

A REVIEW OF SEAFOOD QUALITY STANDARDS

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Mississippi-Alabama Sea Grant Legal Program
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FOREWORD

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TABLE OF CONTENTS

	<u>PAGE</u>
Foreword	i
Table of Contents	ii
Introduction	1
National Shellfish Sanitation Program	2
Food, Drug and Cosmetic Act	17
Interstate Shellfish Sanitation Conference	25
Alabama Seafood Quality Regulatory Scheme	27
Mississippi Seafood Quality Regulatory Scheme	36
Conclusion	46

INTRODUCTION

While U.S. citizens still prefer the meat of terrestrial rather than aquatic or marine animals, fishery products constitute a sizeable portion of the average American's diet. One reason for this preference may be that, as John Byrne, recent head of the National Oceanic and Atmospheric Administration (NOAA) pointed out at a recent fisheries symposium, consumer groups are still uncertain about the quality of U.S. fish products. Much of this concern stems from the lack of effective governmental regulation in the area of seafood quality.

According to NOAA's report on fishery statistics for 1982, over six billion tons of commercial fish were landed in the U.S. that year. Pascagoula-Moss Point in Mississippi was the third leading port in the nation in the quantity of commercial fishery landings. Furthermore, almost one-third of the commercial fish harvested came from the Gulf of Mexico.¹

In light of the importance of the Alabama-Mississippi region to the marketing of seafood, and current renewed interest by federal and state regulatory agencies, members of the seafood industry, and consumer groups in seafood quality issues, this paper examines the federal and state laws which affect the quality of seafood harvested from Alabama and Mississippi coastal waters.

¹NOAA, "Fisheries of the United States, 1982" (April 1983).

NATIONAL SHELLFISH SANITATION PROGRAM

Introduction

The federal government took its first major step to control seafood quality in 1925 with the establishment of the National Shellfish Sanitation Program (NSSP). The NSSP was developed by the then Public Health Service to supervise the sanitary quality of shellfish shipped in interstate commerce. The impetus behind the NSSP was a request from state and local health authorities, as well as representatives of the shellfish industry, for assistance in dealing with public health problems that had plagued the shellfish industry in the first two decades of this century.¹

The NSSP consists of a set of guidelines to be used by seafood producing states as a basis for forming their own regulations regarding seafood quality. It has two primary goals: (1) the continued safe use of shellfish and (2) active encouragement of water quality which will preserve all possible coastal areas for the safe development of the shellfish industry.² Some states have adopted the NSSP seafood sanitation guidelines in totality, while others have incorporated part of them into their regulations. Shellfish that are regulated by these guidelines include all edible species of oysters, clams, or mussels, either shucked or in the shell, fresh or frozen.³

The NSSP guidelines are divided into two parts "Sanitation of Shellfish Growing Areas"⁴ and "Sanitation of the Harvesting and Processing of Shellfish."⁵ The former covers general administrative procedures; laboratory procedures; growing area survey and classification; preparation of shellfish for marketing; and control of harvesting from closed areas. The

latter covers harvesting and handling of shell stock; shucking, packing and repacking plants; and shipping of shellfish.

Sanitation of Shellfish Growing Areas

A. General Administrative Procedures

This section recommends that coastal states provide one or more agencies with the legal authority to control sanitation in all interstate phases of the shellfish industry. This includes the authority to classify shellfish growing areas as to their sanitary quality; to enforce shellfish harvesting laws; to regulate and supervise relaying, depletion, wet storage and controlled purification when used as sanitation techniques; to prohibit the possession or sale of shellfish from out-of-state sources which are not in compliance with cooperative program requirements; to regulate the shucker-packer, repacker, shell stock shippers and reshippers industries within the state; and to prevent the distribution of shellfish not in accord with national program requirements or that are otherwise unfit for human consumption. It also requires states to maintain records which can be reviewed for compliance with NSSP guidelines.⁶

In addition, this section provides for the issuance of interstate shellfish certificates. Each certificate must include the name and address of the business, a certificate number, classification (e.g. shipper, repacker), and an expiration date. After a certificate has been issued, the interstate shipper's name is placed on a list indicating to other states that NSSP guidelines have been met. If a certificate is suspended, cancelled or revoked, the Food and Drug Administration (FDA) must be notified so that the shipper can be deleted from the list.⁷

B. Laboratory Procedures

Laboratory procedures for bacteriological, toxicological and chemical and physical contamination are delineated. Bacteriological examination must comply with the "American Public Health Association Recommended Procedure for the Examination of Sea Water and Shellfish." Any current Association of Official Agricultural Chemists official methods may be used for analyzing paralytic shellfish poison. Chemical and physical measurements must be made in accord with accepted standard laboratory techniques and must be reported in standard units.⁸

C. Growing Area Survey and Classification

This section recommends that states conduct sanitary surveys of shellfish growing areas prior to approving them as a source of market shellfish or for controlled purification or relaying operations. Such a survey should include an evaluation of sources of actual and potential pollution; the distance of such sources from the growing areas; the effectiveness and reliability of sewage treatment works; the presence of industrial wastes, pesticides or radionuclides that could render the shellfish a public health hazard; and the effect of wind, stream flow, and tidal currents in distributing polluted materials over the growing area. The factors influencing the sanitary quality of each approved shellfish growing area must be reviewed biennially. In addition, a system for classifying and identifying the growing areas is to be implemented.⁹

Once surveyed, growing areas are to be classified into one of four categories: approved, conditionally approved, restricted or prohibited. Approved areas are those areas where the sanitary survey indicates that bacteriological, toxicological, chemical, biological, and physical

contaminants do not reach the area in dangerous concentrations. Direct marketing of shellfish from these areas is allowed.¹⁰ An area should be classified as "conditionally approved" when safe harvesting is dependent upon an established performance standard by sewage treatment works and the state is satisfied that such standards will be met while the area is being used for harvesting for direct marketing. In addition, a mechanism must be available to assure that shellfish harvested from the area subsequent to any failure to meet the performance standard will not be marketed.¹¹

Restricted areas are to be designated when a sanitary survey indicates a limited amount of pollution is present, making it unsafe to directly market the shellfish. Shellfish from such areas may be marketed following approved purifying or relaying procedures.¹² An area should be classified "prohibited" if a sanitary survey indicates a dangerous amount of pathogenic microorganisms might reach the area. In addition, all growing areas which have not been subject to a sanitary survey are automatically classified as prohibited. No direct marketing of shellfish from prohibited areas is allowed. Any proposed relaying procedures from a prohibited area must be carefully supervised to prevent polluted shellfish from entering trade channels.¹³ When necessary to protect public health, any shellfish growing area can be closed when shellfish toxins have been found. This quarantine should remain in effect until the poison content in sampled shellfish is found by testing to be below the quarantine level.¹⁴

D. Preparation of Shellfish for Marketing

This section of the guidelines sets out acceptable procedures for relaying and purification of shellfish prior to marketing. All relaying operations from "restricted" or "prohibited" to "approved" areas should be

done pursuant to written permission from and under the supervision of a state shellfish sanitation control agency. Relaid shellfish cannot be harvested from the approved area until a sufficient period of time has elapsed to allow them to cleanse themselves of pollutants.¹⁵ When relaying is done during the harvest season, areas designated for relaid shellfish must be located so that shellfish in any adjacent approved area will not be contaminated. Relaying areas must be marked as such so that they can be easily identified by harvesters.¹⁶

Controlled purification, when supervised by the state, may also be used to prepare shellfish from restricted or prohibited areas for market. The proposed purification system must have been demonstrated as consistently effective for the species of shellfish. Purification may be done in either a natural body of water or in tanks, as long as the water used is obtained from an area meeting the physical and bacteriological requirements of an approved growing area. Laboratory control over bacteriological quality must be maintained over the operation.¹⁷

E. Control of Harvesting from Closed Areas

Boundaries of closed growing areas must be clearly marked and patrolled to prevent illegal harvesting. Shellfish harvesters are to be notified either by publication or direct mail when an area is closed. Warning signs should be posted at points of access to the closed area. Complete records of enforcement activities must be maintained in the central office of the state shellfish control or patrol agency.¹⁸

Sanitation of the Harvesting and Processing of Shellfish

A. Harvesting and Handling Shell Stock

The NSSP recommends that all boats and trucks used in handling shellfish must be constructed, operated and maintained so as to prevent

contamination or deterioration of the shellfish. The following guidelines are provided: (1) decks and storage bins of boats must be located and constructed so that bilge water and polluted overboard water do not come into contact with the fish; (2) sacks and other storage containers should be kept clean; (3) boat decks and storage bins must be cleaned with water from an approved source; and (4) all areas and equipment that come into contact with shell stock during handling or transport during relaying operations should be thoroughly cleaned. Devices and practices necessary to eliminate the overboard discharge of body wastes in harvesting water should be delineated.¹⁹

Shell stock are to be washed with approved water to remove bottom sediments and detritus as soon as practicable after harvesting. This is the primary responsibility of the harvester.²⁰ Each person harvesting shellfish must have a valid permit or license from the state. In the case of leased land, either the lessee or the person who harvests must be licensed. The state must keep records of such licenses.²¹

B. Shucking and Packing Shellfish

Areas regulated under this section encompass wet and dry storage, plant construction and sanitation, sewage disposal, source and refrigeration of shell stock, and recordkeeping.

The guidelines recognize two types of storage of shell stock: wet and dry. Wet storage is defined as "the temporary storage of shellfish from approved sources, intended for marketing, in tanks containing sea water or in natural bodies of water, and including storage in floats."²² Written approval from the state seafood sanitation agency should be obtained and renewed yearly by a shipper utilizing wet storage. This authorization should be based upon a scale drawing of the location of the

storage area and an analysis of the potential hazards to which the shellfish would be exposed.²³ Dry storage is defined as "the storage of shell stock out of water."²⁴ Such storage areas must be constructed of material that is impervious to water, be graded sufficiently, and be free from cracks and uneven surfaces to assure proper cleaning and drainage. They must be constructed so as to prevent shell stock from coming into contact with floor drainage water from other parts of the plant.²⁵

Certain requirements as to shucking and packing plant arrangement are delineated in the guidelines. Plants must be located so they will not be flooded by ordinary high tides. Separate rooms must be provided for shucking and packing in order to prevent the shucked product or packing room equipment from being contaminated by splash from the opening room. Inside areas must have effective in-plant fly-control measures in addition to screens on all outer openings. Storage racks for utensils must be located at least two feet from the floor and be contamination free.²⁶

Plant construction is another regulated area in this section. All interior walls and ceilings should be smooth, washable, light-colored, and in good repair in order to facilitate cleaning. Ample lighting must be provided in all work and storage rooms. Floors must be impervious to water, be graded to drain quickly and efficiently, and be maintained in such condition that cracks and uneven surfaces that interfere with cleaning will not develop.²⁷ Plumbing installations must conform with state and local plumbing ordinances.²⁸ Plants should be constructed so as to prevent ready entrance of rodents.²⁹ Shucking benches and tables are to be of a smooth, easily cleanable, durable non-absorbent material designed to drain away from stored shellfish. Wooden shucking blocks must consist of one solid piece and be easily removable. Shucking blocks of lead or

other toxic materials are specifically prohibited. Utensils and equipment must also be made of a smooth, durable, easily cleaned, corrosion-resistant, impervious, nontoxic material.³⁰

The guidelines also discuss standards of cleanliness. Water supply for cleaning operations must be accessible and of a safe and sanitary quality. Sewage should be discharged into public water supplies. If that is not possible, a private sewage disposal system meeting state and local requirements may be utilized. Litter and rubbish should not be allowed to accumulate on the premises. The shell stock storage, shucking, and packing portions of the plant are to be restricted to the handling of shellfish when the plant is in operation. All work areas and utensils must be cleaned within two hours after daily operations have ended. Other areas are to be generally kept clean.³¹

Shellfish processed in the plant is to be obtained from a source approved by an official state regulatory agency. Shellfish species that spoil easily should be refrigerated at a temperature of 50°F or less during shipment and holding, except at points of transfer where they may be unrefrigerated for short periods of time. Only live, clean shellfish may be shucked. Shells from which meat has been removed should be taken promptly from the shucking room. Once shucked, shellfish must be packed in contaminant-free containers and either (1) frozen and stored at a temperature of 0°F or less or (2) cooled to an internal temperature of 45°F or less within 5 hours after shucking and refrigerated at temperatures not to exceed 45°F. Each package of fresh or frozen shellfish must be labeled with the packer's, repacker's or distributor's name and address and the packer's or repacker's certificate number

preceded by the abbreviated name of the state, and the date of packing or repacking.³²

Since shucked shellfish can transmit communicable diseases from infected persons, strict health and cleanliness guidelines are provided for employees of plants. Employees are required to wash their hands with soap and water before beginning work and after each interruption. Clothes must be clean and, whenever possible, sanitized rubber gloves should be used to handle shucked shellfish. Any person known to have a communicable disease or to be a carrier, or who has an infected or open wound on any exposed portion of the body, must be excluded from the plant. If a worker is suspected of having any of the above, proper health officials should be notified immediately.³³

Complete and accurate records, maintained under the supervision of a plant manager, should be kept indicating from whom shellfish were purchased, the area from where shellfish were harvested, and the names and addresses to whom they were sold.³⁴

C. Packing and Shipping Shell Stock

Since shell stock shippers³⁵ deal only with shellfish that are in their shells, their plant sanitation requirements are less rigid than those for shucker-packers or repackers. Shell stock should be reasonably free from mud at the time of shipment. It should be packed and shipped in clean containers under conditions that will prevent contamination. A tag or label must be attached to each shipping container with the following information: (1) number of the shipper, (2) name and address of the shipper, (3) name and address of the consignee, and (4) the kind and quantity of shell stock in the container.³⁶

For on-shore shell stock operations, the wet and dry storage, water supply, plumbing, sewage disposal, rodent control, general cleanliness, source and refrigeration of shell stock, recordkeeping and personal health requirements of the previously discussed section are applicable.³⁷

For all on boat operations, including "Harvest" or "Buy Boats", regulations pertaining to cleanliness of boats, disposal of bodily waste overboard, sources and refrigeration of shellfish, recordkeeping, and personal health discussed earlier are applicable. Truck operations must comply with the previously discussed regulations pertaining to truck sanitation, sources and refrigeration of shellfish, recordkeeping, and health of personnel.³⁸

D. Repacking of Shellfish

When shucked shellfish are packaged in plants other than the one in which they were initially shucked, the possibility of contamination of the shellfish increases. Therefore, repacking plants are subject to most of the regulations discussed earlier for shucking and packing plants, plus the following.³⁹ Shucked shellfish for repacking must be received at the plant in approved shipping containers at a temperature of 45°F or less. Frozen shellfish that have thawed cannot be repacked or repackaged. Returnable shipping containers must be thoroughly cleaned as soon after emptying as practicable.⁴⁰

E. Reshippers

Persons who reship shellfish from certified shell stock shippers, shucker-packers, or repackers to other certified shippers or to final consumers must be licensed and certified by the state. A reshipper is not permitted to shuck shellfish nor repack shucked shellfish. If only shucked shellfish are handled, the shipper must meet the source of

shellfish, refrigeration, and recordkeeping provisions applicable to shuckers and packers discussed earlier. If shell stock is handled, then the previously discussed requirements for shell stock packers and shippers must be met.⁴¹

Problems

In the past, the NSSP has served as a model for administering state shellfish sanitation programs. Historically, the shellfish producing states and shellfish industry worked cooperatively under the NSSP, with the FDA assuming the role of monitor of state programs. In 1972, the FDA's power to enforce NSSP guidelines was questioned by the shellfish industry of Virginia. After a series of communications between the FDA and Virginia, the FDA acquiesced because the NSSP guidelines had never been formally promulgated as agency rules under the requirements of the Administrative Procedure Act. Later, the FDA proposed to incorporate the NSSP guidelines into the Code of Federal Regulations in order to make them legally enforceable. This was forestalled by Congress in a 1976 amendment to the Coastal Zone Management Act which required the Secretary of Commerce to undertake a review of all aspects of the molluscan shellfish industry, including an evaluation of the impact of federal water quality laws on the shellfish industry, prior to promulgating any new regulations. In addition, the amendment stated that no new regulations pertaining to the seafood industry could be promulgated until a cost-benefit analysis was completed on the effect of the proposed regulations on the industry.⁴³ The NSSP guidelines were subsequently withdrawn as proposed regulations and, to date, have not been reintroduced.

Following the above controversy, state programs began to deviate from the NSSP, thereby weakening its effectiveness as a tool of cooperation among state officials and the shellfish industry.

NSSP Footnotes

¹The program has been modified several times since its inception: 1937, 1946, 1957, 1959, 1962 and 1965. It is currently undergoing further revisions as part of adoption by the Interstate Shellfish Sanitation Conference, see pp. 25-26 infra. The authority of the former Public Health Service has been transferred to the Food and Drug Administration (FDA).

²U.S. Department of Health, Education, and Welfare, Sanitation of the Harvesting and Processing of Shellfish viii (Rev'd. 1965). (hereinafter cited as NSSP, Part II).

³U.S. Department of Health, Education, Welfare, Sanitation of Shellfish Growing Areas 3 (Rev'd. 1965) (hereinafter cited as NSSP, Part I).

⁴NSSP, Part I.

⁵NSSP, Part II.

⁶NSSP, Part I at 5.

⁷Id. at 7. As of December 1983, there were 34 certified shellfish shippers in Mississippi.

⁸Id. at 9.

⁹Id. at 10.

¹⁰Id. at 12. This information must be verified by laboratory findings when a sanitary survey indicates a need to do so.

¹¹Id. at 13. See pp. 15-18 for specific standards for coliform and other pathogens.

¹²Id. at 18.

¹³Id. at 19.

¹⁴Id.

¹⁵Id. at 21. The time required is dependent upon water temperature, salinity, initial bacteriological quality, and species of shellfish.

¹⁶Id.

¹⁷Id. at 22. Such controls must include the following: (1) daily or tidal-cycle bacteriological quality of the water; (2) final bacteriological quality for each lot of shellfish purified; and (3) when they are critical factors, hourly or continuous salinity and tidal-cycle turbidity determinations. Shellfish from prohibited areas should not be subject to purification unless relaying or depletion is not biologically feasible and no health hazard will result from the use of such shellfish. Id. at 23.

¹⁸Id. at 24.

¹⁹NSSP, Part II at 5.

²⁰Id. at 6. However, when climative technical or sanitary reasons dictate, the state can waive this requirement.

²¹Id.

²²Id. at 3.

²³Id. at 7.

²⁴Id. at 3.

²⁵Id. at 8.

²⁶Id. at 8, 9.

²⁷Id. at 8.

²⁸Id. at 10. In the absence of such regulation, substantial compliance with the recommendations contained in the American Standard National Plumbing Code, ASA, A40.8-1955, will be accepted.

²⁹Id. at 11. Rodenticides with a high toxicity cannot be stored in the plant and may not be used except under the supervision of a qualified pest-control specialist.

³⁰Id. at 13. For specific cleaning methods, see pp. 13-16.

³¹Id. at 13.

³²Id. at 16-19.

³³Id. at 20,21.

³⁴Id. at 20.

³⁵Id. at 23. Operators of "buy" boats and "buy" trucks are considered shell-stock shippers. If a shipper holds only a shell-stock certificate, he cannot legally shuck shellfish or repack shellfish.

³⁶Id. at 24. The following classes of shell-stock shippers may be exempted from this requirement: "Harvesting Only"; "Buy Boats"; and "Buy Boats with Storage on the Boats."

³⁷Id., Table II at 23.

³⁸Id. at 25,26.

³⁹Id. at 25.

⁴⁰Id., Table III at 25.

⁴¹id. at 27.

⁴²Administrative Procedure Act, 5 U.S.C. §§500 et seq. (1982).

⁴³§16 of Pub. L. 94-370 (1976).

FOOD, DRUG AND COSMETIC ACT

Introduction

To date, Congress has assumed very little authority over the quality of seafood produced and sold in the United States. What regulation it has authorized is found pursuant to the Food, Drug and Cosmetic Act (FDCA).¹ The purpose of the FDCA, which is administered by the Food and Drug Administration, is to ensure that food (including seafood) shipped or received in interstate commerce is processed under sanitary conditions and is not adulterated. Seafood quality regulation has been promulgated under two provisions of this Act: adulterated foods and misbranded foods.

The adulterated food section provides that a food is adulterated if it contains any deleterious substance which may render it injurious to health.² Qualities that would render food adulterated are: (1) added poisons or deleterious substances; (2) preparation, packaging, or storage under unsanitary conditions that may render the food injurious to health; (3) products of a diseased animal; (4) unsanitary containers; or (4) foods intentionally subject to radiation.³ In addition, if any substance has been deleted, substituted or added that would increase the product's bulk or weight, or reduce its quality or strength, the food will be considered adulterated.⁴

Misbranded foods are those that contain false or misleading labeling information; are offered for sale under another name; are an imitation of another food and not labeled as such; and/or the container of which is made or filled so as to be misleading.⁵ Products in package form are deemed misbranded unless each package bears a label identifying the name and place of business of the manufacturer, packer or distributor; an

accurate statement of the common name and quality of the food; and the name of any additional ingredient.⁶ All label information must be conspicuous and readily understandable by the average consumer. If separate standards of identifying quality or fill have been promulgated for a particular food product, such product will be considered misbranded if it fails to conform to such definitions or standards.⁷

The FDA has promulgated three sets of regulations under their above-mentioned authority that pertain to seafood sanitation: (1) "Current Good Manufacturing Practice in Manufacturing, Processing, Packing, or Holding Human Food",⁸ (2) "Seafood Inspection Program,"⁹ and (3) "Frozen Raw Breaded Shrimp."¹⁰

Current Good Manufacturing Practice

These regulations were issued pursuant to the adulteration provisions of the FDCA. Their purpose is to assure that food which passes in interstate commerce and is made available for human consumption is safe and has been prepared, packed and held under uniform sanitary conditions.¹¹ The regulations are divided into four categories: (1) personnel, (2) buildings and facilities, (3) equipment, and (4) production and process controls.

Personnel are required to wear clean clothes, wash their hands before work and after each absence from the work station, use sanitary gloves and hair nets when necessary, and refrain from using tobacco products in areas where food is handled. In addition, persons with communicable diseases or with open sores are not to work in a plant if it is likely that the person's presence could result in the contamination of a food product.¹²

The grounds around a plant must be free from improperly stored equipment and other refuse and maintained so as to discourage the presence of rats, insects and other pests. Conditions leading to the creation of excessive dust or poor drainage should be avoided. Plants must be designed and constructed to allow adequate room for storage. Floors, walls and ceilings must be easily cleanable and maintained in good repair. Aisles or working spaces should be free from obstruction. Fixtures and pipes cannot be suspended over unit areas where drip or condensation could contaminate the food. Operations which might cause contamination of food products with extraneous material must be partitioned off from other work areas. Adequate lighting, plumbing, sewage disposal, water supplies and ventilation should be provided. Where necessary, effective screening to prevent the entrance of pests such as rodents and insects must be utilized.¹³

Cleaning operations are to be conducted in a manner that minimizes the danger of contamination to food and food surfaces. All utensils and product-contact surfaces must be cleaned frequently. Any cleansing agent and equipment will be acceptable if it is established that it provides adequate sanitization. Equipment should be stored in a manner that protects product contact surfaces from dust and other contamination. All plant equipment must be suitable for its intended use and designed for easy cleaning. Because of the possibility of contamination, special provision is made for the use of polychlorinated biphenyls (PCB) in food plants.¹⁴

To assure that all procedures are conducted in a sanitary manner, a supervisor must be made responsible for overall sanitation of the plant. Raw materials and ingredients should be inspected and stored to assure that they are fit for human consumption. Water used for washing, rinsing

or conveying of food products must be sanitary. Containers and packages should be inspected upon receipt. Ice used in contact with food products must be made from potable water. Factors such as time, temperature, humidity, pressure, and flow rate should be monitored to minimize the potential for growth of undesirable bacteria. Laboratory testing procedures are to be used when necessary to identify sanitation problems or food contamination. Contaminated food must be rejected or, where possible, processed so as to eliminate the contamination. In order to facilitate positive lot identification, meaningful coding or labeling of products should be developed. Records should be kept for a maximum of two years.¹⁵

Natural or unavoidable defects in food for human consumption that present no health hazard do not constitute an adulterated food as long as they conform to currently established levels of safety.¹⁶

Frozen Raw Breaded Shrimp

In addition to the following, the criteria provided in the "Good Manufacturing Practice" regulations just discussed apply to the processing of frozen raw breaded shrimp.¹⁷ Batter application equipment should be sanitized every four hours and at the end of the day's operation; heading equipment and utensils only at the end of the day. All other utensils and product-contact surfaces of equipment must be rinsed and sanitized before beginning operation.¹⁸ All food contact surfaces must be made of metal or another readily cleanable material with smooth seams. Freezer and cold storage compartments must have automatic temperature controls with an accurate thermometer.¹⁹

Shrimp must be culled and cleaned before processing. Those lots that have been partially processed in another plant must be reinspected. Prior to processing, the shrimp must be maintained at a temperature of

40°F or below, 0°F or below for frozen shrimp. All other ingredients used in processing must also be inspected for cleanliness and wholesomeness.

Defrosting operations must be conducted in a sanitary manner. Shrimp cannot be held in thaw tanks any longer than a half hour after thawing. Shrimp may be peeled into flumes or into seamless sanitized containers.²⁰ Sanitary drainage must be provided to remove liquid waste from the peeling tables.²¹

Prior to batter or breading, the shrimp must be washed. Most batter must be maintained at a temperature of 50°F or below, with excess disposed of every 4 hours. Batter in enclosed equipment must be maintained at 40°F or below and any excess must be disposed of at the end of the day or every 12 hours, whichever comes first. Breading may be reused if sifted through a 1/4" or smaller mesh screen. Breading left over in the equipment at the end of the day may be reused within 20 hours if sifted and then placed in sanitary frozen storage. Processing must be done within two hours.²²

After packing, the finished product must be labeled to indicate the date and place of packing, with a caution to keep the product frozen and not to refreeze. It must be placed into a freezer within thirty minutes from packing and handled in such a manner that the temperature does not exceed 0°F. Weekly testing for microbiological contamination should be conducted at each stage of the process.²³

Seafood Inspection Program

Upon application of any packer of seafood for shipment in interstate commerce, the FDA may, in its discretion, designate an Inspector to examine the production, packaging and labeling of seafood products.²⁴ If the inspection shows compliance with the inspection regulations (found at

21 CFR Part 197 (1983)), the applicant is authorized to label his product as FDA approved. This service is financed through application fees collected from applicants. Any unauthorized use of FDA approved seals pursuant to this inspection program is a misdemeanor punishable by imprisonment of not more than one year and/or a \$1,000 to \$5,000 fine.²⁵

If the FDA finds adulterated products, unsanitary plant conditions, or a contaminated product, it can take legal action to: (1) prosecute violators; (2) enjoin operation of the plant until the unsanitary condition is corrected; and/or (3) seize adulterated or contaminated food when it is introduced into interstate commerce.²⁶

Problems

Unfortunately, the FDCA as a means of comprehensive seafood sanitation control is ineffective. Its focus is too broad to adequately deal with the peculiar problems inherent in the seafood industry. In addition, the FDA does not have sufficient resources to assure adherence to sound sanitary seafood quality standards and procedures. Therefore, it is largely up to the states and the shellfish industry itself to monitor the quality of seafood marketed to the consumer.

FOOTNOTES

- ¹ Food, Drug and Cosmetic Act, 21 U.S.C. §§ 342,343,371 (1972).
- ² Id. § 342.
- ³ Id.
- ⁴ Id. (b)(1).
- ⁵ Id. § 343.
- ⁶ Id. This should be labeled in terms of weight, measure or numerical count. Variation or exemption are permitted when consistent with regulatory guidelines.
- ⁷ Id. (g), (h).
- ⁸ 21 CFR Part 110 (1983).
- ⁹ 21 CFR Part 197 (1983).
- ¹⁰ 21 CFR Part 123 (1983).
- ¹¹ Id. § 110.1.
- ¹² Id. § 110.10.
- ¹³ Id. § 110.20, 110.35.
- ¹⁴ Id. §110.37, §110.40.
- ¹⁵ Id. §110.80.
- ¹⁶ Id. §110.99.
- ¹⁷ Frozen raw breaded shrimp is defined as "the food prepared by coating . . . shrimp with safe and suitable batter and breading ingredients. . . . The food is frozen." The term shrimp refers to the tail portion of commercial species of shrimp. Id. § 161.175.
- ¹⁸ Id., § 123.37
- ¹⁹ Id., § 123.40.
- ²⁰ Such containers must be sanitized at least every 3 hours. Id., §123.80(c)(1).
- ²¹ Id. at § 123.80.

²²id. Processing time does not include time in iced or refrigerated storage.

²³id.

²⁴21 U.S.C. § 372a (1982).

²⁵id.

²⁶Standards & Guidelines for such legal action can be found at 21 CFR Parts 110, 123 & 197.

INTERSTATE SHELLFISH SANITATION CONFERENCE

In September of 1982, representatives from 22 shellfish-producing and 3 inland states formed the Interstate Shellfish Sanitation Conference (ISSC). Responding to the lack of uniform enforcement of the National Shellfish Sanitation Program (NSSP), the ISSC was formed to provide a format for state health authorities, the FDA, and the seafood industry to work together to achieve uniform standards for shellfish shipped in interstate commerce.

The foundation of the ISSC is premised on the basis that the transmission of disease through marketed shellfish is preventable and therefore intolerable, a finding that the Public Health Service made in 1925 when it initiated shellfish sanitation objectives through the NSSP. Protection of the consumer is the ultimate goal.

The ISSC is divided into six shellfish-producing regions, but anyone interested in promoting the availability of sanitary shellfish may register and attend the conference. Proposals submitted by any conference participant that require conference action are referred by the Program Chairman to one of three Task Forces: "Growing Areas", "Processing and Distribution", or "Administrative". Each Task Force is made up of three industry representatives, two state shellfish control agency members from producing states, and one member of a control agency from a non-producing state. The Task Force makes its recommendations to the General Assembly which can accept, reject or amend the proposals as it sees fit. Each shellfish-producing state is allowed one vote in the General Assembly, while non-producing states are permitted one-half of a vote.

Proposals which are passed by the General Assembly are reviewed by the FDA for consistency with federal laws, regulations, and conference policies and procedures. Following FDA approval, the states are to incorporate the proposal into their own regulations and law.

Members of the ISSC have agreed to adopt the NSSP guidelines as a foundation for its Interstate Shellfish Sanitation Program (ISSP). Currently, the NSSP manuals are being reviewed and updated in order to better suit the needs of the shellfish industry.

The first annual meeting of the ISSC was held in August, 1983, with regulatory department officials from 25 states, personnel from two federal agencies and shellfish industry representatives from several states in attendance. A major result of this meeting was an agreement by all states present that a problem exists relative to current fecal coliform standards. A compromise was reached whereby the current fecal standards would remain in effect. If these standards are exceeded, and there is no need to question the results, the fecal E. coli standard would prevail. Results of the two procedures are to be discussed at the next ISSC meeting. Participants of this first meeting have indicated a feeling of optimism that the ISSC can be a valuable tool in providing uniform regulation of the shellfish industry.

ALABAMA SEAFOOD QUALITY REGULATORY SCHEME

Introduction

Like many other coastal states, Alabama has developed a comprehensive regulatory scheme for their seafood industry. Responsibility for seafood quality and sanitation is shared by the Department of Conservation and Natural Resources and the State Board of Health. The Department of Conservation and Natural Resources, through the Division of Marine Resources, controls the licensing and taxing procedures, sets the seasons and harvest limits, and enforces the seafood regulations.¹ It is the Board of Health, however, which regulates the quality and sanitation of the processing plants, the seafood product, and the waters from which the seafood is harvested.² The following presents an overview of Alabama law as it applies to seafood quality.

Oyster Harvesting

Because oysters are filter feeders and are typically consumed raw, the sanitary quality of the waters from which they are harvested is monitored. The Board of Health is responsible for setting sanitary standards for oyster harvesting. First, the Board has the duty to determine which waters are suitable for oyster harvesting. It conducts periodic surveys of coastal waters which enable it to classify which areas are safe.³

Once an area has been surveyed, it is given one of three classifications similar to the NSSP categories: approved, conditionally approved or prohibited. Approved waters are those that the survey indicates are free of dangerous concentrations of pathogenic microorganisms, radionuclides, harmful industrial wastes, and marine biotoxins.⁴ Conditionally approved areas are those subject to intermittent contamination, and as such are

approved for oyster harvesting under specific conditions.⁵ All other areas are considered as prohibited and must be posted as such.⁶ Whenever it is determined that possible changes in the sanitary conditions of an area have occurred, a resurvey is made by the Board of Health.⁷

Since oysters have the ability to cleanse themselves of pollutants, they can be relaid from prohibited to approved areas. Such relaying must be conducted under the supervision of the Division of Marine Resources. Once relaid, the oysters cannot be harvested until the Board makes a determination that they are safe for human consumption.⁸

Seafood Processing

Both oyster and crab meat regulations require persons wishing to operate a processing plant to first obtain an operating permit. This permit grants the operator the privilege of processing, packaging, and shipping seafood products.⁹

Permits for crabmeat processing plants are issued annually and are approved upon a showing of compliance with the crabmeat regulations discussed below. If the operator seeks renewal of his permit, he must submit a written application to the Board of Health. Regulatory compliance must be established by an inspection sixty days prior to expiration of the permit.¹⁰ Crabmeat permits can be temporarily suspended for non-compliance with regulations. In addition, one can have a permit revoked for flagrant or continual violations of the regulations or for interference with the duties of a health officer. Revocation becomes effective upon written notice to the operator of the reasons for such action. In the event of suspension or revocation, the permittee is entitled to a hearing within twenty-four hours from the time of revocation.

Revoked permits can be reinstated upon re-application and a new inspection that verifies compliance.¹¹

Oyster processing operators must obtain permits under essentially the same procedures as crabmeat operators. One noticeable difference, however, is that oyster-processing regulations specifically require a health officer to inspect the premises for regulatory compliance prior to the issuance of a permit. Another exception is that a suspension and revocation hearing must be requested within seven days or the action becomes final. The hearing must take place within five days of the request.¹² A suspended oyster permit can be reinstated when the reasons for the suspension no longer exist. If a permit is revoked, the operator may apply for a new permit.¹³

To qualify for the above permits, the proprietor of the plant must adhere to certain facility, operation, and personnel regulations. Facilities are generally to be well-lighted and ventilated, free of debris and standing water, and located in an area not subject to flooding. The grounds must be kept free of debris, garbage, and accumulated water. All surfaces within the plant are to be sanitized with an effective bacterial solution at the end of each day.¹⁴ Plans to modify any part of the plant must be approved by a health officer.¹⁵ Equipment must be made of materials that are smooth, durable, easily cleanable, and in good repair. All food contact surfaces are to be cleaned and sanitized prior to each use and after work interruptions. Cleaning utensils and food-contact surfaces must be cleaned and sanitized prior to each use and after work operations.¹⁶ Plants are to be provided with adequate means (such as three-compartment sinks) to clean all utensils used in processing the seafood.¹⁷

Personnel are also subject to strict sanitation requirements. Any person afflicted with a communicable disease or any type of skin or respiratory infection is not allowed to work in any area of the plant where there is a possibility of contaminating the seafood or other individuals. The person in charge must notify a health officer immediately if he suspects such a condition exists.¹⁸

A Board of Health official of the county or state is required to inspect crabmeat plants at least once a month.¹⁹ The same rule applies to oyster plants.²⁰ The inspection officer is to have access to plant records and has the authority to take samples for bacterial testing to determine compliance with sanitation, quality, and labeling regulations.²¹

When a health officer inspects crabmeat, he may seize, condemn, denature, or place a written hold on any product which he has reason to believe is adulterated, unwholesome, misbranded or from an unapproved source. Alteration of container labels on any hold order or tag placed on crabmeat by the inspector is unlawful. It is also a violation of the regulations to repack, reprocess or dispose of such products without the officer's permission or a court order. If the health officer determines that summary destruction, condemnation or denaturing is necessary, he may do so on order of the county board of health.²²

When a health officer inspects the premises of an oyster plant and the product, he has the additional authority to order an immediate cessation of operations if he discovers an imminent health hazard. Operations may not resume until his permission is granted. Permit suspension or revocation may result if the order is violated. If a hold order is placed on the oysters for any violation of regulations, a hearing can be requested within five days from the date the permittee has received the order. After the

hearing, the order may be affirmed or vacated. If affirmed, the oysters must be brought into regulatory compliance, denatured, or destroyed.²³

To pass these inspections, the seafood must meet a wide variety of sanitary standards. First of all, only live crabmeat can be processed. Prior to cooking, the live crabs must be kept refrigerated or kept in draining containers filled with cracked or chipped ice. Once cooked, the meat must be stored at 45°F or below.²⁴ After the crabs are backed, they must be washed immediately and placed in containers. Backed crabmeat is to be stored in refrigerated rooms separate from live crabs or other fish. Crab waste must be removed from the plant at frequent intervals unless stored separately under refrigeration.²⁵ If crabmeat is frozen, it cannot be processed later. Cooked crabs are to be removed from refrigeration only in quantities that can be processed rapidly.²⁶

Oyster shellstock received for processing should be reasonably free of sediments and should be stored and refrigerated. Storage of shellstock prior to processing should be at 45°F or below with proper drainage away from the stock. Shucked oysters must be washed with potable water to remove mud and shell particles. Shells must be removed from the shucking room often enough to prevent accumulation. Shucked oysters must be cooled to an internal temperature of 45°F or less within two hours after delivery to the packing room. After shucking, oysters are to be packed in clean, properly identified containers made of impervious material. Any repacking must be done in such a way so as not to lose the identity of the lot. Frozen oysters must be maintained at a temperature of 10°F or below.²⁷

Labeling and Shipping

All crabmeat distributed, sold or received for processing must display on the container the name of the product, name and address of the processor, the permit number, the quantity of contents by weight, the code date, and the words "Perishable--Keep Under Refrigeration" or "Frozen Crabmeat."²⁸

Each lot of oyster shellstock must be tagged with the following information: harvesting area, date of harvest, name of the harvester and his permit number or the name and permit number of the shipper. This tag must be affixed to the container or the bill of sale. In addition, each shucker-packer or repacker is required to mark each package of oysters with his permit number and his name and address. In addition, records must be kept by the shucker-packer and repacker and held for one year. They should contain the following information: (1) name and address of the person from whom the oysters were received; (2) harvest area and date of receipt by the processor; (3) type of processing (shucking, packing or repacking) and date; (4) for shucked oysters, the date of shucking and the growing area; (5) if repacked, the name of the original shucker-packer and the date of shucking; (6) for non-retail sales, the name and address of persons to whom the oysters were sold and the date of shipment; and (7) whether the product was fresh or frozen.²⁹ Each container of freshly shucked oysters is to display the last day the oysters may be offered for sale.³⁰

During transportation, live crabs must be adequately covered and, if being transported for six hours or longer, be refrigerated. Packaged

meat must be refrigerated in vehicles that maintain temperature of 45°F or below.³¹

Problems

Alabama, like other seafood-producing states, is attempting to effectively control the sanitary quality of its seafood. One area of need is the development of procedures to test coastal waters for man-made industrial pollutants. In addition, many of Alabama's standards and procedures are not uniform with respect to other coastal states. To help remedy this, Alabama has joined the Interstate Shellfish Sanitation Conference discussed infra.

FOOTNOTES

¹ Ala. Code § 9-2-4 (1975).

² Id., § 12-21-35. Alabama Board of Health regulations governing seafood quality are divided into two categories. One set of regulations governs the processing of crabmeat; another set covers the shucking and handling of oysters. The sanitation of fish and shellfish is also provided for in a third set of regulations that covers general food products processed in Alabama. Fish and shellfish are provided for particularly in these regulations because they are specially classified as a potentially hazardous foods, i.e. capable of supporting the growth of infectious microorganisms.

³ Regulations Governing the Production, Shucking and Handling of Oysters, § 5-710 (Rev. 1981) (hereinafter Oyster Regs.). Ninety-five percent of the oysters harvested in Alabama come from a single reef off Cedar Point in Mobile Bay. Water quality checks are predominantly made during periods of peak river flow - January to April- since river drainage is the chief source of pollution of Mobile Bay.

⁴ Id., § 5-711.01. At the present time, the Board does not test for pollution such as heavy metals. See § 5-728 for bacterial water quality standards.

⁵ Id., § 5-711.02. The area must meet the § 5-728 bacterial water quality standards during the time open for harvesting.

⁶ Id., § 5-711.03.

⁷ Id., § 5-710.

⁸ Id., § 5-712.

⁹ Oysters Regs. § 5-723; Regulation Governing the Preparation, Picking and Handling of Crabmeat (1953) (hereinafter Crabmeat Regs.)

¹⁰ Crabmeat Regs., § 1.

¹¹ Id. Such a hearing is a pre-requisite to the seeking of legal remedies against the violator.

¹² Oysters Regs. § 5-723.

¹³ Id.

¹⁴ Id., § 5-715.

¹⁵ Id., § 5-726.

¹⁶ Id., § 5-716.

¹⁷ Id., § 5-717.

- 18 Id., § 5-721, 722.
- 19 Crabmeat Regs., § 1-2a.
- 20 Oysters Regs., § 5-724.
- 21 Id.
- 22 Crabmeat Regs., § 1-4.
- 23 Id., 1-6.
- 24 Id., § B-1.
- 25 Id., § B-3.
- 26 Id.,
- 27 Oyster Regs., § 5-713, 714.
- 28 Crabmeat Regs., § B-2.
- 29 Oyster Regs., § 5-720.
- 30 Id.
- 31 Crabmeat Regs., § B-1d.

MISSISSIPPI SEAFOOD QUALITY REGULATORY SCHEME

Introduction

Mississippi regulates its seafood industry in three areas: administration (e.g. licensing, taxing, setting seasons), water quality (insofar as it affects the shellfish harvest), and processing (including the handling, packaging, shipping, and sale of the seafood product). The legislature has vested two agencies with the authority (sometimes overlapping) to oversee the seafood industry: the Commission on Wildlife Conservation (MCWC)¹ and the State Board of Health². Through the staff support of the Bureau of Marine Resource (BMR), MCWC issues certificates and licenses to, and collects taxes from all those involved in harvesting, processing, packaging and shipping seafood.³ It also sets the harvestry seasons and the standards of measure for all types of seafood; makes size, catch and taking regulations; and leases waterbottoms for oyster farming. Moreover, MCWC can reserve areas of coastal waters for the tonging of oysters and designate them as off limits for dredging. It has the additional authority to close oyster beds and oversee the relaying of oysters when waters in the area have become too polluted for a safe harvest.⁴

The State Board of Health is jointly responsible with MCWC for determining what areas are safe for shellfish harvest and relaying. It also supervises the processing, packaging, and shipping of seafood to ensure that state sanitary requirements are met.

Water Quality and the Shellfish Industry

The oyster fishery is the only segment of Mississippi's seafood industry subject to considerable food quality regulation at the harvestry stage. In this regard, the Board of Health has been given the authority to

determine which waters are suitable for oyster harvesting. Based upon periodic surveys, coastal waters are classified into categories synonymous with the NSSP recommendations: approved, conditionally approved, restricted, or prohibited. Approved waters are those which the survey indicates are free of dangerous concentrations of pathogenic microorganisms and therefore do not pose a health hazard.⁵ Conditionally approved waters are areas approved for harvesting only under specific conditions.⁶ Waters which are not safe for harvesting are deemed restricted.⁷ Prohibited waters are those where a sanitary survey has not been conducted.⁸ It is illegal to harvest shellfish from restricted or prohibited areas.⁹

The Board is also authorized to test coastal waters to ascertain whether any approved areas have become too polluted for a safe oyster harvest. On a finding of possible contamination, the Board must notify MCWC, which may close the beds or require that the oysters be removed therefrom and relaid in waters approved by the Board of Health.¹⁰ All relaid shellfish must remain in the seed areas for at least fifteen days in order to assure that they will sufficiently cleanse themselves prior to harvesting. Before relaying oysters, a lease for that purpose must be obtained from BMR. Such a lease covers water bottoms in a nonpolluted area. Relaying to the leased area is supervised by a Sanitary Engineer from the State Board of Health, who is required by statute to be on board the boat during the harvesting and relaying. However, testing of the waters periodically during the time that oysters are relaid and planted is the duty of the relayer and not the Sanitary Engineer. It is also the relayer's responsibility to halt his operation and notify the Board of Health of the pollution count found in the leasehold area. MCWC is responsible for enforcing laws and regulations governing the relaying process.

Once shellfish have been harvested and brought to the docks, they must be tagged by BMR with a label attached to their bags which identifies both the fisherman and the source of the lot.¹² Persons in the shellfish industry must keep records of this information, as well as of the address and permit number of each fisherman from whom a lot is received, and the names and addresses of the persons to whom lots are sold or shipped.¹³ The tagging program is used not only in identifying harvest areas, but also in facilitating the collections of the state oyster tax.

Seafood Processing

Although oysters are the only species closely scrutinized by state authorities in the harvestry stage, all seafood removed from coastal waters is subject to the regulations of the Board of Health. The Board's responsibilities fall into three broad areas: crabmeat and cooked shrimp regulations, shellfish sanitation, and general retail food sanitation.

1. Regulations Governing Crab Meat and Cooked Shrimp

Crabmeat and shrimp are prepared for distribution at picking plants. Such plants may not operate unless they are certified by the Board of Health for compliance with regulations which fall into the following four categories: construction of the picking plant; picking plant equipment; methods and operations; and personal health and cleanliness of the employees.¹⁴

The following is a summary of regulations concerning the construction of a picking plant. First, the plant must have adequate operating space, lighting and ventilation. Rooms used for cooking, backing, picking, or poaching crabs and shrimp must have floors and walls made of impervious material and be painted with a light-colored waterproof paint. Any opening into these rooms must be screened, open outwards only and be able to

close automatically. Floors in all rooms must have adequate drainage that is easily cleaned. All storage spaces must be fly-tight. Finally, the plant must have an adequate supply of water of a quality approved by the Board of Health.¹⁵

Rules governing picking plant equipment emphasize the need for metal surfaces, utensils, and containers that are kept sterilized and which are not easily corrodible. Ice boxes and refrigerators are to be flushed with clean water or a chlorine solution each time they are emptied.¹⁶

Perhaps the most important section of these regulations deals with methods and operations at the picking plant. The plant and its immediate surroundings are required to be free of rubbish and abandoned equipment. Floors of the plant must be cleaned daily, while all other integral parts of the building are only required to be generally kept clean. All dead crab and shrimp must be culled before processing. Crab backing, washing, picking, brining and packing is to be done in the plant. All heading, peeling, cooking, picking, brining, and packing of shrimp is also required to be done in the plant. Crabs must be backed and picked on the same day. Picked crab meat and cooled cooked shrimp are required to be packed as rapidly as possible, then chilled with rinsed and cleaned ice and stored in ice boxes or refrigerators. Waste from the seafood must be collected in metal containers and disposed of periodically to prevent accumulation. Waste is strictly prohibited from remaining in the plant overnight.¹⁷

Shipping containers are to be clean and free from dangerous contamination. When they are filled with the final seafood product, they must be crimped and sealed so that tampering will be self-evident. In addition, any can of crabmeat or shrimp that is to be sold or offered for sale must

be embossed or stamped with the serial number of the operator's certificate.¹⁸

The regulations also offer guidelines for personal health and cleanliness. Before beginning work and after every work interruption, employees are to wash their hands with soap and running water. All outer garments are to be reasonably clean. No one can be employed in a picking plant if they have a communicable disease or if anyone in their household has such a disease. Employees with sores or lesions on their hands are not permitted to work. To determine that any employee is free of communicable diseases, he or she shall submit to physical examinations and laboratory specimens and provide information as a health officer may require.¹⁹

Finally, the regulations state generally that crab meat and cooked shrimp shall at all times be free of adulteration and from contamination as determined by bacteriological examination.²⁰

2. Shellfish Sanitation Regulations

The second set of Board of Health regulations that affects seafood quality deals with shellfish sanitation. Generally, these regulations cover harvesting, handling, packing, shipping, and sale of shellfish.²¹

No person can handle, shuck, package, repackage or ship shellfish without a permit from the Board of Health.²³ This permit can be suspended or revoked for a violation of processing regulations, for interference with a health officer who is performing his duties, or for the existence of a health hazard. Before a suspension becomes effective, the permittee must be given a notice of intent to suspend the permit accompanied by a list of the alleged violations. A reasonable time for corrections shall be allowed before the suspension is made effective. Such

suspension remains in effect until the corrections are made.²³ A permittee must also be given reasonable notice and an opportunity for a hearing upon repeated violations before his permit can be revoked. Notice of intent of suspension is not required when the shellfish create a health hazard, when they are misbranded or adulterated, or when there is a willful refusal of inspection.²⁴

As with oysters, shellfish lots must be tagged with a produce code identifying the fisherman and the source of the lot. This information, plus addresses and permit numbers of all persons from whom lots are received and the names and addresses of the person(s) to whom lots are sold or shipped, must be kept on record by those in the shellfish business.²⁵

All containers of fresh or frozen raw shucked shellfish must be labelled with the (a) name of the product; (b) name and address of the packer, repacker or distributor; (c) size of the container; (d) permit number; and (e) for frozen only, date of packaging. Containers of shell stock shellfish are to be labeled with the: (a) shipper's name, address and permit number; (b) date of shipment; (c) harvest area; and (d) name and address of consignee. Any misbranded, mislabeled, unlabeled, unapproved, or adulterated shellfish is prohibited from being harvested or sold and may be impounded by a health officer.²⁶

Sanitation requirements for construction and operation of certified shellfish plants are designed to prevent contamination of the shellfish. As with picking plants, floors, walls and ceilings must be smooth and washable. Rooms in the plant must be well-lighted and have sufficient ventilation to prevent condensation and excessive odors. Additionally, each room for the various processing procedures must be separate.²⁷

Plant equipment must be of stainless steel or another smooth, non-absorbent, corrosion-resistant, non-toxic material.²⁸

Shell stock must be cleaned with approved water only and must be stored separately from the shucked product. Shucked shellfish offered for sale must always be in the original container. Two hours after packing, the temperature of shucked shellfish shall not exceed 45°F. Shell stock should be stored at 50°F or less. These same temperature requirements must be adhered to during transportation from the plant.²⁹

Sanitation standards for personnel are essentially the same as for those of personnel at picking plants. Persons with a communicable disease or with infectious wounds on their hands, arms, or face are prohibited from working in the plant. When there are reasonable grounds to suspect that a person in contact with the shellfish has the possibility of transmitting infection, three things must be done: (1) immediately excuse the person from handling shellfish; (2) exclude the potentially contaminated lot from distribution; and (3) have the person examined by a doctor.³⁰

Any violation of these regulations is a misdemeanor. Each day that a violation occurs is considered a separate violation. Penalties range from revocation of permit to a fine of up to \$500 and/or up to six months' incarceration.³¹

3. Retail Food Sanitation

All other miscellaneous seafood is regulated under rules governing retail food sanitation. These regulations as related to seafood cover primarily food protection, storage, transportation, and display. Fish, shellfish, and edible crustaceans in a form capable of supporting rapid and progressive growth of infectious or toxigenic microorganisms are considered "potentially hazardous foods."³² The temperature of such potentially

hazardous foods must be maintained by refrigeration at 45°F or below otherwise provided for.³³ When such foods are transported, they must be pre-chilled and held at a temperature of 45°F or below unless they are maintained with hot storage.³⁴ If seafood does become damaged or spoiled, it must be segregated from other foods pending disposition.³⁵ The same requirements apply for the display of seafood. Frozen foods are to be kept at 0°F for short periods of time "incidental to normal retail operation." Potentially hazardous foods that are thawed are not to be refrozen.³⁶

Problems

Despite the comprehensive nature of its seafood quality regulatory scheme, Mississippi law is still lacking in areas such as the development of a meaningful product code and the setting of bacteriological standards for shellfish meats. To help remedy these and other problems, Mississippi has joined the Interstate Shellfish Sanitation Conference (discussed infra.) It is hoped that participation in the ISSC will help provide uniformity in the development, administration, and enforcement of Mississippi's seafood quality standards.

FOOTNOTES

¹ Miss. Code Ann. §49-15-11 (Supp. 12 1983).

² Id., §41-3-15 (Supp. 1983).

³ Id., §49-15-29 (Supp. 12 1983).

⁴ Id., §49-15-37.

⁵ Mississippi State Board of Health, Regulation Governing the Harvesting, Handling, Packing, Shipping, and Sale of Shellfish Division 700-Shellfish Sanitation §700.2 (h) (1979)(hereinafter Shellfish Sanitation).

⁶ Id., §700.2(i).

⁷ Id., §700.2(j).

⁸ Id., §700.2(k).

⁹ Id., §700.2(j)(k).

¹⁰ Miss. Code Ann. §49-15-37 (Supp. 13 1983); Shellfish Sanitation §700.6

¹¹ Id.

¹² Miss. Code Ann. §49-15-29(d) (Supp. 12 1983)

¹³ Shellfish Sanitation §700.7.

¹⁴ Mississippi State Board of Health, Rules and Regulations Governing the Preparation, Picking, Packing, Shipping, and Sale of Crab Meat and Cooked Shrimp 3,4 (1937) (hereinafter Crab Meat Regs.)

¹⁵ Id. at 4.

¹⁶ Id. at 5.

¹⁷ Id. at 5-7.

¹⁸ Id.

¹⁹ Id. at 7,8.

²⁰ Id. at 8.

²¹ Shellfish are defined to include oysters, clams, and mussels. Shellfish Sanitation §700.2(a).

²² Permits are not required for on-location consumption such as at a halfshell bar or restaurant. Id., §700.3.

²³ Id.

²⁴id.

²⁵id., §700.7.

²⁶id., §700.5.

²⁷id., §700.8

²⁸id., §700.9. The regulations also delineate specific methods of sanitizing equipment. id., §700.11.

²⁹id., §§700.14-700.16.

³⁰id., §§700.21-700.22.

³¹id., §700.25; Miss. Code Ann. §41-3-59 (Supp. 1983).

³²Mississippi State Board of Health, Regulation Governing Retail Food Sanitation §102.2(n) (1976).

³³id., §102.10(a).

³⁴id., §102.11.

³⁵id., §102.8(a).

³⁶id., §102.10.

CONCLUSION

As can be seen from the above discussion, problems still exist in the regulation of the quality of seafood which ultimately reaches the consumer. The original National Shellfish Sanitation Program, while serving as a model for a federal-state partnership in controlling seafood quality, was thwarted by the failure of Congress and the FDA to make the standards legally binding upon states and the seafood industry. Furthermore, its utility was limited because it was applicable to shellfish species only. The Food, Drug and Cosmetic Act provides a limited amount of federal oversight of the seafood industry through its adulteration and mislabeling provisions. However, since the Act addresses a broad range of food and drugs which enter interstate commerce, the FDA's ability to adequately enforce seafood quality regulations is simultaneously limited and erratic.

Both the states of Mississippi and Alabama have established mechanisms to control seafood quality. However, their standards and procedures are not uniform with respect to each other or to other coastal states. In addition, there is no juxtaposition of these statutes and regulations with the states' water pollution control laws. Both states are members of the recently formed Interstate Shellfish Sanitation Conference, which is indicative of their recognition of seafood quality problems and desire to improve the quality of marketed shellfish. However, as with the NSSP, the success of the ISSC depends upon the voluntary cooperation of its members. Its resolutions are legally unenforceable upon the parties until adopted through the appropriate legislative or regulatory channels.

In order to more effectively solve some the problems associated with seafood quality, a concerted effort must be made by the federal and state governments and the seafood industry to assure that a safe seafood product is reaching the consumers. This requires a good faith effort on the part of all concerned parties to utilize current scientific knowledge to build a regulatory program that offers both flexibility (in order to allow for biological and chemical differences among species and their growing waters which are insignificant in terms of their affect on seafood quality) and uniformity (which would assure that at least minimal health protection standards are met by all). In addition, continued scientific research in the area should be encouraged and the results incorporated into regulatory programs as necessary and appropriate. Finally, seafood quality programs should be designed congruent with the states' other efforts toward water quality control.