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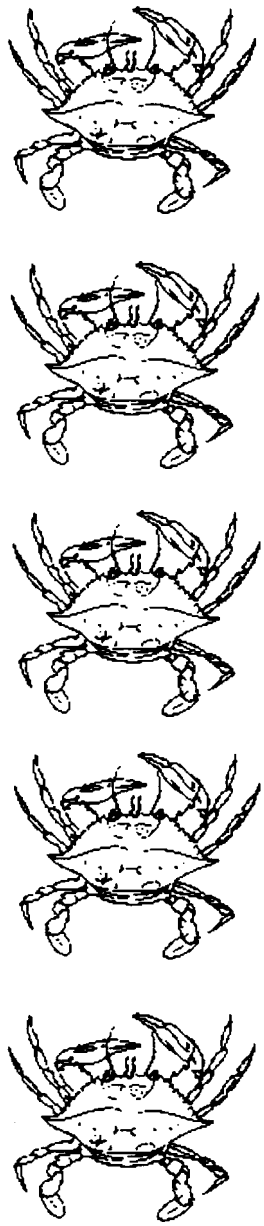
Model HACCP Program for Soft Shell Blue Crab



by

Frank Lawlor
Bob Fisher
Mike Oesterling

Sea Grant Florida

Florida Sea Grant College Program

Model HACCP Program for Soft Shell Blue Crab

by

Frank Lawlor - Florida Sea Grant Extension Program
Bob Fisher - Virginia Sea Grant Marine Advisory Service
Mike Oesterling - Virginia Sea Grant Marine Advisory Service

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Florida Sea Grant College Program
University of Florida
P.O. Box 110409
Gainesville, FL 3261l-0409
352-392-2801

I. Introduction

In December of 1995, the Food and Drug Administration (FDA) issued new seafood regulations based on the principles of Hazard Analysis and Critical Control Point (HACCP) to ensure the safe processing and importing of fish and fishery products. All wholesale seafood firms and importers of seafood products that are intended for human consumption must comply with these regulations. This includes firms established to produce soft shell crab for the wholesale marketplace.

What is HACCP?

HACCP is a management tool used to protect consumers from biological, chemical and physical hazards in seafood products. As a food processor, blue crab shedding operations are required to develop a HACCP plan for their product, keep the plan on file, adhere to the elements of their individual plan, explain and defend their plan to regulators and keep records that indicate all elements of their plan were followed. While this may appear to be time consuming and hard to comply with, HACCP is actually a common sense approach to ensure the safety of your soft crab shedding operation.

Seven Principles of HACCP:

1. Conduct hazard analysis and identify preventive measures.
2. Identify critical control points.
3. Establish critical limits.
4. Monitor each critical control point.
5. Establish corrective actions to be taken when a critical limit deviation occurs.
6. Establish a recordkeeping system.
7. Establish verification procedures.

This list may seem confusing and difficult to achieve, however, the enclosed example of a model HACCP plan that has been designed for the soft shell crab processing industry should be easy to follow and put you well on your way to developing your own HACCP plan to meet food safety and regulatory requirements.

What does the HACCP regulation require my company to do?

1. HACCP regulations require processors to conduct a hazard analysis to determine whether there are any food safety hazards that are likely to occur and identify preventive measures that can be used to control those hazards.

2. Develop and implement a written HACCP plan whenever a hazard analysis reveals that a safety hazard exists.

3. Monitor and keep written records of sanitation standard operating procedures to insure that the plant is operating in a sanitary method.

HOW DO I MEET THE ABOVE REQUIREMENTS ?

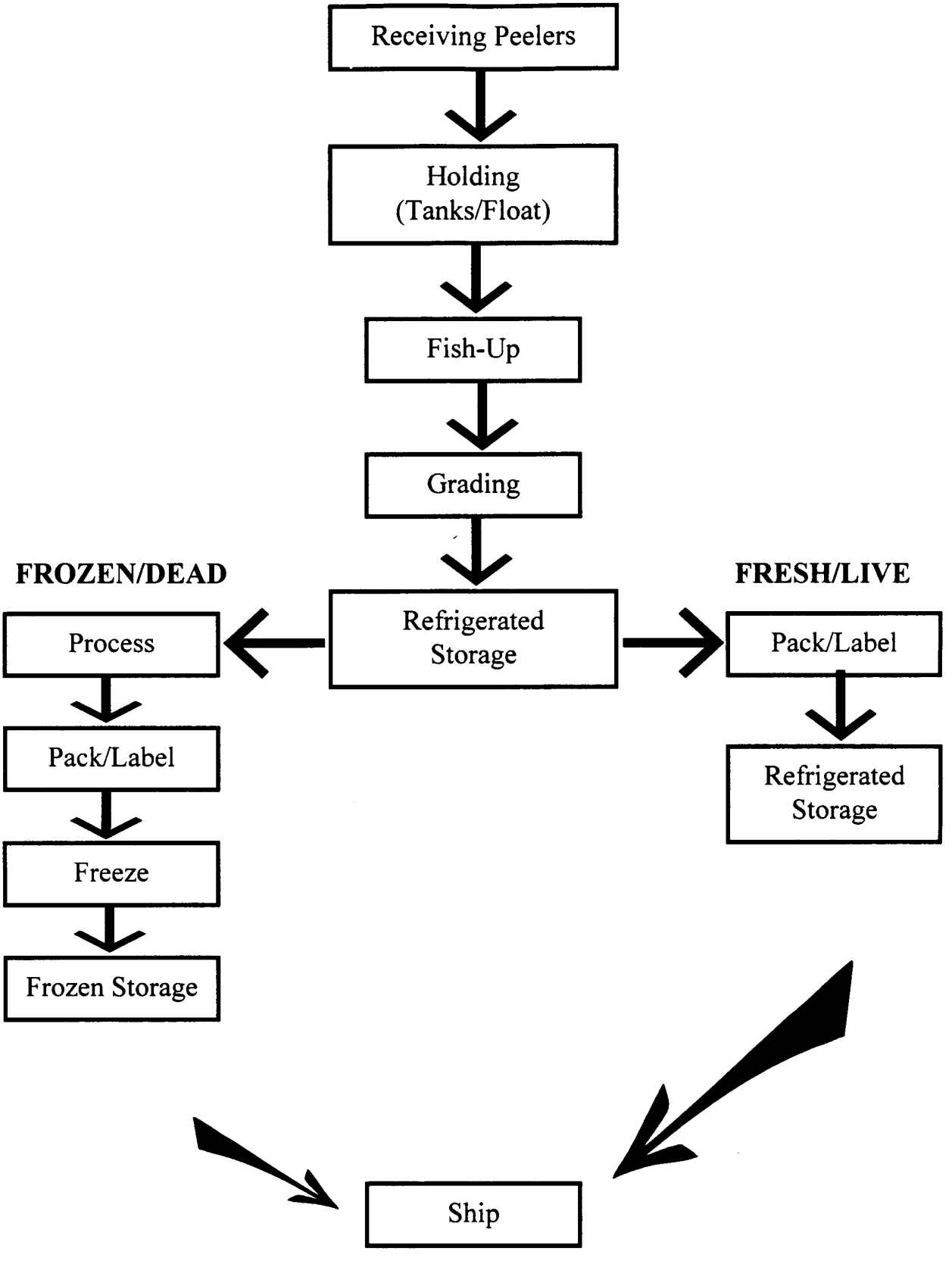
Assemble a HACCP Team. These people that will:

1. Describe your soft crab operation and distribution processes.
2. Develop a flow diagram of how your product moves through your physical facility.
3. Write the SSOP and the HACCP plan.
4. Implement the SSOP and HACCP system.
5. HACCP and SSOP plans are process, product and location specific. Each firm, plant, location and product must have a specific HACCP and SSOP plan.

II. Process Flow Chart and Hazard Analysis Worksheets

The following chart diagrams the receiving, handling (holding), processing, packing and shipping used in a typical blue crab shedding operation. Remember, your location and process may be different and require modifications to meet your firm's and regulatory agencies' concerns.

Soft Crab Process Flow Chart



Hazard Analysis Worksheets for Typical Soft Crab Shedding Operations

(1) Ingredient/ Processing Step	(2) Identify potential hazards introduced, controlled or enhanced at this step	(3) Are any potential food-safety hazards significant (Yes/No)	(4) Justify your decision for column 3	(5) What preventive measure(s) can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
Receiving	BIOLOGICAL Bacterial Pathogens	Yes	-Raw crabs can be a source of pathogens.	-For frozen crabs, pathogens may not be affected by freezing. However, product to be properly cooked by consumer.	No
	CHEMICAL Environmental Contamination	No	No documented history of food safety problems in soft crabs from identified chemical hazards.	-Proper cooking destroys pathogens.	
	PHYSICAL None		-Obtain peelers from licensed harvesters.		
Holding	BIOLOGICAL Bacterial Pathogens	No	-Crabs are live.		
	CHEMICAL None		-Cooking by consumer kills pathogens.		
	PHYSICAL None		-Water source either directly from harvesting water or from a potable water source.		
Fish-up	BIOLOGICAL Bacterial Pathogens	No	-Performed on a regular schedule.		
	CHEMICAL None		-All mortalities. empty shells and debris are removed from the holding water.		
	PHYSICAL None		-Live animal.		

Firm Name: _____

Firm Address: _____

_____

_____

Signature: _____

Date: _____

Product Description: Fresh/frozen soft shell crabs ***(callinectes sapidus)***

_____

Method of Storage and Distribution: Refrigerated/frozen

_____

Intended Use and Consumer: Thaw frozen product; fully cook before consumption; general public

Hazard Analysis Worksheets for Typical Soft Crab Shedding Operations

(1) Ingredient/ Processing Step	(2) Identify potential hazards introduced, controlled or enhanced at this step	(3) Are any potential food-safety hazards significant (Yes/No)	(4) Justify your decision for column 3	(5) What preventive measure(s) can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
Grading	BIOLOGICAL Pathogen Contamination CHEMICAL None PHYSICAL None	No	-Pathogens can be introduced from handling.	SSOP	
Processing (soft crab trimming)	BIOLOGICAL Pathogen Contamination Pathogen Growth CHEMICAL None PHYSICAL None	No No	-Pathogens can be introduced from handling.	SSOP	
Pack/Label	BIOLOGICAL Bacterial Contamination CHEMICAL None PHYSICAL None	No		Product is assumed to be cooked according to SSOP	
Freeze	BIOLOGICAL Bacterial Growth CHEMICAL None PHYSICAL None	No	-Not likely to occur due to rapid freezing rate. -Controlled by SSOP.		
Frozen Storage	BIOLOGICAL Bacterial Growth CHEMICAL None PHYSICAL None	No	-Product is frozen. pathogen growth unlikely.	Product assumed to be cooked by consumer. SSOP	
Refrigerated Storage	BIOLOGICAL Pathogen Contamination Pathogen Growth CHEMICAL None PHYSICAL None	No		Product is assumed to be cooked by consumer. SSOP	

You will notice that this hazard analysis does not identify any critical control points for soft shell blue crab production. While this will lessen your recordkeeping requirements in your HACCP plan, you will also note that the following section dealing with SSOP has recordkeeping requirements that must be followed to ensure your compliance with the current HACCP regulations.

III. Model SSOP (Standard Sanitation Operating Procedure) for Soft shell Blue Crab Operations

This section details the procedure your firm should follow in determining the safety hazards and the methods used to prevent these hazards from occurring in your operation. It also outlines several suggested recordkeeping procedures, forms, frequency and record retention that the FDA requires under the HACCP regulation.

SSOP

SOFT CRABS, INC.

Head Shedder, Owner/Operator
1 Crab Street
Crabville, FL

Sanitation Standard Operating Procedures for Soft Crabs, Inc., a company producing fresh and frozen soft shell blue crabs *(Callinectes sapidus).* Soft shell blue crabs have no documented history of health or human safety problems stemming from identified chemical hazards. Additionally, soft shell blue crabs are a product that is to be fully cooked prior to consumption; there are no known instances of raw consumption. The proper cooking of crabs destroys bacterial pathogens naturally associated with blue crabs. The introductionof bacterial pathogens and/or viruses during processing will be controlled by the following sanitation controls. The owner/operator of Soft Crabs, Inc. assumes all responsibility for quality assurance, facility maintenance and production.

1. **GOAL:** Water that comes into direct contact with soft shell crabs, or is used in the shedding system, or is used in the manufacturing of ice, is derived from a safe and approved source.

PROCEDURE: For the production of soft shell blue crabs, Soft Crabs, Inc. will use water in the shedding tanks or floats obtained from a source open for the direct harvest of blue crabs. Other water used in the operation that could come in contact with soft shell blue crabs will be potable obtained either from an approved well or city/county system. Ice manufactured on-site will be made from potable water obtained from either an approved well or city/county system. Ice not manufactured on-site will be obtained from a source that uses potable water.

2. **GOAL:** There is no cross-contamination between the potable water system and any nonpotable system.

PROCEDURE: Soft Crabs, Inc. will perform an inspection prior to each run (at least twice annually) to determine that no cross-contamination exists between potable and waste systems. Back-flow prevention valves will be checked for proper functioning on a monthly basis during periods of operation. The results of the inspections will be recorded on the production sanitation log.

3. **GOAL:** Source areas for peeler crabs are identified to insure compliance with any existing harvesting restrictions because of sanitation concerns.

PROCEDURE: Fishermen selling peeler crabs to Soft Crabs, Inc. will be legally licensed by the State of Florida to harvest peeler crabs and will fill out trip tickets telling the owner/operator where the peelers were harvested, prior to the owner/operator accepting the peelers. Peelers harvested by Soft Crabs, Inc. will not come from any crab harvesting restricted areas. A file of any state or federally implemented harvesting restrictions or regulations will be maintained for reference throughout the production season. An annual fishing vessel HACCP training record will be maintained for each vessel.

4. GOAL: All soft shell crab contact surfaces and equipment for ice production and storage are designed of such material and workmanship to be easily cleaned and maintained in a sanitary manner. All such surfaces are designed to withstand the environment of its intended use.

PROCEDURE: All shedding facility equipment and utensils will meet any current recommended state and federal standards for their intended use. Soft Crabs, Inc. will evaluate the condition of the shedding facility and associated equipment monthly. The results of these evaluations will be recorded on a production sanitation maintenance log.

5. GOAL: All utensils and surfaces of equipment that contact soft shell crabs during *"fish-up"*, grading and/or packaging are cleaned daily and sanitized after each *"fish-up"* and subsequent processing. (*"Fish-up"* is the physical removal of soft shell blue crabs from the shedding tanks or floats.)

PROCEDURE: All soft shell crab grading/packaging surfaces and utensils will be cleaned and sanitized. Before each fish-up all soft shell crab carrying trays will be cleaned of any debris. Following each fish-up soft shell crab carrying trays will be washed in a food-grade or commercial detergent, sanitized and stored properly. Grading and packaging areas will be free of debris prior to any grading/packaging event. Following grading/packaging, the area will be swept clean of debris and washed with food-grade or commercial detergent. Following each fish-up, grading and/or packaging event, the entire production area will be cleaned of debris. These results will be recorded on the production sanitation maintenance log.

6. **GOAL:** The hands of employees are kept clean and sanitary when handling soft shell crabs. All utensils used for grading and/or packaging are kept clean and sanitary.

PROCEDURE: Prior to fish-up, all employees will wash their hands with an approved soap. Anti-bacterial "green" soap is easily available in most locations, and works well. This soap will clean and sanitize. An alternative is for employees to wash their hands, then use a hand-dip station near the grading/processing area to sanitize their hands prior to grading or processing crabs. Sanitizing dips will be either a chlorine-based solution or an Iodophor of sufficient concentration to assure sanitation. Hand dips utilizing chlorine will be made-up fresh prior to fish-up to a concentration of 100 ppm. Iodine-based hand dips will be made up once daily and maintained (visually) at a concentrationof approximately 25 ppm. Both Chlorine and Iodine based dips may be monitored by paper indicator strips to assure proper concentrations. A dip station for utensils must be maintained at the grading/packaging area. All utensils will be washed and sanitized following grading/packaging events and dipped again prior to use. Employees will be provided periodic training on sanitation procedures and personal hygiene, with records of training retained in the employee training file.

7. **GOAL:** Any employee of Soft Crabs, Inc. who has or may have, by medical examination or owner/operator observation, an illness, infected wound, an open lesion such as a boil or sore, or any other problem that might contaminate live soft shell blue crabs, soft crab contact surfaces or packaging materials, shall be excluded from any operations until the condition is healed or corrected.

PROCEDURE: It is the responsibility of the owner/operator of Soft Crabs, Inc. to observe the apparent well-being of all personnel on a daily basis. At any indication of injury or illness that may compromise live soft shell blue crabs due to contamination, the owner/operator will remove that person from the production facility. Observations will be recorded on the production sanitation maintenance log. Periodic employee training on safe handling of all hazardous materials used will be conducted and entered into the employee training file. Safety data sheets will be kept on file for all hazardous material involved with the production of soft crabs.

8. **GOAL:** Soft shell crabs, soft shell crab contact surfaces and packaging materials shall be protected from contamination resulting from lubricants, fuel, pesticides, cleaning compounds, sanitizing agents or other chemical or physical contaminants.

PROCEDURE: All cleaning compounds and sanitizing agents, lubricants, fuel or pesticides will be clearly identified and stored away from the soft shell crab production area or grading and packaging area. The production and grading/packaging areas will be inspected for possible contamination sources and to make sure toxic compounds are adequately labeled and stored properly. The results will be documented on the production sanitation maintenance log.

9. **GOAL:** Live soft shell blue crabs will be physically separated from incoming peelers during refrigerated storage.

PROCEDURE: Under normal conditions, live soft shell blue crabs are not stored in the same cooler as peeler crabs waiting to be distributed to shedding tanks. Coolers will be inspected to insure soft shell blue crabs are stored properly. This inspection will be recorded on the production sanitation maintenance log. Additionally, the temperatureof the soft shell crab storage equipment will be maintained to provide protection from thermal abuse of the live animal. Temperature inspections will be recorded on the production sanitation maintenance log. Temperature recording devices will be calibrated at the beginning of each soft crab production season and recorded on a temperature equipment calibration log.

10. **GOAL:** Adequate, readily accessible toilet facilities that provide for proper sewage disposal shall be available and maintained in a sanitary condition and in good repair.

PROCEDURE: Toilet facilities are provided for employees away from the production, grading and packaging areas. Running water at suitable temperatures will be provided. The condition of the toilet facilities will be inspected daily and results recorded on the production sanitation maintenance log.

11. **GOAL:** No pests are in the grading or packaging area.

PROCEDURE: Control strategies will be implemented to manage the presence of rodents, insects, birds or other pests in the grading or packaging area. Soft Crabs, Inc. will be inspected for the presence of pests, with observations recorded on the production sanitation maintenance log.

12. **GOAL:** The production, grading and packaging areas of Soft Crabs, Inc. are designed to minimize the risks of contamination of the live soft shell crabs, contact surfaces and packaging material.

PROCEDURE: The owner/operator of Soft Crabs, Inc. will conduct a monthly review of the shedding facility and grading/packaging area layout and physical structure to ensure that contamination of any aspect of the production of live soft shell blue crabs does not occur from internal or external sources. Observations will be recorded on the production sanitation maintenance log.

13. **GOAL:** Live soft shell crab production areas, grading and packaging areas are free of waste and birds.

PROCEDURE: The empty shells (exuviae) of shed crabs will be removed from all shedding tanks at each "fish-up" and disposed of in a trash can. Any trash or debris generated in the grading and/or packaging process will be cleaned up immediately after these events and disposed of in the proper receptacle. Trash receptacles will be removed from the property of Soft Crabs, Inc. in a timely manner to prevent the generation of odors or attraction of pests and disposed of properly. The condition of the trash area will be inspected and recorded on the production sanitation maintenance log.

There are two sets of sample records included that you can use to monitor your SSOP that would be in compliance with the HACCP regulations. The "A" set includes forms that you can use to monitor everything in your SSOP. While this is a straight forward way to handle your record keeping responsibilities, it includes many forms and requires a lot of paperwork. The "B" set of forms also includes forms that can be used for HACCP compliance but has the advantage of keeping paperwork to a minimum.

FORM A-l

SOFT CRABS, INC.
Crabville, FL

Production Sanitation Maintenance Log for (day/month/year) _ / _ / _

Employee and Equipment Sanitation	Fish-Up Time _____ Initial _____	Fish-Up Time _____ Initial _____	Fish-Up Time _____ Initial ____	Fish-Up Time _____ Initial ____
soft crab trays clean				
hand-dip station 50 -100 ppm chlorine*; or anti-bacterial soap ready for use)				
utensil-dip stations (100 ppm chlorine; 25 ppm I)				
all equipment clean and sanitized				
utensils/aprons/gloves clean and sanitized				
all employees have appearance of good health				
employees have no heavy perfume, cologne or personal odors				
all employees have clean and sanitary hands				

Sanitation Condition	Daily Time _____ Initial _____	Post-Op Time _____ Initial
all chemicals stored properly		
shipping and receiving areas clean		
storage area clean		
cold storage area cleaned of debris		
waste cans/trash area clean		
hot water available at proper locations		
restrooms clean		
paper towels, toilet paper, soap adequate in restrooms		
pest control measures in place		
shedding tanks clean		

Comments:

* (25 ppm Iodine solution may be used in lieu of chlorine dip)

FORM A-2

SOFT CRABS, INC.

Crabville, FL

Weekly Soft Shell Blue Crab Cooler and Freezer Storage Temperature Log

____/____/____ to ____/____/____

DAY	COOLER Pre-Op / Post-Op	FREEZER Pre-Op / Post-Op
Monday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial _____ / _____
Tuesday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial _____ / _____
Wednesday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial _____ / _____
Thursday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial / _____
Friday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial _____ / _____
Saturday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial / _____
Sunday	Time _____ / _____ Temp _____ / _____ Initial _____ / _____	Time _____ / _____ Temp _____ / _____ Initial _____ / _____

Comments:

FORM A-3

SOFT CRABS, INC.

Crabville, FL

Production Sanitation Log for _____ run _____ (year)

Initial	Evaluation
	no cross-contamination between potable wastewater systems
	production equipment in suitable condition
	physical condition of shedding facility and layout of equipment suitable to minimize risk of contamination
	refrigeration and freezer units cleaned

Comments:

FORM A-4

SOFT CRABS, INC.

Crabville, FL

Temperature Equipment Calibration Log

Instrument type(s): _____

Instrument location(s): _____

Method of Calibration

Cooler _____

Freezer _____

Date Calibrated	Calibration Results (temp) COOLER reference/instrument	Calibration Results (temp) FREEZER reference/instrument	Employee Signature	Comments

Comments:

FORM A-S

FISHING VESSEL HACCP TRAINING FORM

1. All product should be handled to prevent any type of contamination (dirty ice, dirty storage bin or containers, fuel, lubricants, used brine solutions, etc.)

2. Any ice bin for use on the product should be clean.

3. The deck and baskets used to handle products should be cleaned between catches. All baskets used should be color coded for use with this product.

4. Dockside and off-loading guidelines.

5. Others.

This information has been discussed or reviewed with:

Employee/Crew _____ Date _____

Trainer _____ Date _____

Form B-l

DAILY SANITATION CHECK- PreOp ____/__/__to __/__/__

SANITATION CHECKS	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
TIME							
Work area in good order and not cluttered Work surfaces and areas clean and properly sanitized.							
Equipment and facilities in good operating condition							
Work surfaces clean and sanitized between uses.							
Separate brushes, wiping clothes and containers used for cleaning and sanitizing in the work area. Restrict use of wiping clothes							
Utensils cleaned and sanitized after each operation and each work day. Properly stored and protected.							
Water supply approved and ice supply clean and protected.							
Coolers and freezers clean and not cluttered.							
Dry and wet waste materials properly removed from the processing area to disposal							
Disposal area properly maintained to avoid odor and pest problems.							
Grounds properly maintained to avoid pest problems.							
Thermometers available, calibrated and used							
PERSONNEL CHECKS	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
No person with illness, open or infected wounds allowed in contact with foods or food operations							
Persons with clean clothes							
Only authorized persons in the food processing area							
Hand wash facilities properly supplied and used							
COOLER TEMPERATURE CHECKS	**Day 1**	**Day 2**	**Day 3**	**Day 4**	**Day 5**	**Day 6**	**Day 7**
Cooler Unit No. Best Temperature Time /Temp.							
36 to 38° F Time / Temp.							
Freezer Unit No. Best Temperature Time / Temp.							
-10° - 0° F Time / Temp.							
Cooler Unit No. Best Temperature Time / Temp.							
36 to 38 ° F Time / Temp.							

FORM B-2

DISCREPANCY REPORT (DR)

Firm: Date:

No: Supervisor:

Problem or Discrepancy	Solution or Corrective Actions
Date:	Date:

Review & Remarks: Reviewers Name: Date:

Recall Procedures

All customer complaints are handled by the owner/operator of Soft Crabs, Inc. The owner/operator decides if a recall should be initiated, whether it be from a customer complaint or an internal finding. Once the decision for a recall is made, the owner/operator will identify the production dates to be recalled, notify customers affected by the recall and have all recalled product returned to Soft Crabs, Inc.

If the recall is of a serious nature (i.e., illness, death or injury), the owner/operator will notify the media and the local FDA district office of the recall. If the recall is of such a serious nature, the product will be destroyed.

All product will be labeled with a production date and a lot number. The lot number is recorded on file with the production date, source of product, purchase date, date sold, quantity shipped and to which customer.

IV. Questions and Answers for Soft Crab Operations

- **Who must comply with the current HACCP regulations?**

  Every wholesaler and importer of fishery products. If you only produce soft shell crabs for your own retail market or restaurant, you do not have to comply. However, if you sell to other retailers, restaurants or wholesalers, you must comply.

- **When do these regulations go into effect?**

  December of 1997 is the date that has been established by the Food and Drug Administration.

- **How long do I have to keep the records mentioned in this publication?**

  One year for fresh fishery products and two years for frozen. This applies to all records needed in your HACCP plan and your Standard Sanitation Operating Procedures.

- **Where can I obtain additional information and/or help in devising a HACCP-based plan for my soft shell crab business?**

  Contact your local Sea Grant Extension Agent for help or for information about additional education materials.