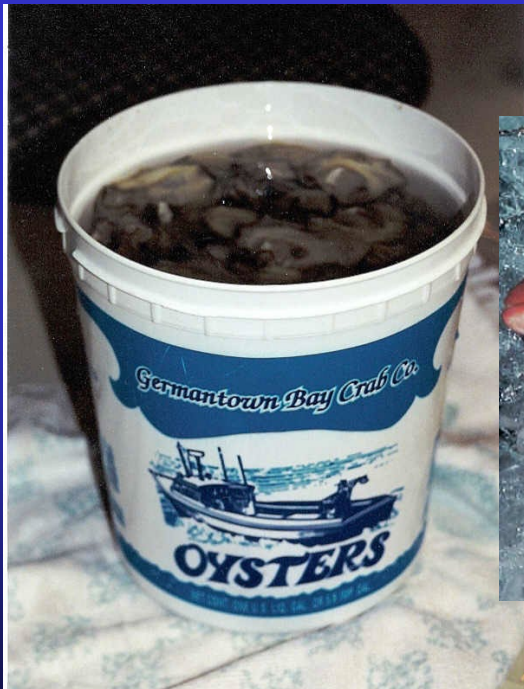
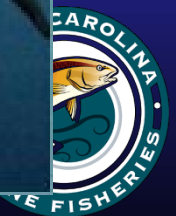


Seafood Safety in Retail Food Service Establishments



Main Sources of Seafood Related Illness

1. Ciguatera poisoning
2. Scombrototoxin poisoning
3. Raw / undercooked shellfish
4. Marine parasites



Ciguatera Poisoning

Some tropical reefs have algae present that contain biotoxins which can be bio-accumulated in the flesh of larger fish.



Fish containing ciguatera toxin display no outward signs of contamination.

Once contaminated with the toxin fish cannot be made safe.



Primary species associated with Ciguatera poisoning:

Amberjack

Barracuda

Grouper



Symptoms:

Temperature sensory reversal.

Onset of first symptoms usually with 6 hours.

Numbness/tingling around the mouth.

Gastrointestinal distress.

Joint/muscle pain.

Cardiovascular effects.



Scombrotxin (Histamine) Poisoning



Naturally occurring amino acid Histadine present in larger quantities in scombroid fish than others.

Once landed, heat allows bacterial action to produce an enzyme that converts histadine to histamine in such fish.

Once contaminated with histamine fish cannot be made safe.

Fish containing histamine may not show outward signs of temperature abuse.



Primary species associated with Scombrototoxin poisoning:

Tuna

Mahi

Wahoo

Bluefish

Amberjack

Mackerals

Sardines

Marlin



Symptoms:

Upper body rash

Tingling/burning around the mouth.

Facial flushing

Dizziness

Nausea/vomiting

Difficulty breathing





Shellfish include any species of clams, oysters, or mussels.



Shellfish are very efficient at filtering seawater and will concentrate toxins or pathogens present in growing waters.

Shellfish are the only animals routinely eaten live and whole.



Common Shellfish Related Pathogens & Natural Toxins

Bacterial Pathogens

- Salmonella
- C. botulinum
- Listeria
- Vibrio vulnificus
- Vibrio parahaemolyticus



Viruses

- Hepatitis A
- Hepatitis E
- Rotavirus
- Norwalk

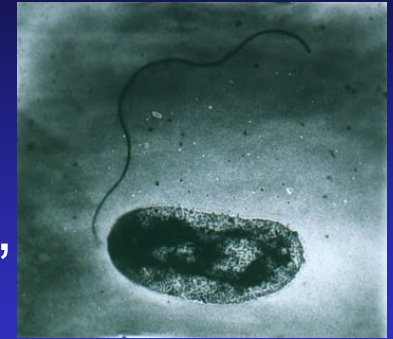
Natural Toxins

- PSP
- ASP
- NSP



Vibrio vulnificus bacteria

Vibrio vulnificus is routinely found in raw shellfish, and is NOT associated with polluted waters.



It is a naturally occurring marine organism that can cause severe illness and death in susceptible individuals.

It can only be eliminated through cooking, or held it check by refrigeration.

Temperature control is **CRITICAL** in keeping shellfish as safe as possible (45F or less at receipt, 41F or less in storage).



Vibrio vulnificus



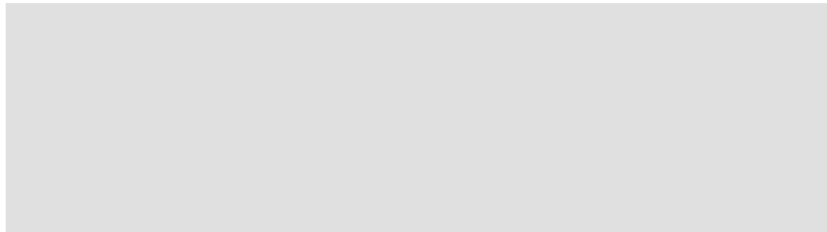
Vv can infect persons with serious underlying medical issues, causing septicemia, with a 50% mortality rate.



SHARE
TWEET
EMAIL

HEALTH & FITNESS

Man dies after contracting vibrio from eating oysters at North Carolina coast: Friends



Saturday, September 28, 2019

RALEIGH, North Carolina -- A man is dead after contracting a harmful bacteria from eating oysters on the North Carolina coast, according to family friends.

They say David Argay contracted vibrio in Wilmington, but died Thursday at the hospital.

Argay is from Cary, North Carolina.

Vibrio is a bacteria that lives in saltwater. There are 200 recognized species of marine vibrios but only a few can cause significant problems.

According to the [North Carolina Department of Health and Human Services](#), vibrio infections are associated with eating raw or under-cooked shellfish such as oysters, clams, shrimp and scallops.

MORE VIDEOS

From CNN Newsource affiliates

TOP STORIES



\$3M scratch-off lottery ticket sold in Bucks County
Updated 2 hours ago



Woman, 19, dies after quadruple shooting near Philly school
Updated 2 hours ago



Body found in burning car in Logan

[Chester abduction leads to gunfire in Boothwyn: Police](#)

[2 deceased newborns discovered at NJ recycling center](#)

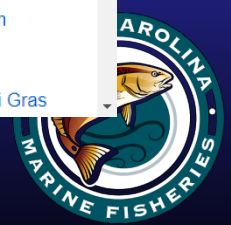
[Trump ally Roger Stone to be sentenced as case roils DOJ](#)
Updated 18 minutes ago

[Bus catches fire, fully engulfed in flames in New Jersey](#)

[The disappearance of Imbo and Petrone | 6abc True Crime](#)

[At least 130 dogs, cats seized from alleged puppy mill in NJ](#)
Updated an hour ago

[Woman killed by float during Mardi Gras](#)



Each container of Shellstock must be properly tagged at receipt. Untagged product should be rejected!

Information on shellstock tags must be listed in a specific order (Food Code 3-202.18).

SHELLSTOCK TAG INFORMATION REQUIREMENTS

SALE	TAG
	<p>ABC Company 111 Beach Lane Beach, NC 28557 NC 123 SS</p>
Harvest Date; may be mo/dy/yr, or Julian date (number of the day of the year).	<p>Original Shipper Cert. No. TX-456-SS</p> <p>Harvest Date: August 1, 2004</p>
Harvest Area may be a location name, number, letter, or combination of these, including initials of the state of harvest.	<p>Harvest Area: Cedar Creek, TX</p>
90 Day tag retention notice.	<p>Type & Quantity: Oysters 1 bushel</p>
Notice that product must remain refrigerated.	<p>THIS TAG IS REQUIRED TO BE ATTACHED UNTIL CONTAINER IS EMPTY OR RETAGGED AND THEREAFTER KEPT ON FILE, IN CHRONOLOGICAL ORDER, FOR 90 DAYS. RETAILERS: DATE WHEN LAST SHELLFISH FROM THIS CONTAINER SOLD OR SERVED _____.</p>
Consumer Advisory Notice.	<p>KEEP REFRIGERATED</p> <p>CONSUMER ADVISORY</p> <p>Eating raw, or undercooked oysters, clams, or mussels may cause severe illness. People with the following conditions are at especially high risk: liver disease, alcoholism, diabetes, cancer, stomach or blood disorder, or weakened immune system. Ask your doctor if you are unsure of your risk. If you eat raw, or undercooked shellfish and become sick, see a doctor immediately.</p>
	<p>TO: _____</p>

Dealer Name, Address, & Certification Number

Certification Number of original shipper of the shellfish IF that shipper is different from the shipper noted at top of tag.

Type of shellfish: oysters, clams, or mussels. Quantity can include number, volume, or weight.

Space for Reshipper (receiving from dealer noted at top of tag) to add their name and certification number.

ALL SHELLSTOCK TAGS MUST BE MADE OF WATERPROOF, TEAR RESISTANT MATERIAL, MUST CONTAIN LEGIBLE INFORMATION, AND MUST BE AT LEAST 5 1/4" X 2 5/8" or Tags be at least 13.8 square inches (89.03 cm2) in size.

TAGS MUST BE OF MANUFACTURED, PROFESSIONAL QUALITY. HANDMADE TAGS PRODUCED FROM SCRAPS OF PAPER OR OTHER MATERIAL ARE NOT ACCEPTABLE.

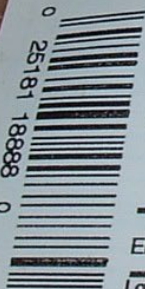
THE REQUIRED INFORMATION TO BE INCLUDED ON TAGS MUST FOLLOW THE ORDER OF THE INFORMATION DISPLAYED ON THE EXAMPLE TAG SHOWN ABOVE. TAGS MAY HAVE INFORMATION CONTAINED ON ONE OR BOTH SIDES

TAGS MAY BE PRINTED IN ANY COLOR AND ORIENTATION (VERTICAL OR HORIZONTAL).

THE SPACE ON THE TAG IN WHICH THE ORIGINAL SHIPPER'S CERTIFICATION NUMBER IS TO BE ENTERED CAN BE LEFT BLANK IF THE DEALER COMPLETING THE TAG IN QUESTION IS THE ORIGINAL SHIPPER (eg. THE DEALER DID NOT RECEIVE THE SHELLSTOCK FROM ANOTHER DEALER).

The Great Eastern Mussel Farms, Inc.

P.O. Box 141, Tenants Harbor, Maine 04860 USA
(207) 372-6317 ME 309SS



Original Shipper's Cert. No. (if other than above):

ME78SS

Harvested at: Zone 2 - Jonesport, ME

on: 09/01/04

Wet stored at: ME 309SS from:

to:

2 Pounds of Mahogany Clams

Use By: 09/14/04

Wild Product of the USA

~~THIS TAG IS REQUIRED TO BE ATTACHED UNTIL THE CONTAINER IS
EMPTY OR RETAGGED AND THEREAFTER KEPT ON FILE FOR 90 DAYS.~~

Lot:

07

Reshipper's Cert. No.

Dates Reshipped:

"RETAILERS, INFORM YOUR CUSTOMERS"

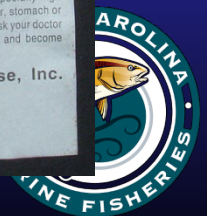
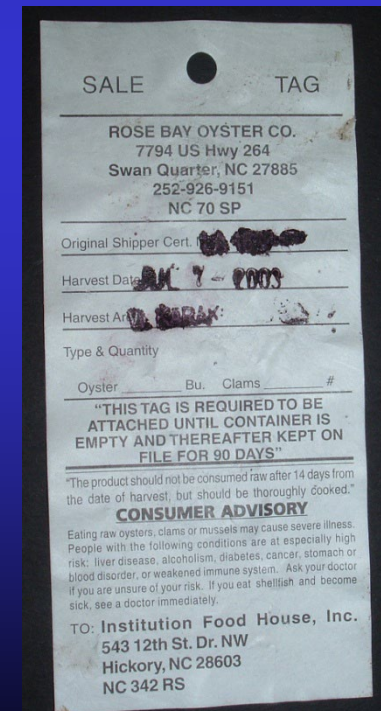
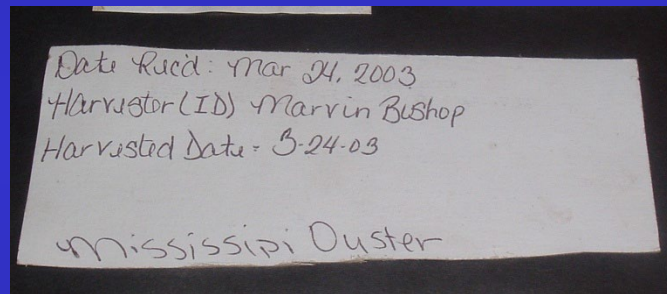
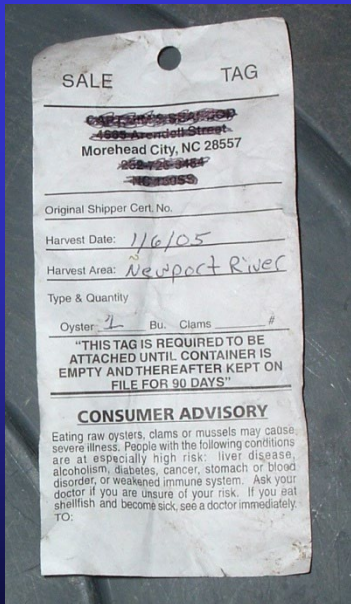
Thoroughly cooking foods of animal origin, such as, beef, eggs, fish, lamb, poultry, or shellfish reduces the risk of foodborne illnesses. Individuals with certain health conditions may be more at risk if these foods are consumed raw or undercooked. Consult your physician or public health official for further information.



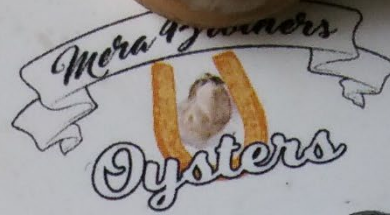
Shellstock tags must be tear resistant, water-proof, and approved by the state shellfish control authority.

Hand made, illegible, altered, or incomplete tags are unacceptable, and the source of the associated shellstock should be considered to be unapproved.

Tags CANNOT be faxed, mailed, emailed, or copied if they are already missing at receiving or in storage.



Mera Brothers Oysters, LLC
109 Finch Loop • Beaufort, NC 28516
License ID No. 1963255
edavierr@merabrothersoysters.com



Harvest Date 2/19/19
Harvest Time 5:00 PM
Harvest Location Oyster Creek, Davis NC E-9
Quantity 100

Consuming raw or undercooked meats, poultry, seafood, shellfish, or eggs may increase your risk of foodborne illness, especially if you have a medical condition.



2017 USFDA Food Code

3-203.12 Shellstock, Maintaining Identification.

(A) Except as specified under Subparagraph (C) (2) of this section, SHELLSTOCK tags or labels shall remain attached to the container in which the SHELLSTOCK are received until the container is empty. Pf

(B) The date when the last SHELLSTOCK from the container is sold or served shall be recorded on the tag or label. Pf



(C) The identity of the source of SHELLSTOCK that are sold or served shall be maintained by retaining SHELLSTOCK tags or labels for 90 calendar days from the date that is recorded on the tag or label, as specified under ¶ B of this section, by: Pf

(1) Using an APPROVED record keeping system that keeps the tags or labels in chronological order correlated to the date that is recorded on the tag or label, as specified under ¶ B of this section; Pf and



(2) If SHELLSTOCK are removed from its tagged or labeled container:

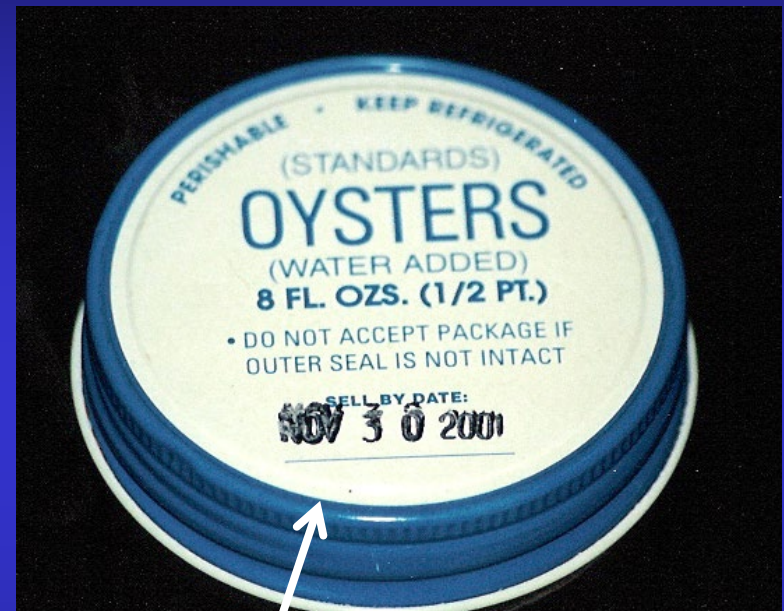
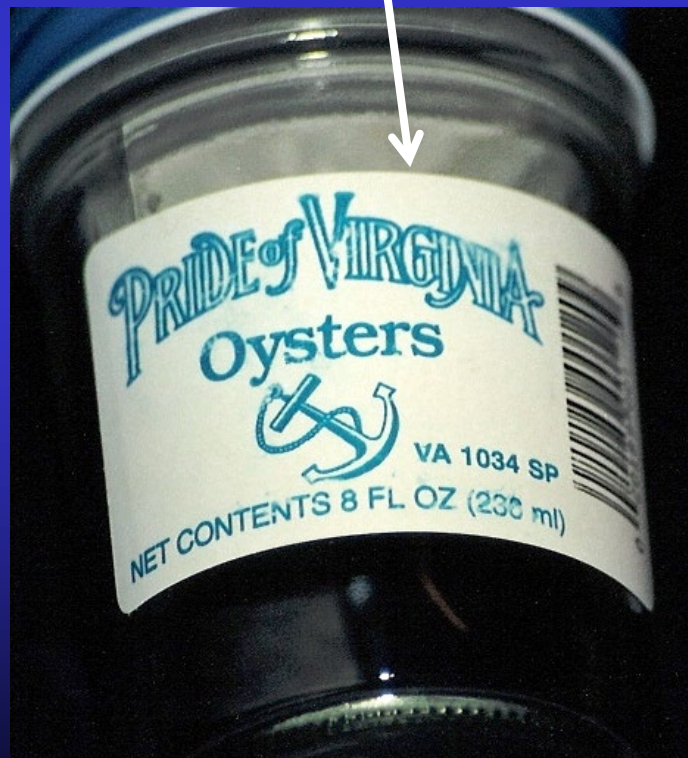
(a) Preserving source identification by using a record keeping system as specified under Subparagraph (C)(1) of this section, Pf and

(b) Ensuring that SHELLSTOCK from one tagged or labeled container are not COMMINGLED with SHELLSTOCK from another container with different CERTIFICATION NUMBERS; different harvest dates; or different growing areas as identified on the tag or label before being ordered by the CONSUMER. Pf



Shucked Shellfish Labeling: Containers ≤ One Half Gallon

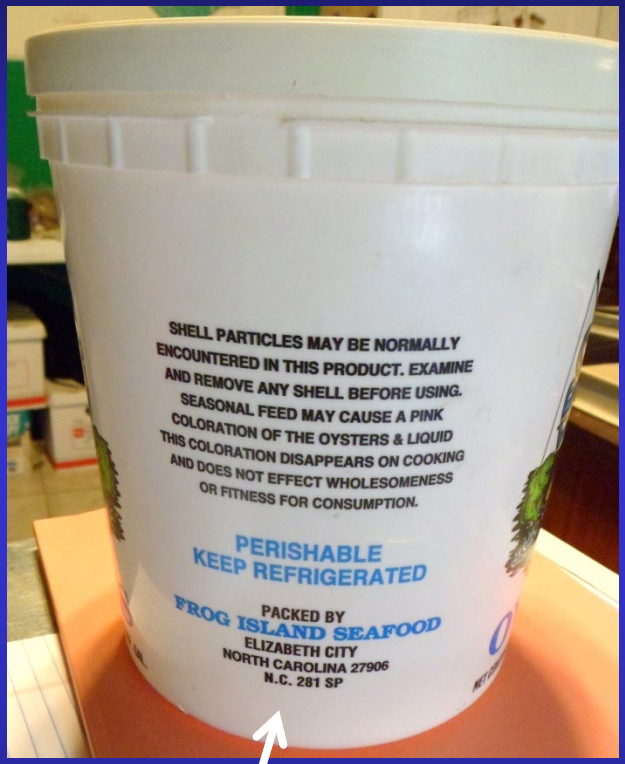
Dealer name,
address, certification
number



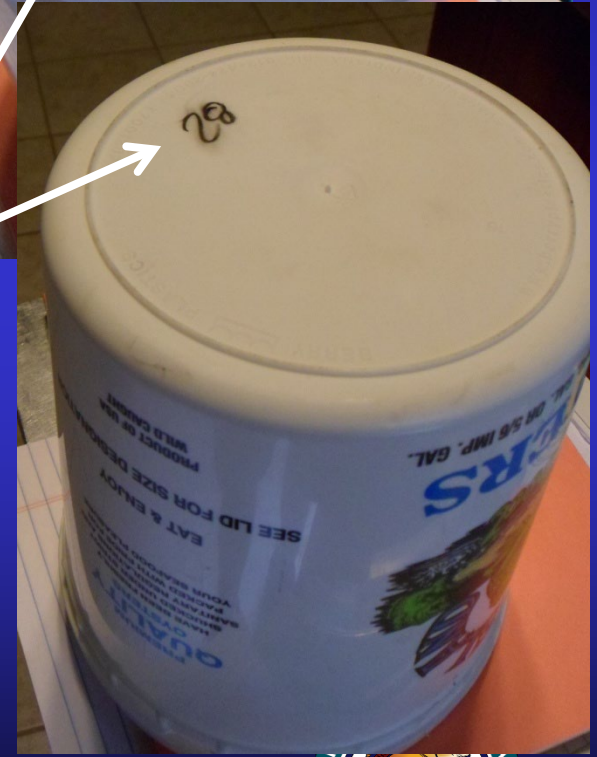
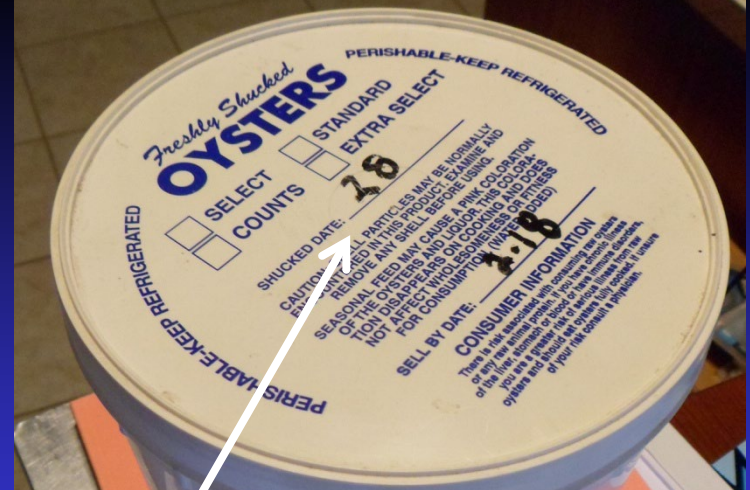
“Sell by” or “Best if
used by” date on lid
or container



Shucked Shellfish Labeling: Containers > One Half Gallon



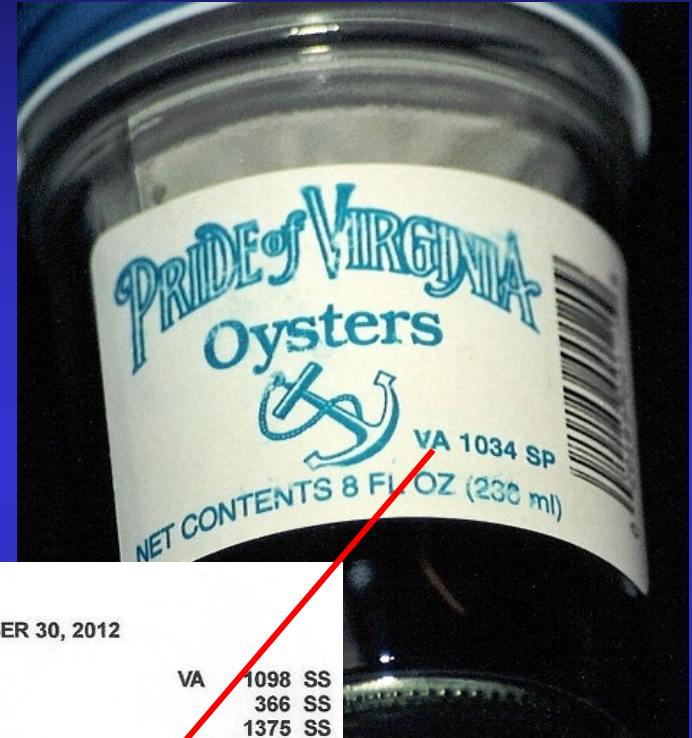
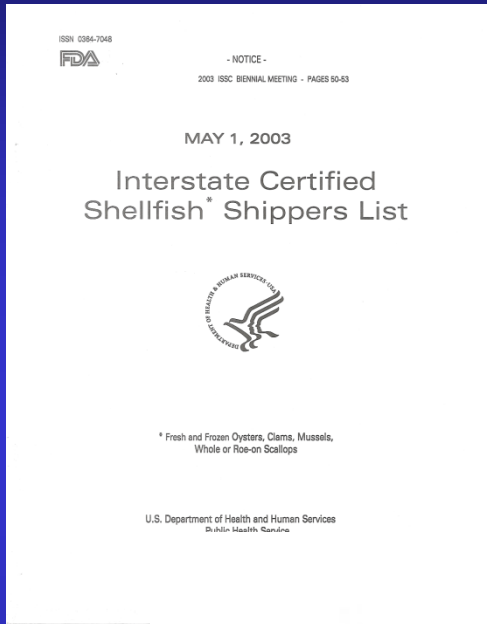
Dealer name, address,
certification number



Shuck date on the
lid and container



Verifying interstate shellfish certification numbers.



VIRGINIA

CERTIFICATES EXPIRE SEPTEMBER 30, 2012

NOTTINGHAM CLAMS INC	CHERITON	VA	1098	SS
NOTTINGHAM ENTERPRISES INC	CAPE CHARLES		366	SS
NOWHERE POINT OYSTERS	ONANCOCK		1375	SS
O'BIER SEAFOOD INC	CALLAO		1204	RS
OCEAN COVE SEAFOOD	FRANKTOWN		1079	SS
OLD PLANTATION OYSTERS CO LLC	CAPE CHARLES		1422	SS
OLD TOWN SEAFOOD CO INC	EASTVILLE		1362	SS
ONANCOCK SEAFOOD	ONANCOCK		1464	SP
OYSTERONLINE.COM	FRANKTOWN		1236	SP
PAGAN RIVER DOCKSIDE SEAFOOD	BATTERY PARK		984	SP
PENNY CREEK OYSTER FARMS	HEATHSVILLE		1458	SS
POLES BLUFF OYSTER FARMS	BELLE HAVEN		1318	SS
POOR MAN'S CLAMS	CHINCOTEAGUE		1495	SS
PRIDE OF VA BAIT & OYSTER	WHITE STONE		1034	SP
PRUITT OYSTER FARMS	ONANCOCK		1445	SS
PURCELL'S SEAFOOD	BURGESS		309	SP



2017 Food Code also allows for removal of shucked product from original containers for display with approved record keeping procedure.



Shucked shellfish cannot be dispensed in other containers for customer self-service unless a permit has been obtained from NC Div. of Marine Fisheries.

Food Code 3-203.11 (D) does allow this practice IF allowed by state shellfish authority. NCDMF requires a permit to do this!



Commingling

2017 Food Code; Definitions

“Commingle” means:

- (1) To combine SHELLSTOCK harvested on different days, or from different growing areas as identified on the tag or label, or
- (2) To combine SHUCKED SHELLFISH from containers with different container codes or different shucking dates.

Once shellstock or shucked shellfish of the same type have been mixed together (comingled) the source of the various products cannot be reliably determined, and product should be removed from sale.



Loose shellfish of the same type must be kept separated on display.



Clams, oysters, and mussels can be mixed on display as long as each of those are from one container.



Prevention of Cross-Contamination



Shellstock displayed in contact with raw shrimp and lobster tails.

Bags of clams exposed to dripping baskets of live blue crabs.





Shellstock temperature can reliably be obtained by checking exterior shells or internal meats.
45F or less at receiving, 41F in storage / display.



41F or less applies to
shucked shellfish at all times.

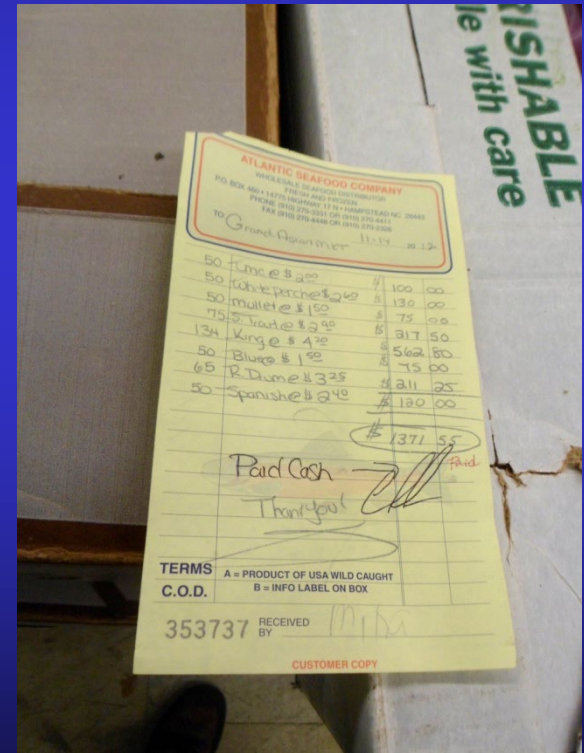


Approved Sources for Seafood

Seafood products (including fresh water species) must originate from licensed fish and shellfish dealers and be obtained from commercial suppliers.

As per NC Division of Marine Fisheries rules, any person offering seafood for sale in the state must maintain and make available for inspection receipts, invoices, or other acceptable documentation for all products on hand.

Recreationally harvested seafood products (including fresh water species) cannot legally be sold in NC.



Seafood Fraud

White Tuna?

Escolar (Oil Fish) is commonly found advertised as “White Tuna” in sushi establishments.



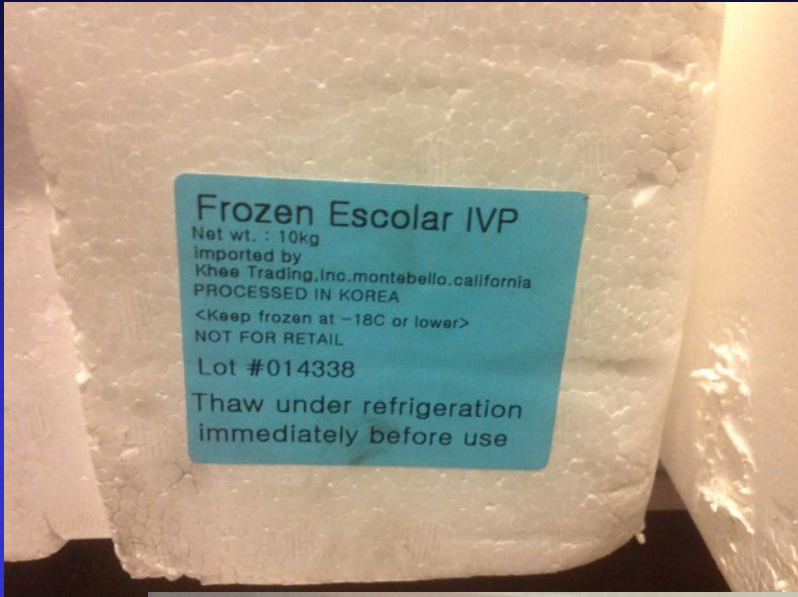
Albacore Tuna



Escolar



Examine menus, invoices, products!



2017 Food Code

3-601.12 Honestly Presented

(A) FOOD shall be offered for human consumption in a way that does not mislead or misinform the CONSUMER.

Sushi or Sashimi	
A La Carte (order 2 pcs)	
501. *Tuna (Maguro)	4.25
502. *Salmon (Sake)	3.95
503. *Yellowtail (Hamachi)	4.75
504. Eel (Unagi)	4.95
505. *Super White Tuna	3.95
<u>506. Octopus (Tako)</u>	4.75
507. Mackerel (Saba)	5.75
508. *Red Snapper (Tail)	4.25
509. Smoke Salmon	4.25
510. Shrimp (Ebi)	3.25
511. Red Clam (Hakkigai)	3.75
512. *Sweet Shrimp (Ama Ebi)	4.75
513. *Sea Urchin (Uni)	



Seafood Information Resources

Interstate Certified Shellfish Shipper List:

<https://www.fda.gov/food/federalstate-food-programs/interstate-certified-shellfish-shippers-list>

FDA Regulatory Fish Encyclopedia:

<https://www.fda.gov/food/science-research-food/regulatory-fish-encyclopedia-rfe>

FDA Seafood List: [https://www.fda.gov/regulatory-](https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-seafood-list)

[information/search-fda-guidance-documents/guidance-industry-seafood-list](https://www.fda.gov/regulatory-information/search-fda-guidance-documents/guidance-industry-seafood-list)

FDA Fish & Fishery Products Hazards & Controls Guide:

<https://www.fda.gov/food/seafood-guidance-documents-regulatory-information/fish-and-fishery-products-hazards-and-controls>



Shawn Nelson
NC Div. of Marine Fisheries
Shellfish Sanitation
Morehead City, NC

Phone: 252-808-8157 (office)
Email: shawn.nelson@ncdenr.gov

