Oysters, Florida

Generic HACCP Plan[1]

Updated 4/7/97

[1]Adapted by Bob Price from: Otwell, W.S., Moody, M.W., and Garrido, V.M. 1995. Oyster HACCP, Florida. In*Manual for Oyster and Clam Processing: Total Quality Assurance (TQA) and Hazard Analysis and Critical Control Points (HACCP) Programs*. Cooperative Extension Service and Sea Grant College Programs at University of Florida and Louisiana State University with United States Department of Agriculture, Washington, DC.

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1. Product Description

Raw material:	Eastern oysters (*Crassostrea virginica*)
Raw material harvest area:	Coastal waters from Texas through west Florida
Raw material received:	Directly from harvester or grower
Finished products:	Live oysters in their shell; fresh and frozen hand shucked whole raw oyster meat
Food additives, ingredients, processing aids:	None
Packaging:	Air-packaged
Storage and distribution:	Stored and distributed under refrigeration
Intended use:	Consumed raw, steamed, or fully cooked
Intended consumers:	General public

Return to Index

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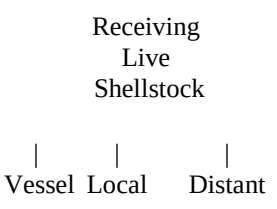
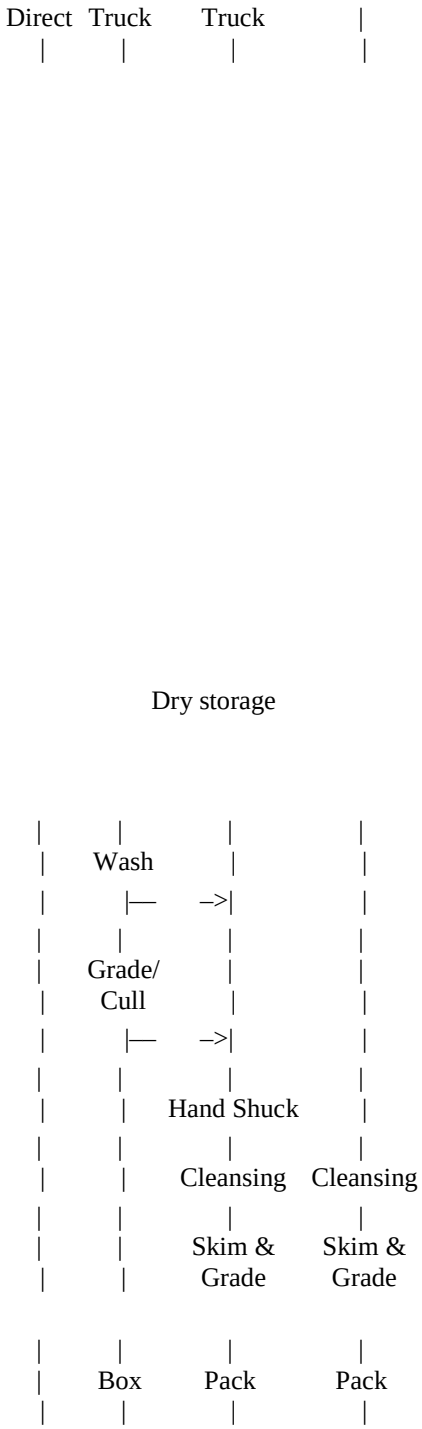
2. Flow Diagram



1. RECEIVING

Direct Vessel - live oysters are purchased from local fishing vessels that harvest the shellstock by hand (tongs) from approved and/or conditionally approved waters of Apalachicola Bay. Harvest will be subject to the surveillance of an assigned Harvest Surveyor. Shellstock is off-loaded at the plant's dock or at the satellite landing locations, where the product is inspected for survival, legal size, and general condition (mud, clusters,



singles, and appearance), and monitored for legal harvester's tags. Each lot is assigned a dealer's lot number.

Local Trucks (shellstock) - live oysters are delivered by truck to the processing plant, less than 4 hours from the landing site. Product is off-loaded, inspected for temperature and general condition, monitored for legal harvester's tags, re-tagged, and assigned a dealer's lot number.

Local Trucks (previously shucked meats) - shucked meats are delivered in refrigerated trucks or properly iced in non-refrigerated trucks. Product is off-loaded at the processing plant, less than 4 hours from the original shucking plant, and inspected for lot number, internal temperature and general condition. Only product from approved shucking plants are purchased.

Distant Trucks (shellstock and previously shucked meats) - product transported for greater than four hours must be delivered to the processing plant in refrigerated trucks. Refrigeration is monitored by a time-temperature device. Shellstock is checked for temperature, tag, conditioned and then re-tagged and assigned a lot number.. Previously shucked meats are checked for internal temperature, original shucker certification number and product condition.

2. PRODUCT COLD STORAGE

Within 2 hours after receipt, shellstock is placed into walk-in coolers set for an operating temperature low enough to achieve a product internal temperature no higher than 45°F (7.2°C). Shucked meats are placed in refrigerators that will maintain an internal temperature no higher than 40°F (4.4°C). Temperatures of coolers and refrigerators are monitored by a time-temperature chart recorders.

3. PROCESSING

Washing - Shellstock are rinsed with high pressure water hose to remove dirt from surface.

Grade/Cull - Shellstock are washed, graded and culled to select only product that meets the requirements of clustering or size for half shell commerce. Product that does not meet the required standards is taken to the shucking room with proper lot identification.

Box - Shellstock is re-tagged, bagged or boxed and sent to final storage.

Hand Shucking - Live shellstock are taken into the shucking room and distributed between workers by a conveyor belt or bulk delivery. Oysters are shucked into a 1-2 gallon stainless steel container with ice-water. When the container is filled, it is taken to the packing room for further processing.

Cleansing (Blowing) - Shucked meats are inspected and placed into a stainless steel vat with ice-water. Filtered air is blown through the ice water and oyster mixture. Cleaned product is unloaded to the skimming table to be graded and packed.

Skimming and Grading - Product is rinsed, drained and visually graded for size.

Packing - Oyster meats are packed into the final containers which are marked with the correct lot number for each corresponding batch.

4. FINISHED PRODUCT COLD STORAGE

Fresh Products - Shellstock is placed inside coolers at a temperature of 45°F (7.2°C) or lower. Shucked products are kept at a maximum temperature of 40°F (4.4°C). Temperatures of coolers and refrigerators are monitored with a time-temperature recorders.

Frozen Products - Product is packed into 4 lb. Pillow bags or suitable containers, frozen as rapidly as possible, and kept frozen (0°F, -17.8°C)

until needed. Product should be frozen solid within 12 hours of starting the freezing process.

Return to Index

3. Potential Hazards

1. **Potential species-related hazards for aquacultured oysters:** (FDA's Fish and Fisheries Products Hazards and Controls Guide: First Edition)
    a. Pathogens from the harvest area
    b. Natural toxins
    c. Environmental chemical contaminants and pesticides
    d. Aquaculture drugs
2. **Potential process-related hazards for aquacultured oysters:** (FDA's Fish and Fisheries Products Hazards and Controls Guide: First Edition)
    a. Pathogen growth and toxin formation (other than *Clostridium botulinum*) as a result of time/temperature abuse
    b. Food and color additives
    c. Metal inclusion

Return to Index

4. Hazard Analysis Worksheet

(1) Ingredient/ Processing Step	(2) Potential Hazard Introduced or Controlled	(3) Is the Potential Hazard Significant (Reasonably Likely to Occur - Yes/No)	(4) Justification for Inclusion or Exclusion as a Significant Hazard (Consider the likelihood that the hazard would or would not be introduced, or intensified, or a hazard from a previous step can be controlled	(5) Preventive Measure(s) for the significant Hazard from Column 3 (Existing plus additional, if needed)	(6) Critical Control Point (Yes/No)
Receiving	BIOLOGICAL Pathogens	Yes	Pathogens may occur in the harvest area	Approved harvest area, proper product identification	Yes
	BIOLOGICAL Parasites	No	No implicated or suspected occurrence of health significance from area of harvest		No
	CHEMICAL Chemical contamination	Yes	Contamination with pesticides, toxic elements, radioactivity, and industrial chemicals has not occurred in	Approved harvest area, proper product identification	Yes

			the harvest area, but is a potential hazard.		
	CHEMICAL Natural toxins	Yes	Natural toxins have not occurred in the harvest area, but are a potential hazard	Approved harvest area, proper product identification, (batch certification, if required)	Yes
	CHEMICAL Food and color additives	No	No food or color additives are used		No
	CHEMICAL Aquaculture drugs	No	No aquaculture drugs are used		No
	PHYSICAL None	No	Initial product is shellstock or certified shucked products		No
Product cold storage	BIOLOGICAL Pathogen growth	Yes	Thermal abuse could increase bacteria during improper storage	Hold product at proper temperatures	Yes
	BIOLOGICAL Parasites	No	Not introduced or enhanced during storage		No
	BIOLOGICAL Cross-contamination	Yes	Cross-contamination is possible with improperly stored product	Controlled by SSOPs	No
	CHEMICAL Chemical contamination	No	Not introduced or enhanced during storage	Controlled by SSOPs	No
	CHEMICAL Natural toxins	No	Not introduced or enhanced during storage		No
	CHEMICAL Food and color additives	No	Not introduced or enhanced during storage		No
	CHEMICAL Aquaculture drugs	No	Not introduced or enhanced during storage		No
	PHYSICAL None	No	Not introduced or enhanced during storage		No
Processing	BIOLOGICAL Microbial contamination	Yes	Possible thermal abuse or exposure	Processing schedule	No
	BIOLOGICAL Parasites	No	Not introduced or enhanced during processing		No
	CHEMICAL Chemical contamination	No	Not introduced or enhanced during processing	Controlled by SSOPs	No

	CHEMICAL Natural toxins	No	Not introduced or enhanced during processing		No
	CHEMICAL Food and color additives	No	Not introduced or enhanced during processing		No
	CHEMICAL Aquaculture drugs	No	Not introduced or enhanced during processing		No
	PHYSICAL Grit and shell fragments	Yes	Possible inclusion of grit and shell fragments in shucked meats	Controlled by SSOPs and processing procedures	No
Finished product cold storage	BIOLOGICAL Pathogen growth	Yes	Thermal abuse could increase bacteria during improper storage	Hold product at proper temperatures	Yes
	BIOLOGICAL Parasites	No	Not introduced or enhanced during storage		No
	BIOLOGICAL Cross-contamination	Yes	Cross-contamination is possible with improperly stored product	Controlled by SSOPs	No
	CHEMICAL Chemical contamination	No	Not introduced or enhanced during storage	Controlled by SSOPs	No
	CHEMICAL Natural toxins	No	Not introduced or enhanced during storage		No
	CHEMICAL Food and color additives	No	Not introduced or enhanced during storage		No
	CHEMICAL Aquaculture drugs	No	Not introduced or enhanced during storage		No
	PHYSICAL None	No	Not introduced or enhanced during storage		No

Firm Name: Any Florida Oyster Co., Inc.

Firm Address: Florida, USA

Signature:

Date:

Product Description: Live oysters; shucked oyster meats

Storage and Distribution: Stored and distributed under refrigeration

Intended Use and Consumer: Consumed live, raw, steamed or fully cooked by general public

Return to Index

5. HACCP Plan Form

(1) Critical Control Point (CCP)	(2) Hazard	(3) Critical Limits of the Preventive Measures	Monitoring (4) What	(5) How	(6) Frequency	(7) Who	(8) Corrective Actions	(9) Records	(10) Verification
Receiving	Chemical contamination	Oysters must not be harvested from areas closed due to chemical contamination	Shellfish tag	Visual	Each lot or batch	Harvest supervisor	Reject products that fail to meet critical limits	Shellfish tag	Daily record review
	Natural toxins	Oysters must not be harvested from areas closed due to contamination with natural toxins	Shellfish tag	Visual	Each lot or batch	Harvest supervisor	Reject products that fail to meet critical limits	Shellfish tag	Daily record review
	Pathogens	Oysters must not be harvested from areas closed due to contamination with pathogens	Shellfish tag	Visual	Each lot or batch	Harvest supervisor	Reject products that fail to meet critical limits	Shellfish tag	Daily record review
Refrigerated Storage	Pathogen growth	Total exposure of shellstock to temperatures higher than 45°F (7.2°C) does not exceed 4 hours	Temperature	Temperature recorder	Continuous	Shellstock supervisor	Adjust thermostat and evaluate product safety	Recorder chart	Daily record review; thermometer calibration
		Total exposure of shucked oysters to temperatures above 40°F (4.4°C) does not exceed 4 hours	Temperature	Temperature recorder	Continuous	Processing supervisor	Adjust thermostat and evaluate product safety	Recorder chart	Daily record review; thermometer calibration

Firm Name: Any Florida Oyster Co., Inc.

Firm Address: Florida, USA

Signature:

Date:

Product Description: Live and shucked oysters

Storage and Distribution: Stored and distributed under refrigeration

Intended Use and Consumer: Consumed live, raw, steamed or fully cooked by general public

Return to Index

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