods; as well as cooked ready-to-eat seafood delicatessen items, and prepared seafood specialty goods (sauces, heat-and-eat gumbo, stuffed crabs, shrimp egg rolls, etc.)

Major Equipment List for a Minimum Floor-Space Full-Service Retail Seafood Specialty Shop

Preparation/Storage Area

Fixed Equipment:
Hi-Temp Walk-In Cooler, floorless, 8' x 10'
Lo-Temp Walk-In Freezer, (-10°F), 8' x 12'
Ice Maker, 1,000 lbs./24 hrs., flake Ice
Sink, triple, 14 ga. SS with counter, NSF

Heater, Water, 80 gallon, gas
Desk, receiving, wall mounted
Sink, SS mop

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Portable Equipment:
- Table, Boning, 4' x 2-1/2', NSF (2)
- Overwrap Machine, 3-roll console
- Scale, Provision, 100/lbs. x 4 oz.
- Fish Scaler, electric, hanging type
- Shelving, Dry Goods, metal, 48W x 85H x 24D (2)
- Dunnage Rack, Freezer, 30W x 48L x 12H (2)
- Shelving, Frozen Goods, GS 4-tier 48L x 24D (2)
- Chill tank (Ice bin), fiberglass, 42W x 48L x 34H
- Runner-Type Lug Cart, 60 lug, NSF
- Shelf-type Cart, 8 shelf, NSF
- Lug Dolly, 2-lug, NSF
- Shovel, Ice, SS, NSF

Optional Equipment:
- Chicken Dolly, with handle
- Air Curtain, Freezer Door
- Air Curtain, Rear Door
- HI-Pressure Sanitizer
- Time Clock

Selling Area

Fixed Equipment:
- Display Case, refrigerated, 12'
- Display Case, refrigerated, 8'
- Self-service Display Freezer, 12'
- Fish Sink, 96", 2 station, NSF
- Utility Sink, 24" x 24", SS NSF

Optional Equipment:
- Lobster Tank
- Retractable Hose Reel and Spray
- Steamer, commercial
- Floor Safe
- Take-A-Turn
- Printer for 1 Scale
- 2nd Electronic Scale
- 2nd Self-Service Display Freezer, coffin type, 12'
- Ice Maker, Cuber 200 lbs./24 hrs.
- 5 h.p. Waste Disposer
- Microwave Oven, 24"

PORTABLE EQUIPMENT:
- Lug Dolly, 2-lug, NSF
- Scale, Electronic
- Cash Register, Electronic
- Paper Cutter, 16" (2)
- Duplex Refer/Freezer, 36"
- Preparation Table, 4' x 2 1/2', NSF
- Deep Fat Fryer, 2-basket, commercial
- Range, 30", NSF, commercial
- Display Refrigerator

ATMOSPHERE RECOMMENDATIONS

Graphics

The primary emphasis of the seafood market is on retailing fresh seafood. Store graphics must reinforce this emphasis.

Graphics used by a seafood market should be clearly visible long before the product itself is visible to the customer. The initial graphic should be visually appealing. It should stimulate thinking or create questions in the mind of the customer.

When the shopper gets close enough to the seafood department to identify it separately from adjacent departments, the initial graphic loses its impact and a secondary set of graphics becomes important. This set of graphics should impart specific information about the seafood department:

Advertised specials
- Customer services offered
- Hours open for service
- Product support information

Graphics should emphasize fresh seafood.
By now the consumer has had a chance to think about fresh seafood and to develop a desire for it. The consumer stands in front of the display counter and focuses primarily on the product displayed in the case.

Techniques used to reinforce a total graphics image could include:

- Card hangers placed on aisle shelves in other food sections to remind the shopper of the fresh seafood market.

- Seafood wrapping paper and containers coordinated with the overall graphic scheme.

- Distinctive wearing apparel for employees operating the seafood market.

**Lighting**

Reflection problems can be avoided by analyzing carefully light source, quantity, and type. In most cases reflection is caused by improper positioning of general illumination.

To overcome this problem, a baffle may be installed to block the path of problem lights. In new stores, the use of canopies or extended low ceilings with controlled downlights has been proven effective in eliminating glare and reflection.

Controlled downlights illuminate suggested customer traffic patterns. Refrigerated case lights not only highlight the product, but also focus customer attention on the seafood in the display case. "Deluxe cool white" light, rather than other colors, tends to give displayed product the best color enhancement. Other colors tend to "washout" the natural color of the product.

Lighting systems, properly designed for merchandising, contribute greatly to product attractiveness, and direct the consumer's attention to specific areas.

**Air Handling**

Two methods of air handling have proven effective in the removal of undesirable odors:

- Exhausts at the line of the case in the ceiling above refrigerated counter.

- An air curtain located at the line above the refrigerated counter.

Other locations, such as the rear ceiling of the work area, have been employed for exhaust outlets. From the viewpoint of sanitation, however, that location is not desirable. An air curtain has the added advantage of maintaining a lower temperature on the processing side of the seafood market.
Exhaust in market area.

Exhaust above refrigerator door.

Air curtain for control.
CHAPTER 9: REGULATIONS AFFECTING THE SEAFOOD INDUSTRY

In starting a seafood business, the retailer is faced with numerous federal, state and local laws, along with various fees and licenses. Therefore, the retailer should become familiar with all applicable regulations. Before opening the doors for business, the retailer must have: 1) Met minimum federal sanitation and safety standards that concern the handling of human food; 2) Secured the proper state and local license or licenses, and 3) Compiled with regulations relating to length or size of certain seafood species.

GOOD MANUFACTURING PRACTICE

General and specific federal laws concerning seafoods are found in regulations issued under sections of the Federal Food, Drug, and Cosmetic Act. These regulations are included in Title 21 - Food and Drugs, of the Code of Federal Regulations (21 CFR) (Landon, 1984). Part 110 of 21 CFR includes regulations that cover "Current good manufacturing practice in manufacturing, processing, packing, or holding human food," and relate to general food sanitation. Part 110 contains the following sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>110.1</td>
<td>Sanitary operations</td>
</tr>
<tr>
<td>110.3</td>
<td>Equipment and procedures</td>
</tr>
<tr>
<td>110.10</td>
<td>Processes and control</td>
</tr>
<tr>
<td>110.19</td>
<td>Natural or unavoidable defects</td>
</tr>
<tr>
<td>110.20</td>
<td>In food for human use that present no health hazard.</td>
</tr>
<tr>
<td>110.35</td>
<td>Sanitary facilities and controls</td>
</tr>
</tbody>
</table>

Section 110.3 defines the terms "adequate," "plant," and "sanitize," and Sections 110.10-110.99 specify facilities, methods, practices, and controls that assure food for human consumption is safe and has been prepared, packed and held under sanitary conditions.

Additional specific "Good Manufacturing Practice" regulations have been written for smoked and smoke-flavored fish (Part 122) and frozen raw breaded shrimp (Part 123).

SEAFood LABELING

Seafood labeling regulations are included in Parts 101, 102, and 161 of 21 CFR. Part 101, Food Labeling, specifies general labeling requirements for food products. Part 161 of 21 CFR specifies standards of identity for standardized fish and shellfish, and includes the following sections:

<table>
<thead>
<tr>
<th>Section</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>161.130</td>
<td>Extra small Pacific oysters</td>
</tr>
<tr>
<td>161.131</td>
<td>Canned oysters</td>
</tr>
<tr>
<td>161.132</td>
<td>Canned Pacific salmon</td>
</tr>
<tr>
<td>161.133</td>
<td>Canned wet pack shrimp in transparent or nontransparent containers</td>
</tr>
<tr>
<td>161.134</td>
<td>Frozen raw breaded shrimp</td>
</tr>
<tr>
<td>161.135</td>
<td>Frozen raw lightly breaded shrimp</td>
</tr>
<tr>
<td>161.136</td>
<td>Canned tuna</td>
</tr>
</tbody>
</table>
Part 102, Common or Usual Name for Nonstandardized Foods, specifies acceptable common names for some food products, and includes the following sections on seafood:

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>102.45</td>
<td>Fish sticks or portions made from minced fish</td>
<td>102.50</td>
<td>Crabmeat</td>
</tr>
<tr>
<td>102.46</td>
<td>Pacific whiting</td>
<td>102.54</td>
<td>Seafood cocktails</td>
</tr>
<tr>
<td>102.47</td>
<td>Bonito</td>
<td>102.55</td>
<td>Nonstandardized breaded</td>
</tr>
<tr>
<td>102.49</td>
<td>Fried clams made from minced clams</td>
<td>102.57</td>
<td>Greenland turbot</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(Reinhardtius hippoglossoides)</td>
</tr>
</tbody>
</table>

SEAFOOD INSPECTION AND CERTIFICATION

U.S. Department of Commerce regulations on seafood inspection and certification are included in Part 260 of Title 50 of the Code of Federal Regulations (50 CFR). These regulations cover the National Marine Fisheries Service Inspection service, sampling methods, fees and charges, and sanitation requirements for seafood plants operating under continuous inspection (Fayson, 1983).

SEAFOOD GRADE STANDARDS

Standards for grades of fishery products, established by the National Marine Fisheries Service, are included in Parts 261-266 of 50 CFR, and cover the following seafood products:

Part 261: U.S. Standards for grades of whole or dressed fish.
- Whole or dressed fish
- Frozen headless dressed whiting

Part 262: U.S. Standards for grades of fish steaks.
- Frozen halibut steaks
- Frozen salmon steaks

Part 263: U.S. Standards for grades of fish fillets.
- Fish fillets
- Cod fillets
- Flounder and sole fillets
- Haddock fillets
- Ocean perch and Pacific ocean perch

Part 264: U.S. Standards for grades of frozen fish blocks and products made therefrom.
- Frozen fish blocks
- Frozen minced fish blocks
- Frozen raw fish portions
- Frozen raw breaded fish sticks
- Frozen raw breaded fish portions
- Frozen fried fish sticks
- Frozen fried fish portions

Part 265: U.S. Standards for grades of crustacean shellfish products.
- Shrimp
- Frozen raw breaded shrimp

Part 266: U.S. Standards for grades of molluscan shellfish.
- Frozen raw scallops
- Frozen raw breaded scallops and frozen fried scallops

The regulations presented here do not include all laws that confront the seafood retailer. Check with local, county, city, and state authorities, since there are probably additional ordinances to comply with before opening a retail seafood business.

Federal laws that concern wholesaling and retailing of seafoods can be found in the Code of Federal Regulations at public libraries, and in U.S. Government book stores. Copies may also be obtained by writing to the Food and Drug Administration or to the Department of Commerce, National Marine Fisheries Service, Washington, D.C. Copies of state and local regulations can be located by contacting the appropriate state or local agencies.
A good seafood retailer is always aware of how well the business is functioning. A retailer normally has a dollar or profit goal in mind, and knows how closely this objective is being met. The businessperson realizes that, to evaluate the performance of the business, adequate and up-to-date records must be maintained. From these records, financial statements and selected performance ratios are prepared to compare current business activities with past results, and to judge budgeted performance goals.

The purpose of this chapter is to provide an introductory exposure to the benefits of establishing and maintaining efficient records. No attempt is made to investigate the details of accounting and financial procedures. These matters should be directed to qualified personnel (certified public accountants or financial consultants).

Two financial statements are essential to all business firms. The Profit and Loss (P and L) Statement indicates how much money was collected and how much was paid during a time period. A Balance Sheet indicates the items in which money is invested (your money and your creditors’ money) and the source of this money.

In addition to these two basic financial statements, performance ratios should be used to help compare the business to other firms in the same product-industry category. Current Ratio, Inventory Turnover Ratio, Profit Ratio, Investment Ratio and Return-on-Investment Ratio are basic performance tools that can significantly aid the seafood retailer in evaluating business performance.

THE PROFIT AND LOSS STATEMENT

The firm's profit for a given time period is determined by subtracting from net sales (total sales less returns and allowances) the cost of merchandise sold (cost of goods sold). The resulting figure is called gross profit (profit before deducting all operating costs). When operating costs are subtracted from gross profit, the remainder is net profit before income taxes. Once business income taxes have been computed and subtracted from net profits, the balance reflects profits after taxes for the firm. A simplified profit and loss statement might read as follows:

\[
\begin{align*}
\text{Gross sales} & \quad \$150,000 \\
\text{Less: Sales returns and allowances} & \quad (3,000) \\
\text{Net Sales} & \quad 147,000 \\
\text{Less: Cost of goods sold} & \quad (81,000) \\
\text{Gross Profit} & \quad 66,000 \\
\text{Less: Operating expenses} & \quad (15,000) \\
\text{Net profit before taxes} & \quad 51,000 \\
\text{Less: Income taxes} & \quad (6,000) \\
\text{Net Profit} & \quad \$45,000 
\end{align*}
\]

COST OF GOODS SOLD

The simplest way to compute "cost of goods sold" is to record every item sold (using sales tickets), and then to "cost out" each ticket by determining from the purchase records the cost of each item. In firms where several hundred transactions take place, this process may be simple in concept but tedious to perform. Since the cost of some goods fluctuates frequently, it is often impossible to determine the exact cost of the item sold; there may be several of the same item in stock, that were purchased previously at a lower or higher price.

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Given these difficulties, the "cost of goods sold" section of the profit and loss statement is designed to accommodate mass selling practices. A typical section would appear as follows:

Beginning Inventory at cost  
(at onset of time period; e.g., January 1)  $ 900

Add: Purchases at cost  
(during beginning and ending time period:  
(e.g., January 1 - January 31)  8,100

Cost of goods available for sale  9,000

Less ending inventory  (1,500)

Cost of goods sold  $7,500

An additional problem is determining the inventory cost when purchases are frequent, and when prices fluctuate during the accounting time frame (e.g. Jan. 1 - Jan. 31). The retailer should incorporate into his business an accounting system which reflects a policy where fish are sold on a "first-in-first-out" basis to insure product quality and freshness. The following paragraphs illustrate how the "cost of goods sold" section reflects this policy in a firm's accounting system.

The "cost of goods sold" section for a specified period consists of cost for the first seafood purchased, thus leaving the cost for the last seafood purchased still in inventory. To illustrate the "FIFO" (first-in-first-out) method of accounting, assume the data shown below (Meigs et al., 1970).

<table>
<thead>
<tr>
<th>Description</th>
<th>No. of Pounds</th>
<th>Avg. Cost per pound</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beginning Inventory</td>
<td>100</td>
<td>$.80</td>
<td>$ 80</td>
</tr>
<tr>
<td>First Purchase (Jan. 1)</td>
<td>50</td>
<td>.90</td>
<td>45</td>
</tr>
<tr>
<td>Second Purchase (Jan. 2)</td>
<td>50</td>
<td>1.00</td>
<td>50</td>
</tr>
<tr>
<td>Third Purchase (Jan. 18)</td>
<td>50</td>
<td>1.20</td>
<td>60</td>
</tr>
<tr>
<td>Fourth Purchase (Jan. 24)</td>
<td>50</td>
<td>1.30</td>
<td>65</td>
</tr>
<tr>
<td>Goods Available for Sale</td>
<td>300</td>
<td></td>
<td>$300</td>
</tr>
<tr>
<td>Pounds Sold</td>
<td>-180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pounds in Ending Inventory</td>
<td>120</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

"Goods available for sale" consists of beginning inventory plus additional purchases made during the period. Sales are from the oldest stock, and final inventory consists of the most recently acquired stock, as follows:

- Five pounds from Jan. 25 at $1.30  $65
- Five pounds from Jan. 15 at $1.20  60
- Two pounds from Jan. 8 at $1.00    20

Ending Inventory (based on FIFO)  $145

Cost of goods sold is then determined by:

- Cost of goods available for sale  $300
- Less: Ending Inventory  (145)

Cost of goods sold (based on FIFO)  $155

A simple accounting system may consist of accounts for purchases, inventory, and receipts. A spoilage account could also be established in which the purchases account is credited for the amount of spoilage and the spoilage account is debited for the same amount. In this way the manager will know how much seafood is lost due to spoilage.
Amount of purchases is determined from invoices received. Receipts from sales of
to determine from daily cash register totals. A simple income statement might
look like this:

Revenue or sales
Less: Cost of goods sold:
  Beginning Inventory (at cost) 350
  Plus: Purchases 2,600
  Equals: Goods available for sale 2,950
  Less: Ending inventory 320
  Equals: Cost of goods sold (2,630)
Equals: Gross profit 1,870
Less: Operating Expenses (930)
Equals: Profit $ 940

To determine net profit, operating expenses such as employee wages, insurance, heating
and lighting, advertising, etc. should be deducted. These expenses vary according to size
of business operation and size of town or city in which the store is located.

BALANCE SHEET

The balance sheet indicates where the firm invests its money and to whom it is liable
for use of this money. Money invested in particular business items that maintain the firm
are assets. Cash, accounts receivables, and inventory are typical examples of Current
Assets; these items are relatively "liquid" and can be converted into cash in 30-60 days.
Building, equipment and land are Fixed Assets that can be converted into cash, but may take
considerable time to be negotiated for sale. For example, assets generate revenue for the
firm to buy inventory, pay employees, buy and operate delivery equipment. Assets are
accumulated from the retailer's own savings and from previous business profits. Assets also
may be accumulated by borrowing. Accounts Payable to suppliers is one type of borrowing; on
a short-term basis. These suppliers "lend" money for 10-30-60 days, and the retailer may
"use" this money for business before it has to be repaid. Notes Payable reflects long-term
borrowing. Both categories, Accounts and Notes Payable, are liabilities incurred by the
firm to lenders. Equity or Capital Invested is also a type of liability since the firm
"owes" the retailer the amount contributed. Thus, the worth of the business is assets minus
liabilities and personal capital invested (by retailer, partners or stockholders). Subtracting liabilities from assets yields Net Worth, and the excess of net worth over capital
is Earned Surplus. A typical balance sheet might look like the following.

Balance Sheet: January 31

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Assets:</strong></td>
<td><strong>Current liabilities:</strong></td>
</tr>
<tr>
<td>Cash</td>
<td>Accounts payable</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td>Notes payable to bank</td>
</tr>
<tr>
<td>Inventory</td>
<td>Owner's Equity</td>
</tr>
<tr>
<td><strong>Fixed Assets:</strong></td>
<td><strong>TOTAL</strong></td>
</tr>
<tr>
<td>Equipment</td>
<td>$300</td>
</tr>
<tr>
<td>Less depreciation (100)</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td></td>
</tr>
</tbody>
</table>
PERFORMANCE RATIOS

Good accounting records are the foundation on which sound financial management is based, and the two most important accounting statements are the balance sheet and the income or "profit and loss" statement. However, these two records only begin to explain the financial condition of a business. A number of indicators reveal relationships between some figures on the balance sheet and the profit and loss statement. The first objective of financial management, "liquidity" may be defined simply as the ability to pay bills. "Current ratio" is one of the best known indicators of liquidity. This ratio is computed from the balance sheet by dividing current assets by current liabilities:

\[
\frac{\text{Current Assets}}{\text{Current Liabilities}} = \frac{200}{100} = 2
\]

Is this an acceptable current ratio? This question cannot be answered with a definite yes or no. A popular rule of thumb for the current ratio is two to one, but whether a specific ratio is satisfactory depends upon the nature of the business and the characteristics of its current assets and liabilities. If a retailer decides the current ratio is too low, the ratio can possibly be raised by paying some debts or by increasing current assets (Zwick, 1965).

Since profit in a retail seafood business is greatly affected by inventory turnover, computation of the turnover rate is also an important liquidity ratio. Inventory turnover, which indicates the velocity with which merchandise moves through the business, is determined by either of two formulas:

\[
\frac{\text{Costs of Goods Sold}}{\text{Average Inventory At Cost}} = \text{Inventory Turnover}
\]

\[
\frac{\text{Sales}}{\text{Average Inventory At Retail}} = \text{Inventory Turnover}
\]

To determine average inventory for the period, add beginning and ending inventories and divide this figure by two. A high turnover suggests that business is operating with relatively small investment in inventory, or that inventories are not on display too long. Inventory turnover records for individual items or groups of items show which items sell well. Reorder fast-moving items quickly and dispose of slow-moving items before they become unsalable.

The second major objective of financial management is answering the question, "Does your business earn as much profit as it should, considering the amount of money invested?" The rate of return on investment (ROI), probably the most useful profitability measure for the small business owner, is based on two other ratios - "profit ratio" and "investment turnover." Profit ratio measures the difference between the amount your business earns and the amount it spends for business operations. Thus, changes in the ratio depend on operating costs and pricing policies. For example, net profit on sales (profit ratio) is computed as follows:

\[
\frac{\text{Net Profit}}{\text{Net Sales}} = \frac{20,000}{300,000} = 6.7\% \text{ net profit}
\]

This means that for every dollar of sales, this business makes a profit of 6.7 cents. This ratio is most useful when comparing your figures with those of comparable businesses.

Investment turnover, the ratio of annual net sales to total investment, measures the volume of sales you receive for each dollar invested in assets. Investment turnover is computed as follows:

\[
\frac{\text{Net Sales}}{\text{Total Assets}} = \frac{300,000}{230,000} = 1.3 \text{ times}
\]

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Now, return on investment can be determined by multiplying the profit by the investment turnover:

\[
\frac{\text{Net Profit}}{\text{Net Sales}} \times \frac{\text{Net Sales}}{\text{Total Assets}} = \frac{\text{Net Profit}}{\text{Total Assets}} = \text{Return on Investment}
\]

Usage varies in regard to which items from financial statements are used for "profit" and "investment." For example, "profit" may refer to net operating profit, net profit before taxes, or net profit after taxes. "Investments" can mean total assets or simply equity. Decide which values you will use in computing return on investment, then be consistent (Zwick, 1965).

**BUSINESS RECORDS**

Size, organization type, kind of business and other factors largely govern the records needed and the complexity of the records system. Every business needs seven basic kinds of records. In order to help you remember these, below is an anagram which spells RECORDS, and which lists the seven basic records.

- **Records of cash receipt** with provisions that segregate receipts from sources other than income (e.g., bank loans).
- **Expenditure records** that designate the nature of the expenditure (e.g., materials and labor expense) and the payment method (check or cash).
- **Control of payroll expenditures** that show names, social security numbers, time of payment, gross pay, payroll deductions, and taxes.
- **On account or accounts receivable records** that show customers' accounts and your experience with them.
- **Resources and accounts payable** that show your experience with suppliers (e.g., cash discounts and dates).
- **Documentation file** for the orderly accumulation of documentary evidence (Invoices, stubs, etc.) that supports other records.
- **Summarization** in order to condense transactions already basically recorded, and to provide a permanent, intelligible history of the business. A general ledger contains the beginning values of assets, liabilities and capital. It also summarizes the results of operations for any given period (week, month, quarter, year), and it provides a "running" record of assets, liabilities, and capital at any given moment. A summary also establishes accountability to employees or to departments for funds or other assets entrusted to their care (SBA, 1964).

The need for accurate record-keeping cannot be stressed too strongly. Any accounting system, simple or complex, is useless without a sound basis for accumulating information. The retailer should seek the services of a professional accountant to set up an adequate accounting system. A financial analyst can assist by interpreting the operations' performance as reflected in the Profit and Loss Statement, Balance Sheet, and by selected Performance Ratios. These professionals detect "soft spots" in business activities, and suggest ways to improve the firm's profitability.

**COMPUTER SOFTWARE**

Training manuals and computer software to assist retailers in determining gross profit, preparing income statements, taking inventory, making merchandising decisions, and calculating the cost of cash and check transactions are available from retail food store associations (Food Marketing Institute, 1983; Food Marketing Institute, 1985).
CHAPTER 11: FINANCING - MAKING MONEY WORK FOR YOU

The ability to obtain needed money is as necessary to the operation of a business as a good location, the right equipment, reliable sources of supply, and well-trained personnel. Before a bank will lend money, the finance officer must be satisfied by answers to the following questions:

What sort of person are you? The character of the borrower comes first, followed by his ability to manage the business.

What will you do with the money? This answer determines the type of loan, short or long-term. Money used for the purchase of seasonal inventory will require quicker repayment than money to buy fixed assets.

When and how do you plan to repay? The banker's judgment of your business ability and the type of loan will be deciding factors in answering this question.

Is the "cushion" in the loan large enough? In other words, does the amount requested allow for unexpected developments? The banker resolves this question on the basis of your projected financial statements.

What is the general outlook for the business community and for your particular type of business?

After deciding to borrow money, the retailer and a banker must decide what financing is needed: short-term loan, long-term loan or equity capital.

SHORT-TERM LOANS

Short term loans usually finance a need that does not exceed one year, such as building a seasonal inventory during a five or six month period. Short-term loans, and some long-term loans, may be "secured" or "unsecured." The former loan involves a pledge of your assets as protection; the latter relies solely upon your credit reputation.

LONG-TERM LOANS

Long-term loans involve money borrowed over an extended period of time in order to finance fixed assets such as equipment and fixtures. These types of loans are paid back in periodic installments from earnings.

EQUITY CAPITAL

Equity is the owner's investment plus profits that accumulate in the business. Money invested as equity in the business is not repaid; instead, the owner has invested money, or has acquired capital by selling a part interest in the business to someone else.

A retailer wishing to open a new seafood establishment would probably be required to contribute about 50 percent of the total investment in the form of equity, and to borrow the remaining 50 percent as a long-term loan to purchase initial land, buildings, equipment, etc. If the need arises, short-term loans may be obtained later to finance seasonal inventories.

MONTHLY PROJECT STATEMENTS

Before a banker transacts a major loan, the "would-be" retailer must provide a detailed monthly projection of expected financial requirements for a period of time, not more than two years in length. This projection is developed by combining budgeted expenses with a sales forecast, from which a cash-flow forecast is developed. The cash-flow forecast estimates cash receipts and disbursements during the budget period and represents a plan to meet
working capital requirements (SBA, 1971). This forecast information is based on previous business experience plus anticipated performance during the coming year. An estimated Profit and Loss Statement can also be prepared from this information. The banker uses these projected statements, along with balance sheets and subjective judgment of the borrower's ability and credibility, to decide whether or not to grant the loan. If the loan cannot be justified by the borrower's financial statements, a pledge of security may be required. Pledges of security can be of several types:

**Endorsers, co-signers or guarantors** - The borrower has other people sign the note too. These endorsers, co-signers and guarantors are contingently liable for the note.

**Real estate** - The borrower signs over real estate as collateral for long-term loans.

**Savings accounts** - The borrower may assign to the bank a savings account to which the bank keeps the passbook.

**Life insurance policies** - Banks will also accept life insurance as collateral for a loan. They will lend as much as the cash value of a life insurance policy.

**Stocks and bonds** - If the borrower offers stocks and bonds as collateral, they must be marketable. Banks usually lend no more than 75% of the market value for high grade stock. For federal or municipal bonds, banks may be willing to lend 90% or more of the market value (SBA, 1971).

**BREAK-EVEN ANALYSIS**

Bankers often want to know what sales level is required before the borrower expects to earn a profit. The break-even technique is a good tool for analyzing the effect on profits of different costs, operating volumes, pricing methods and other management policies. The "break-even point" is reached when sales revenues just equal costs, with no profit or loss.

Two major classifications of costs are fixed-categories and variable costs. Fixed costs do not change with fluctuations in the level of business activity (e.g., property insurance or property taxes). Variable costs, on the other hand, vary directly with the volume of business activity and include expenses such as cost of goods sold. Once all costs are categorized as fixed or variable, the break-even point in pounds of fish can be found by using this formula:

\[
\text{Break-even volume (in pounds of fish)} = \frac{\text{Total fixed costs}}{\text{(Selling price/ib.)} - \text{(Variable cost/ib.)}}
\]

This formula can be used to find the break-even point by assuming one fish product. Total fixed costs for a fish retailer exclude only what is paid for the fish (cost of goods sold). Included in total fixed costs, on a monthly basis, are items such as rent, salaries and wages (including owner's salary), insurance, heat, light and electricity. Costs of goods sold (what the retailer pays for the fish wholesale) are variable costs. For example, suppose the XYZ Company figures the costs for one variety of rockfish as follows:

- **Total fixed costs** = $300.00
- **Variable cost** = $1.50 per pound
- **(Cost of goods sold)** $3.00 per pound

This computation means that $1.50 per-pound-sold applies toward fixed costs. Since fixed costs are $300, the retailer must sell 200 pounds of rockfish before any profit is realized. Once fixed costs are recovered, the $1.50 per pound sold will be profit. By applying the correct formula, the derived break-even point in pounds is:

\[
\text{Break-even volume} = \frac{\text{Total fixed costs}}{\text{(Selling price/ib.)} - \text{(Variable cost/ib.)}} = \frac{\$300}{\$3.00 - $1.50} = \frac{\$300}{$1.50} = 200 \text{ pounds}
\]

75
To determine a dollar break-even point, multiply the break-even volume in pounds by the selling price per pound. The retailer must sell 200 pounds of rockfish at $1.50 per pound for total sales of $300 in order to cover costs.

Of course, a seafood retailer sells more than one seafood variety. By applying a "weighted average" to the above formula a more realistic break-even point is obtained. The weights (percentages) are based on previous sales records and purchases. Assume that the retailer calculates from previous records that 60% of his sales are from rockfish and 40% from sole. The selling price and cost of the two species are as follows:

<table>
<thead>
<tr>
<th>Selling Price Per Pound</th>
<th>Cost Per Pound</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rockfish</td>
<td>$3.00</td>
</tr>
<tr>
<td>Sole</td>
<td>$2.75</td>
</tr>
<tr>
<td></td>
<td>$1.50</td>
</tr>
<tr>
<td></td>
<td>$1.30</td>
</tr>
</tbody>
</table>

By applying weighted averages to the original formula, the break-even point becomes:

\[
\text{Break-even volume} = \frac{300}{.6(3.00 - 1.50) + .4(2.75 - 1.30)} = \frac{300}{.90 + .58} = 214 \text{ pounds}
\]

The weights must now be applied to the total number of pounds to determine how many pounds of each species must be sold:

\[
\begin{align*}
214 \text{ pounds} \times .60 &= 128 \text{ pounds of rockfish} \\
214 \text{ pounds} \times .40 &= 86 \text{ pounds of sole}
\end{align*}
\]

Thus, by applying weighted averages, the retailer can determine break-even points for each seafood variety. Note that changes in fixed costs, selling price, or variable costs result in a changing break-even point. For example, reduced variable costs will lower the break-even point, because more profit per unit is obtained from each sale. Similarly, if the retailer must pay more for seafood products (variable costs rise), the break-even volume point will be higher. In this case, either an increased selling price, or an increased sales volume at the original price will be necessary to cover the fixed costs.

THE SMALL BUSINESS ADMINISTRATION

Even with projected financial statements and break-even analysis, the banker may consider the loan too risky to authorize without additional guarantees. If the venture appears to have merit, the banker may suggest that the Small Business Administration consider the loan. By law, SBA cannot consider a loan application unless there is evidence that the loan cannot be obtained elsewhere on reasonable terms.

To be eligible for an SBA loan, a firm must qualify as a small business, i.e., the operation must: 1) Be independently owned and operated; 2) Not be dominant in its business field; and 3) Meet certain size standards in terms of employment or annual receipts. The loan applicant must also meet the following general credit requirements (notice that several of these criteria are required for conventional bank loans):

1. The applicant must be of good character.
2. Evidence must show that the applicant is able to operate the business successfully.
3. The applicant must have enough capital when combined with the SBA loan, to operate on a sound financial basis.
4. The past record and future prospects of the business must indicate an ability to repay the loan from the business income (Zwick, 1965).

If the bank is willing to supply part of the needed funds, SBA may advance the remaining money or may guarantee part of the loan made by bank participation loans. SBA can provide or guarantee as much as 90% of the bank loan.

If the bank cannot participate with SBA to extend credit, the borrower may apply for a "direct" loan financed wholly by SBA. Under law, however, SBA can authorize neither a
direct-loan agreement if a participation loan is available, nor a participation agreement if the loan is available on a guarantee basis. If you need financial counseling or further information concerning SBA loans, call or write one of the field offices.

Obviously, most retailers will require outside financing, unless they can supply all necessary capital by themselves. Regardless of whether the loan is short-term or long-term, from a bank or from SBA, the retailer is required to submit balance sheets, as well as profit and loss statements. In addition, a break-even analysis of tonnage and dollar volume is valuable to the retailer and to a financial agent in evaluating the loan requirement.
CHAPTER 12: SUMMARY

This manual has provided a variety of marketing aids that range from purchasing seafood to obtaining financial aid. Now an organized perspective is in order.

Successful businesses operate systematically. In most cases the firm wants to answer three major questions:

1. "What do I want to accomplish during the planning period?" This manual cannot tell you what your objectives should be. Objectives vary for each firm and each individual. For market planning purposes, a retailer must state the firm's objectives or goals in such a way that they can be measured. For example, a profit objective might be "I plan to earn $1,500.00 additional profit this quarter"; a sales goal could be "I plan to increase my dollar volume by 15% this month"; or a product sales goal might be "I plan to double my sales of shucked raw oysters."

Notice three characteristics of these statements:

- The goal is stated in precise terms, which when compared with results, will indicate whether or not the goal was achieved.

- The goal will be attained within a definite time period (week, month, quarter).

- The goal is to be achieved by use of a plan.

2. "What marketing strategies will I use to obtain these goals?" Recall the "Trinity of Marketing Decisions" that was introduced in the first chapter. How the retailer resolves the "Trinity Decisions" becomes a plan to achieve goals. The personal plans for pricing, promotion, etc. must support one another in order for objectives to be realized. For example, it does not pay to develop an extensive advertising plan and not have an adequate product on hand. An out-of-stock situation will not increase customer patronage nor loyalty. It is also inconsistent to maintain an attractive display case and allow untidy or unsanitary facilities, or vice versa.

3. "What information shall I employ to know if I am "on target"?" Of course you, the retailer, want to know how you are doing. To gauge your progress, you need an "information system" or "feedback" that lets you learn if plans are resulting in the predetermined objectives. Recall that the financing and record keeping chapters of this manual introduced the profit and loss statement, in addition to analytical tools such as return on investment and inventory ratios. These tools, plus daily records of sales and expenses, can compare present performance with past business activities and with budget figures estimated when your market plans were set up. Controls dictate whether the retailer should continue his present course with the current marketing plan or whether he should make changes in the plan.

When answered, these three questions form the fundamentals of good business management; objectives, plans, and controls.

The Basic Market-Planning Framework

1. Establish a set of reasonable goals to achieve within a specific time period.

2. Develop a set of marketing strategies to achieve these goals, and have a written plan based on the Trinity of Marketing Decisions:

   a. Select a target market.

   b. Develop a product mix tailored to meet the needs of this market.

   c. Combine promotion, retail pricing, source of supply, and customer service strategies to support your product assortment presentation.

3. Establish a record keeping system that will provide useful marketing information on your business progress.
Primary Management Objectives for a Fresh Seafood Market

Listed below are some primary objectives that a seafood retailer should attempt to achieve. Although these objectives cannot be measured and compared against your business performance, you should plan on paper what you wish to accomplish. To help you get a "feel" of the kind of goals you may set for yourself, consider the following:

1. To increase customer satisfaction by: making fresh seafood available; and adding interest to the total store offering.

2. To increase store revenue and profit by: increasing patronage and customer loyalty; and averaging higher check-out sales.

3. To enhance the store's image by: making it "the place" to purchase fresh seafood; creating a one-stop seafood center; and being "fresh conscious."

Basic Management Guidelines for Accomplishing Seafood Market Objectives

Push the "seafood" concept - not just "fish." Use strong visual cues and symbols, and name the seafood market. Convey a market personality through architectural design. Strengthen the impact of your concept by centralizing all seafood products in your display area.

Insure that your personnel have the proper attitudes and philosophies. Establish strong, positive support of top management. Structure carefully the training of seafood market employees. Separate the responsibilities and authority between red meat and seafood operations (for supermarkets).

Make your seafood department a customer contact point. Keep your merchandise area staffed at all times. Inform your customers of new menu items and recipes. Be courteous and friendly to your customers.

Offer a wide selection in product assortment to increase sales potency and impulse buying. Stock fresh, frozen and canned seafood items. Display these items in the seafood market area to emphasize that all seafood is part of the total concept (for supermarkets). Stock a wide assortment of products that complement consumers' seafood purchasing decisions.

Make a product quality a selling point. Establish quality standards for receipt and processing products. Maintain an inventory control system to ensure fresh products. Stress cleanliness and sanitation at all times.

Actively promote fresh seafoods. Establish and follow a promotion program consisting of regularly recurring activities: 1) Weekly leaflets or advertisements; 2) Weekend or seasonal specials; 3) Adequate supply of "freebees" (recipes, etc.); and 4) Paper overwrap with market's name. Develop "special" promotion events: 1) Hire a person to prepare seafood menus and distribute samples; 2) Give away, as samples or sell at very low retail price, new products that you may want to test for potential market success.

Implementing these management guidelines has been discussed in this manual. If these fundamentals are studied and applied, your firm is far along on the road to a successful retail seafood operation. You will see profits increase, because customers are better satisfied; and satisfied customers are the best marketing tool you have. Start now to develop marketing objectives, implement marketing plans and monitor your performance. Put the pencil, the paper, and yourself to work!
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