

National Shellfish Sanitation Program
Guide for the Control of Molluscan Shellfish
2007

Section II. Model Ordinance
Chapter VIII. Control of Shellfish Harvesting

[Guide Contents](#)

Requirements for the Authority

[Note: The Authority must meet the requirements of this section even if the Authority does not formally adopt this section in regulation.]

Additional Guidance - Section IV Guidance Documents

[Chapter II.08 Growing Area Patrol and Enforcement](#)

[Chapter II.09 Control of Shellfish Harvesting](#)

@.01 Control of Shellstock Growing Areas.

A. General

- (1) The Authority shall maintain an effective program to control shellstock growing areas and to assure that shellstock are harvested only:
 - (a) From areas in an open status; and
 - (b) With approval from areas classified as restricted, conditionally restricted, or prohibited, or in the closed status of the approved or conditionally approved classification.
- (2) This program shall include:
 - (a) The patrol of growing areas;
 - (b) The licensing of harvesters;
 - (c) Enforceable legal penalties sufficient to encourage compliance; and
 - (d) Appropriate identification of harvest areas where shellstock harvest is not allowed.
- (3) At the time of issuance or renewal of a harvester's license or a dealer's certification, or an annual mail out to all licensed shellfish harvesters, the Authority shall provide each harvester or dealer with:
 - (a) Information which explains the public health risk associated with illegal harvesting shellstock in areas classified as restricted, conditionally restricted,

or prohibited or in the closed status; and

(b) When requested, a current, comprehensive, itemized listing of all harvest areas including their geographic boundaries and their classification.

B. Patrol of Growing Areas.

(1) The Authority shall assure that shellstock are harvested only as provided in this Chapter.

(2) The Authority shall patrol harvest areas classified as restricted, conditionally restricted, or prohibited, or conditionally approved and approved when in the closed status at sufficient intervals to deter illegal harvesting. This patrol activity shall include consideration of the need for night, weekend, and holiday patrols. At a minimum, these growing areas shall be patrolled at the following frequencies, except as provided in B.(3), in order to ensure effective control:

Risk Category	Minimum Frequency of Patrol
Low	Four (4) times per 30 harvestable days
Medium	Eight (8) times per 30 harvestable days
High	Sixteen (16) times per 30 harvestable days

A patrol is accomplished when the majority of an area is monitored. No more than two patrols can be counted in a 24-hour period, and each must be a separate deliberate effort. A harvestable day refers to a day during which tidal, weather and other conditions make it possible to harvest shellfish. When tidal, weather, or other conditions prohibit harvesting on a particular day, that day is not included in the 30-day period.

(3) Exceptions.

(a) Patrol is not required under the following conditions:

(i) There is no shellfish productivity, as demonstrated by one of the following methods:

- a. pH, salinity, temperature, or turbidity are not favorable to the growth of shellfish; or
- b. The water bottom does not support shellfish growth; or
- c. The area has been depleted of shellfish by dredging, disease, or other means;

(ii) Harvest from the area is not economically feasible (i.e., the cost of harvesting exceeds the market value of the product)

(iii) The area meets all of the following conditions:

- a. The area is unclassified;
 - b. Historically there has not been interest in commercial harvesting;
 - c. Known points of pollution do not exist; and
 - d. The Authority has current evidence that commercial harvesting does not occur. This can be accomplished by information gathered from periodic patrols or reliable non-patrol sources.
- (b) Where natural sets resulting in commercially harvestable quantities of shellfish do not exist and advanced aquaculture methods (e.g. racks, bags, lantern nets, long lines and/or floats) are used in the area: The area shall be patrolled at the frequencies specified in §B. (2) unless the authority develops and implements a Risk Management Plan for the area for the prevention of illegal harvesting of shellfish. The Risk Management Plan shall include monitoring and control of surveillance activities that supplement the minimum required patrol frequency of one (1) time per 30 harvestable days. The Risk Management Plan at least should include the following:
- (i) Description of the area;
 - (ii) Classification of the area;
 - (iii) Description of adjacent growing areas;
 - (iv) Procedure used to prevent shellfish from prohibited or closed waters to be commingled with shellfish from an aquaculture area; and
 - (v) If, the patrol agency receives assistance from other state, federal, or tribal agencies, a memorandum of agreement must be developed describing responsibilities of each agency. A copy of such MOA must be kept in a central file.
- (c) If the area is geographically remote, sparsely populated and has limited access (e.g., no or very poor roads) such that the potential for marketing the shellfish is severely restricted:
- (i) The area shall be patrolled at the frequencies specified in § B. (2) unless the Authority develops and implements a Risk Management Plan for the area for the prevention of illegal harvesting of shellfish. The Risk Management Plan shall include monitoring and control of surveillance activities (e.g. airport, dock, border, or truck surveillance) that will be used in lieu of traditional patrol activities, and the area should be patrolled at least one (1) time per 30 harvestable days. The Risk Management Plan shall describe the administrative procedures and resources necessary to prevent illegal harvesting and/ or the illegal commingling of the product and include at least the following:

- a. Description of the area;
 - b. Classification of the area;
 - c. Description of adjacent growing areas; and
 - d. If the patrol agency receives assistance from other state, federal, or tribal agencies, a memorandum of agreement must be developed describing responsibilities of each agency. A copy of such MOA must be kept in a central file.
- (ii) If the Authority has current evidence that commercial illegal harvesting is occurring, the Management Risk Plan should be reevaluated.
- (d) Where the entire state is closed to harvesting during traditional non-harvesting seasons:
- (i) The area shall be patrolled at the frequencies specified in § B. (2) unless the Authority develops and implements a Risk Management Plan for the area for the prevention of illegal harvesting of shellfish. The Risk Management Plan shall include monitoring and control of surveillance activities (e.g. airport, dock, border, or truck surveillance) that will be used in lieu of traditional patrol activities. The Risk Management Plan shall describe the administrative procedures and resources necessary to prevent illegal harvesting and/ or the illegal commingling of the product and include at least the following:
 - a. Description of the area;
 - b. Classification of the area;
 - c. Description of adjacent growing areas; and
 - d. If the patrol agency receives assistance from other state, federal, or tribal agencies, a memorandum of agreement must be developed describing responsibilities from each agency. A copy of such MOA must be kept in a central file.
 - (ii) The area shall be patrolled in low risk areas at least once (1) per 30 harvestable days, for medium risk areas at least twice (2) per 30 harvestable days, and for high-risk areas at least four (4) times per 30 harvestable days.
 - (iii) If the Authority has current evidence that commercial illegal harvesting is occurring, the state agency shall resume patrol at the frequency specified in B. (2).
- (4) The Risk Category for an area shall be determined as follows:

(a) Shellfish Productivity. Estimate the abundance of shellfish based on density studies, historical information, and environmental conditions described in B.(3)(a). Consider only commercially marketable species. The descriptions below refer to the range of productivity within the state. The area shall be rated based on the highest density in any portion of the growing area.

- Low Production - 1
- Medium Productivity - 3
- High Productivity - 5

(b) Ease of Harvest. Determine the method used to harvest the shellfish. If multiple harvest techniques are used in an area, select the one with the highest score.

- Highly mechanized requiring expensive equipment, deep water, difficult harvest - 1
- Restricted access aquaculture relative shallow water dredging - 2
- Scuba diving, tonging, bullraking - 3
- Hand collection from a boat - 4
- Hand collection, no special tools or boat - 5

(c) Difficulty of Patrol. Determine the difficulty of patrol. If the difficulty varies in an area, select the description with the highest score.

- Resource within sight of population and a normal patrol route. Patrol Officer can observe illegal harvesting from the patrol vehicle - 1
- Resource is near a shore and easily visible - 2
- Moderate difficulty, deliberate effort is required to provide coverage to the area - 3
- Long travel time to growing area, large open expanse of harvest area - 4
- Growing area is a marsh, short sight distance, canals system, extensive shoals - 5

(d) Using the values determined in B.(4)(a), (b), and (c), calculate the total score for the area as follows:

Risk Factors	Score	Weight	Rating	Explain Rating	Adjustment of Rating
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	(1-5)			(optional)	(if needed)
Shellfish Productivity (a)		0.40			
Ease of Harvest (b)		0.40			
Difficulty of Patrol (c)		0.20			
			Subtotal		

The rating for each risk factor is calculated by multiplying the risk factor score by the weight for that factor. The subtotal is calculated by adding all three of the risk factor ratings.

(e) The following criteria should be used to adjust the rating, if warranted:

(i) If a community-policing program is in place, the subtotal may be reduced by up to 0.25 points. If such a program leads to frequent citations, the subtotal may be reduced by up to 0.5 points. Community policing may include but is not limited to telephone hot lines, out-reach programs, financial incentives, local law enforcement activities not covered by B.(5), or private security arrangements.

(ii) If specialized equipment is available to the patrol agency, the subtotal may be reduced by up to 0.40 points. The actual reduction should be dependent upon the type of equipment that is available and its frequency of use. For example, frequent use of an aircraft can warrant a 0.4 point reduction, and frequent use of night vision or periodic use of aircraft can warrant a 0.2 point reduction.

(iii) If a growing area is conditionally managed or is poorly marked, the subtotal may be increased by up to 0.2 point. Adding or subtracting the appropriate adjustment(s) calculates the total score.

(f) The following risk categories shall be applied to the total score:

Total Score	Risk Category
less than 3	Low
3 or less than 4	Medium
4 or greater	High

(5) The Authority may delegate patrol activity to any State or local enforcement authority. If patrol activities are delegated, the Authority shall:

(a) Develop a Memorandum of Agreement with the delegated agency to

assure that patrol requirements are met; and

(b) Require the delegated agency to maintain and file records of its patrol activities consistent with those required in B.(7).

(6) Officers responsible for the patrol of shellfish growing areas shall obtain the following training:

(a) Basic law enforcement training, before assuming their patrol duties;

(b) Training on shellfish control regulations within the jurisdiction of the patrol agency, before assuming independent patrol duties;

(c) In-service training on the shellfish control regulations within the jurisdiction of the patrol agency, when the regulations change.

(7) The Authority shall prepare and revise, as necessary, a patrol policy document which records the Authority's patrol organization and its activities to deter illegal shellstock harvesting. This documentation shall include:

(a) Citation of the law providing the legal basis for enforcement authority;

(b) Citation of the laws and regulations, including penalties, which are directly related to effective control of illegal harvest activities;

(c) The organizational structure of the unit responsible for patrol activities, including;

(i) Patrol unit(s) name, address, and phone number;

(ii) The roster and chain of command;

(iii) Area assignments that support the frequencies of patrol delineated in B.(2); and

(iv) A listing of specific vessels, vehicles, and equipment that support the frequencies of patrol delineated in B.(2);

(d) Summaries of training in shellfish patrol techniques;

(e) The methods used to inform officers of growing area classifications and status, and of any special activities licensed in the area;

(f) A listing of growing areas where patrol is required;

(g) An identification of any patrol problems;

(h) The type and frequency of reporting by patrol personnel;

(i) Copy of agreements with other agencies responsible for shellfish control activities; and

(j) Citations/summons for the past year. If available, this information may include:

- (i) The number of convictions or dismissals;
- (ii) Fines in dollar amount;
- (iii) Equipment or property confiscations and forfeitures;
- (iv) License suspensions or revocations; and
- (v) Jail sentences; and
- (vi) Written warnings.

(8) Upon request by FDA, the Authority shall provide any available documentation that is used to support the determination that the patrol program was effective in providing the required frequency of patrol. Ordinarily, this does not include providing reports not normally maintained by the Authority.

(9) To comply with the Standardized Evaluation Criteria, the Authority shall:

- (a) Have a patrol policy document (Key item);
- (b) Update patrol documents every year (Key item);
- (c) Meet NSSP patrol training requirements (Key item);
- (d) Patrol all areas that require patrol (Critical item);
- (e) Meet NSSP requirements for frequency of patrol (Key item);
- (f) Have formalized Memorandum of Agreement with other agency per Chapter VIII@.01B(5) (Key item);
- (g) Have a risk management plan per Chapter VIII@.01B(3)(b)(c)(d) (Critical item); and
- (h) Have a complete risk management plan per Chapter VIII@.01B(3)(b)(c) (d) (Other item).

C. Licensing of Harvesting.

- (1) The Authority shall assure that a license is required to commercially harvest shellstock, including shellstock harvested from aquaculture.
- (2) Each license shall:
 - (a) Not be valid for more than one year;
 - (b) Require the harvester to sell only to dealers listed on the Interstate Certified

Shellfish Shippers List; and

- (c) Allow the harvester, at his discretion, to place shellstock in containers for transport of shellstock from a growing area to land or to a dealer.
- (3) A license to harvest shall not allow a harvester to engage in shellstock packing or engage in independent wet storage activities as defined in this Ordinance unless the harvester is a certified shellfish dealer and has a Wet Storage Permit issued by the Authority.
- (4) In the case of riparian or leased land, unless the riparian owner or lessee employs a licensed harvester, the Authority shall require a riparian owner or lessee to be licensed as a harvester prior to harvesting his shellstock. A licensed riparian owner or lessee may employ unlicensed harvesters to work his property or lease.
- (5) When a person has a special license to harvest shellstock for depuration, the Authority may not require individuals working under the supervision of the licensed harvester to have their own license.
- (6) The Authority shall inform each licensed harvester as to:
 - (a) The classification and current status assigned to each growing area; and
 - (b) The methods used to notify harvesters of changes in growing area status or classification.
- (7) When the Authority authorizes shellstock relaying under Chapter V. or shellstock depuration under Chapter XV., the Authority shall issue special licenses to harvesters for the taking of shellfish from areas classified as restricted, conditionally restricted, or in the closed status of the approved or conditionally approved classification. The licenses shall specify the limitations and conditions for harvesting shellstock including requirements for the harvester to keep records which:
 - (a) For depuration:
 - (i) Specify the date and amount of shellstock harvested from each area; and
 - (ii) Record the name of the depuration facility to which the shellstock was consigned or sold; and
 - (b) For relaying, meet the requirements of Chapter V.03D.
- (8) The Authority shall maintain a record of all licenses and special licenses issued.

D. Identification of Certain Growing Areas.

- (1) The Authority shall chart, describe, and mark the boundaries of growing areas classified as restricted, conditionally restricted, or prohibited, or in a closed status. The boundary descriptions shall:

- (a) Be marked by fixed objects or landmarks; or
- (b) Be described in a manner which allows easy recognition; and
- (c) Allow successful prosecution of any illegal commercial harvesting activity.

(2) The Authority:

- (a) Shall notify harvesters of the boundaries established under §D.(1) by dissemination of information with licenses, publication, or direct notification including registered mail; and
- (b) May use warning signs.

E. Prohibited Classification. The Authority shall exercise effective supervision over each depletion or seed gathering operation and maintain complete written documentation.

Requirements for Harvesters

.01 General.

- A. Each harvester shall have a valid license, and a special license if necessary, in his possession while engaged in shellstock harvesting activities.
- B. Persons who are working in a boat crew under the supervision of a licensed harvester need not have a valid harvester's license.
- C. In the case of riparian or leased land, unless the riparian owner or lessee employs a licensed harvester, the riparian owner or lessee shall be licensed as a harvester prior to harvesting his shellstock. A licensed riparian owner or lessee may employ unlicensed harvesters to work his property or lease.

.02 Shellstock Harvesting and Handling.

- A. Harvesters. Any harvester who engages in shellfish packing as defined in this Ordinance shall:
 - (1) Be a dealer; or
 - (2) Pack shellstock for a dealer.
- B. Non-Vessel Harvesting

Harvesters shall assure shellstock are harvested, handled, and transported to prevent contamination, deterioration, and decomposition.
- C. Vessels.

- (1) The operator shall assure that all vessels used to harvest and transport shellstock are properly constructed, operated, and maintained to prevent contamination, deterioration, and decomposition of the shellstock.
 - (a) Decks and storage bins shall be constructed and located to prevent bilge water or polluted overboard water from coming into contact with the shellstock.
 - (b) Bilge pump discharges shall be located so that the discharge shall not contaminate shellstock.
 - (c) Containers used for storing shellstock shall be clean and fabricated from safe materials.
 - (d) Boat decks and storage bins used in the harvest or transport of shellstock for direct marketing shall be:
 - (i) Kept clean with potable water or water from a growing area in the approved classification or in the open status of the conditionally approved classification; and
 - (ii) Provided with effective drainage.
 - (e) Vessels and all other equipment coming in contact with shellstock during handling or transport for relaying or depuration shall be thoroughly cleaned before the vessels or equipment are used to transport or handle shellfish for direct marketing.
 - (f) When necessary, effective coverings shall be provided on harvest boats to protect shellstock from exposure to:
 - (i) Hot sun;
 - (ii) Birds; and
 - (iii) Other adverse conditions.
- (2) Cats, dogs, and other animals shall not be allowed on vessels.

D. Disposal of Human Sewage from Vessels.

- (1) Human sewage shall not be discharged overboard from a vessel used in the harvesting of shellstock, or from vessels which buy shellstock while the vessels are in growing areas.
- (2) The Authority shall educate all licensed harvesters and shellstock dealers concerning the public health significance of discharging human sewage overboard.
- (3) As required by the Authority, in consultation with FDA, an approved marine sanitation device (MSD), portable toilet or other sewage disposal receptacle shall

be provided on the vessel to contain human sewage.

(4) Portable toilets shall:

- (a) Be used only for the purpose intended;
- (b) Be secured while on board and located to prevent contamination of shellstock by spillage or leakage;
- (c) Be emptied only into a sewage disposal system;
- (d) Be cleaned before being returned to the boat; and
- (e) Not be cleaned in equipment used for washing or processing food.

(5) Use of other receptacles for sewage disposal may be approved by the Authority if the receptacles are:

- (a) Constructed of impervious, cleanable materials and have tight fitting lids; and
- (b) Meet the requirements in §D.(3).

E. Shellstock Washing.

- (1) Shellstock shall be washed reasonably free of bottom sediments as soon after harvesting as practicable.
- (2) The harvester shall be primarily responsible for washing shellstock.
- (3) If shellstock washing is not feasible at the time of harvest, the dealer shall assume this responsibility.
- (4) Water used for shellstock washing shall be obtained from:
 - (a) A potable water source; or
 - (b) A growing area in the:
 - (i) Approved classification; or
 - (ii) In the open status of the conditionally approved classification.
- (5) If the harvester or dealer elects to use tanks or a recirculating water system to wash shellstock, the shellstock washing activity shall be constructed, operated, and maintained in accordance with Chapter XI.02.A.(3) and Chapter XIII.02.A.(3).

F. Shellstock Identification.

- (1) Each harvester shall affix a tag to each container of shellstock which shall be in place while the shellstock is being transported to a dealer.
- (2) If the shellstock was harvested at more than one location, each container shall be

tagged at its growing area.

- (3) When the harvester is also the dealer, the harvester has the option to tag the shellfish with a harvester's tag or a dealer's tag meeting the requirements outlined in X. §05.
- (4) The harvester's tags shall:
 - (a) Be durable, waterproof and sanctioned by the Authority prior to use; and
 - (b) Be at least 13.8 square inches (89.03 cm²) in size.
- (5) The harvester's tag shall contain the following indelible, legible information in the order specified below:
 - (a) The harvesters' identification number as assigned by the Authority;
 - (b) The date of harvest;
 - (c) The most precise identification of the harvest location or aquaculture site as is practicable, including the initials of the state of harvest, and the Authority's designation of the growing area by indexing, administrative or geographic designation. If growing areas have not been indexed by the Authority, then an appropriate geographical or administrative designation must be used (e.g. Long Bay, Decadent County, lease number, bed, or lot number).
 - (d) The type and quantity of shellstock; and
 - (e) The following statement in bold capitalized type on each tag
**"THIS TAG IS REQUIRED TO BE ATTACHED UNTIL
 CONTAINER IS EMPTY OR IS RETAGGED AND THEREAFTER
 KEPT ON FILE FOR 90 DAYS."**
- (6) If the shellstock is removed from the original container, the tag on the new container shall meet the requirements in §.02 F.
- (7) Bulk tagging of a lot of shellstock during transport from harvest area to the dealer facilities.
 - (a) When shellstock are harvested from one harvest area on a single day, multiple containers may be utilized on a wrapped pallet, in a tote, in a net brailer, or other container and the unit tagged with a single tag in accordance with the requirements of §.02 F.
 - (b) In addition to the information required in §.02 F. the unit tag shall also include:
 - (i) A statement that "All shellstock containers in this lot have the same harvest data and area of harvest"; and
 - (ii) Number of individual containers in the unit.

- (8) Bulk Sale of Shellstock. If shellstock are sold in bulk, the harvester or dealer shall provide a transaction record prior to shipment. This transaction record shall contain all the information required in §.02 F. with the addition of the name of the consignee.

.03 Shellstock Temperature Control.

Note: The Authority shall select one of the following options for implementation in its State. The time-temperature matrix for each of the options applies only to the original harvester or harvester/dealer of shellstock for the purposes of handling and transporting shellstock to the first point of processing or packing.

OPTION 1

(Mandatory for confirmed Vibrio vulnificus problem) If the waters of a State have been confirmed as an original source of product associated with two (2) or more Vibrio vulnificus illnesses, the Authority shall adopt the following exposure time to temperature controls in the time-temperature matrix below only for shellfish intended to be consumed raw.

- A. For the purposes of this section, temperature control is defined as the management of the environmental temperature of shellstock by means of ice, mechanical refrigeration or other approved means which is capable of lowering the temperature of the shellstock and will maintain it at 50 degrees Fahrenheit (10 degrees Centigrade) or less.

Time-Temperature Matrix for *Vibrio vulnificus*:

Action Level	Water Temperature	Maximum Hours from Exposure to Temperature Control
Level 1	<65 °F	36 hours
Level 2	65 °F - 74 °F (18 °C - 23 °C)	14 hours
Level 3	>74 °F - 84 °F (>23 °C - 28 °C)	12 hours
Level 4	> 84 °F (>28 °C)	10 hours

- B. The Authority shall establish the water temperature to be applied in the matrix above for each growing area by averaging the previous 5 years maximum monthly water temperatures.
- C. The time to refrigeration in the above matrix shall be based upon the first shellstock harvested.
- D. During Action Levels 2, 3, and 4, the product shall be shaded.
- E. The Authority may approve other measures proposed by the industry to provide controls equivalent to the time-temperature requirements in the above matrix.
- F. The Authority may set up a plan that allows for exemption of this option for shellstock

that is to be post-harvest processed with an approved post-harvest process in accordance with NSSP Model Ordinance Chapter XVI. The Authority must develop a plan to ensure the security of shellstock harvesting.

- G. The Authority shall ensure the dealer has adequate methods in place to demonstrate compliance with the time/temperature matrix.

OPTION 2

If a growing area in the State has been confirmed as an original source of product associated with two (2) or more Vibrio parahaemolyticus illnesses within the past three years, the Authority shall adopt the following exposure time to temperature controls in the time-temperature matrix below or use Option 1. This Vibrio parahaemolyticus control measure applies only to shellfish from the affected growing area(s) which are intended to be consumed raw.

For the purposes of this control measure, identify and define growing areas in the State affected by Vibrio parahaemolyticus based on hydrographic and geographic parameters and other considerations relevant to control of a naturally occurring pathogen.

- A. For the purposes of this section, temperature control is defined as the management of the environmental temperature of shellstock by means of ice, mechanical refrigeration or other approved means which is capable of lowering temperature of the shellstock to, and will maintain it at 50 °Fahrenheit (10 °Centigrade) or less.
- B. Ocean Quahogs (*Arctica islandia*) and surf clams (*Spisula solidissima*) are exempted from this temperature control plan when these products are intended for thermal processing.
- C. Temperature determinations for application in the time-temperature matrix below shall be based on average monthly maximum air temperatures for defined regions within the state. The average monthly maximum air temperature for each region shall be established by determining the mean daily high temperature for the month in each of the previous five years as reported by the National Weather Service and then averaging the five resulting temperatures. Ocean Quahogs (*Arctica islandia*) are exempted from this temperature control plan.
- D. The Authority may set up a plan that allows for exemption of this option for shellstock that is to be post-harvest treated with an approved post-harvest process in accordance with NSSP Model Ordinance Chapter XVI. The Authority must develop a plan to ensure the security of shellstock harvesting.
- E. The Authority shall ensure the dealer has adequate methods in place to demonstrate compliance with the time/temperature matrix.

Time-Temperature Matrix for *Vibrio parahaemolyticus*:

Action Level	Average Monthly Maximum Air Temperature	Maximum Hours from Exposure to Temperature Control

Level 1	<66 °F (18 °C)	36 hours
Level 2	66 °F - 80 °F (19 °C - 27 °C)	12 hours
Level 3	≥81 °F (≥27 °C)	10 hours

OPTION 3

For those states that do not have to follow Option 1 or Option 2, the following time/temperature matrix will apply.

- A. For the purposes of this section, temperature control is defined as the management of the environmental temperature of shellstock by means of ice, mechanical refrigeration or other approved means which is capable of lowering temperature of the shellstock to, and will maintain it at, 50 °Fahrenheit (10 °Centigrade) or less.
- B. Ocean Quahogs (*Arctica islandia*) and surf clams (*Spisula solidissima*) are exempted from this temperature control plan when these products are intended for thermal processing.
- C. Temperature determinations for application in the time-temperature matrix below shall be based on average monthly maximum air temperatures for defined regions within the state. The average monthly maximum air temperature for each region shall be established by determining the mean daily high temperature for the month in each of the previous five years as reported by the National Weather Service, and then averaging the five resulting temperatures. Ocean Quahogs (*Arctica islandia*) are exempted from this temperature control plan.
- D. The Authority shall ensure the dealer has adequate methods in place to demonstrate compliance with the time/temperature matrix.

Action Level	Average Monthly Maximum Air Temperature	Maximum Hours from Exposure to Temperature Control
Level 1	<66 °F (18 °C)	36 hours
Level 2	66 °F - 80 °F (19 °C - 27 °C)	24 hours
Level 3	≥81 °F (≥27 °C)	20 hours