Florida Seafood Purchasing and Handling

Name

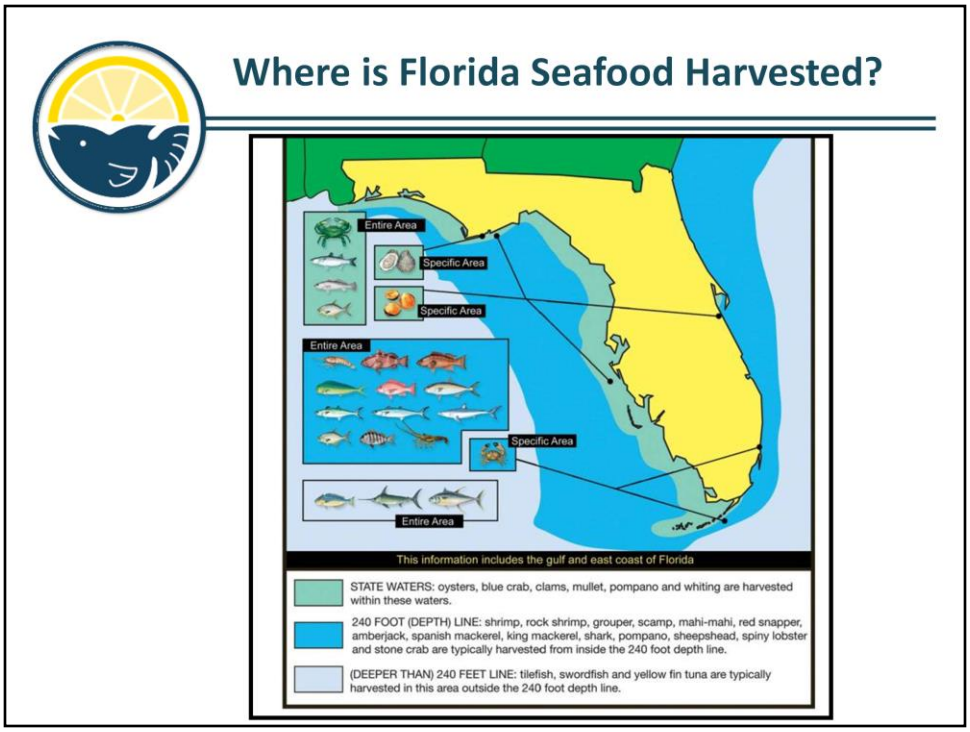
Title

Affiliation

Notes for Instructor

The purpose of this presentation is to educate consumers on how to purchase high quality seafood, and how to properly handle and store Florida seafood. There are plenty of opportunities to ask your participants questions about their experiences/observations when purchasing and handling seafood. The presentation should take 20-30 minutes to complete.

The Purchasing and Handling activity found in the supplemental materials section can be incorporated throughout the talk, used as a pre-post, or used as an ice breaker. Read through and decide how the three scenarios can be incorporated.

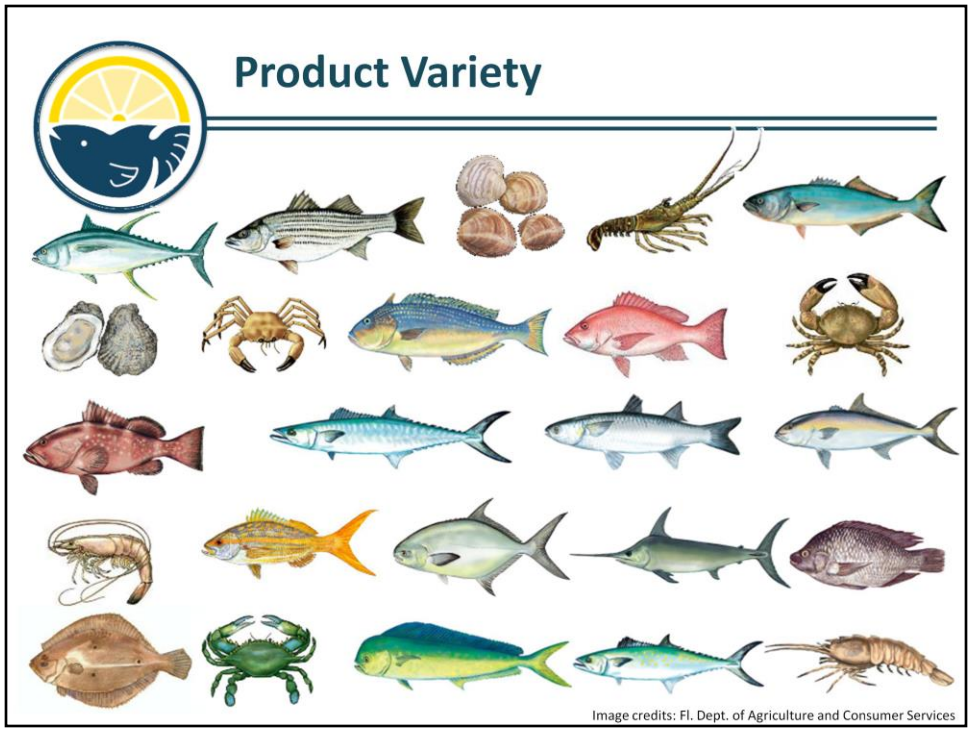


Background

When asking where seafood is harvested in Florida, a more appropriate question to ask might be "where is it *not* harvested?"

Florida's mainland has the longest coastline (1,350 mi.) in the contiguous United States. When islands are included in this, the number climbs to 8,400 miles! Florida's climate spans from tropical to temperate conditions, and includes a multitude of productive near-shore and estuarine environments such as marshes, seagrasses, mangroves, and coral reefs. Florida is also surrounded by the Gulf of Mexico and Atlantic Ocean, which provide a variety of warm water currents, bottom topography, and physical/chemical properties that support a variety of highly productive fisheries.

Florida's commercial fishermen harvest a variety of seafood throughout the bays, near-shore, and offshore habitats in state and federal waters on both the Gulf and Atlantic sides. State waters on the Gulf side extend out to 9 nautical miles; state waters extend 3 nautical miles on the Atlantic side. Federal waters extend beyond these limits out to 200 nautical miles. In addition, a variety of farm-raised or aquacultured products are grown in state waters and land-based facilities.



Notes to Instructor

Before going over the information on the slide, you may want to ask your participants about what type of Florida seafood they like to eat and/or what species they do or don't recognize from this slide (obviously not all types of Florida seafood are represented. For instance several species of grouper/snapper exist, and we only have one or two of the species represented on the slide).

Or you may want to ask if they have tried all the types shown?
Left to Right: 1st Row: Tuna, Striped Bass (aquaculture), Hard Clams (aquaculture), Spiny Lobster (aka Florida Lobster), Bluefish. 2nd Row: Oysters, Golden Crab, Golden Tilefish, Red Snapper, Stone Crab . 3rd Row: Red Grouper, Wahoo, Mullet, Amberjack. 4th Row: Brown Shrimp, Yellowtail Snapper, Pompano, Swordfish, Tilapia (aquaculture or wild) 5th Row: Flounder, Blue Crab, Mahi-mahi (Dolphin), Spanish Mackerel, Rock Shrimp

*To find the most recent landings data specific to your area visit: http://myfwc.com/research/saltwater/fishstats/commercial-fisheries/landings-in-florida/
Scroll down the page to find landings data for the most recent year with commercial landings data categorized by statewide, coast, county and month.

Background

According to the Florida Department of Agriculture and Consumer Services, Florida produces over 80 varieties of both wild-caught and farm-raised products across the state in the Gulf and Atlantic in both state and federal waters. According to NOAA's National Marine Fisheries Service, in 2011 Florida ranked among the top twelve states for fresh seafood production (only commercial seafood is included, not recreational seafood or farm-raised products) with nearly 110 million pounds harvested and a dockside value of more than $226 million.* (see instructor notes for landings reference)

Florida aquaculture products are managed by the Florida Department of Agriculture and Consumer Services (FDACS) through the division of aquaculture (http://www.floridaaquaculture.com/). Florida aquaculture producers reported sales in 2012 of $69 million based upon a survey conducted for FDACS Division of Aquaculture and administered by the Florida Agricultural Statistics Service.
(http://www.floridaaquaculture.com/publications/Aquaculture2013-FDA.pdf).

The most recent 2007 report by the USDA ranked Florida aquaculture as 7th among all states in the US with 469 farms reporting farm income of $61.3 million (http://www.floridaaquaculture.com/publications/Issue_69.pdf). The next census of agriculture by the USDA was scheduled in 2012.

Background
Despite being a major seafood producer, Florida (or the U.S.) cannot meet the growing demand for seafood alone. In fact, in 2011 approximately 91% of the seafood consumed by Americans was imported from other countries. Approximately half of this seafood was farm-raised.

During the past several years, however, the influx of lower-cost, imported seafood has displaced local seafood in many commercial markets along with the rich traditions associated with it. Many Floridians, however, are becoming more concerned about the origin, sustainability, and safety of the seafood they consume, and local food movements are compelling people to buy more locally harvested products.

Notes to Instructor

This is a good time to ask participants about their experiences/observations of finding local seafood. Have they found it to be easy to find local seafood? How important is to them to purchase/find locally produced seafood?

Rankings reflect the results of the Florida Seafood at Your Fingertips Statewide Survey (Question 18)

Background

1.Stimulates local economy

Florida's seafood industry has an economic impact of nearly $13 billion annually and employs approximately 65,000 people throughout the state. (http://www.st.nmfs.noaa.gov/st5/publication/econ/2009/FEUS%202009%20ALL.pdf). The seafood industry underpins the economy of many coastal towns providing employment and income, and at times of the year, where there is little other economic activity. Buying local helps local jobs and also ensures that the ecological footprint, from catch to plate, is minimized. "By investing in fishermen, a shareholder helps to strengthen the local community."

2.Freshness and quality

In many cases, local seafood will get to the consumer faster than imported seafood that needs to be transported by ship, plane or rail.

2.Transparency and accountability

Florida fishermen also have to follow local, state, and federal regulations to ensure its fisheries are and remain sustainable for future generations. There are a number of management efforts that require fishermen to report their effort and landings so that resource managers can better track the status of local fish populations.

4.Affordability

As with many harvested products, prices will reflect seasonality. When fish and shellfish are harvested locally, larger quantities may be available in local markets, which can reduce costs and prices. These times of increased availability of high-quality products tend to cause prices to drop, creating the best value for the consumer.

5.Sustainability

Florida fisheries are considered sustainable because of effective state and federal management. Consumers should feel confident when purchasing Florida seafood because it is managed responsibly. The social and economic side of "sustainable seafood" is covered because your purchasing decisions support the local fishing communities and the seafood industry in your region. You're also creating a stable marketplace for the fishermen, helping the fishermen feel more comfortable in making adjustments to improve the long-term sustainability of the fishery instead of focusing on short-term survival. In most cases, the carbon footprint of purchasing local seafood is less as it takes less energy (fuel, electricity) to move seafood from the harvester to the consumer.

Whatever your reason for choosing Florida seafood, because the majority of seafood found in Florida's market is not harvested locally, it may be difficult for those who are interested to find it.
HOWEVER, this presentation will help you feel more confident in purchasing quality Florida seafood products and safely handling them in the

home.

Notes to Instructor
To introduce this slide, ask your group to name the places they purchase seafood most often.
Results of the Florida Seafood at Your Fingertips Statewide Survey indicate that the top 3 places that the majority of people frequently buy their seafood is from (1) restaurants, (2) grocery stores, and (3) local seafood markets. The majority of respondents never purchase their seafood from roadside vendors or farmers markets. (Review survey paper synopsis in supplemental materials if want to review further results)

Background
There are several types of seafood dealers ranging from supermarkets to roadside vendors. Usually supermarkets will carry basics like mussels, cod, snow crab, etc. If you are looking for something specific and unique, you will have a better chance of finding it at a fish or specialty market. If you are unsure if the seafood you are purchasing is from Florida, look for the "Fresh From Florida" seafood logo.

Buy from Reputable Vendors: Just because someone is selling seafood out of a cooler at a road side stand, doesn't mean they are local or legitimate. For a business to sell raw seafood they must have a "License to Retail Saltwater Products Pursuant to Chapter 379" of the Florida Statutes (this excludes restaurants that cook seafood on premises). Roadside vendors must also have a mobile vendor license from the Department of Health.

Safety measures are in place throughout the entire process to ensure that the seafood you are purchasing is safe. Commercially caught seafood (including seafood at local restaurants and grocery stores) is safe to eat because it is closely monitored. For example, by law commercial fishermen will not harvest in areas that have been closed as a result of red tide or elevated levels of bacteria. Red tide and ciguatera are produced by differing types of dinoflagellates, which are a type of micro algae. Red tide is caused by *Karenia brevis*. The state of Florida closes shellfish beds in red tide areas quickly and will not re-open them until the shellfish are safe to eat. To check the status of shellfish beds, check http://www.floridaaquaculture.com/redtide/redtideinfo.htm. Cooking does not destroy red tide toxins!

Ciguatera is a form of seafood poisoning caused by the consumption of contaminated predatory reef fish found in sub-tropical and tropical waters- which include Florida. Examples include groupers, snappers, barracuda, mackerel, and hogfish. The poisoning is the result of natural toxins that accumulate in the fish's flesh after feeding on lower members of the aquatic food chain. Ciguatera is the most commonly reported marine toxin disease in the world. Unfortunately ciguatoxic fish cannot be detected by appearance, taste or smell and ciguatoxins cannot be removed by cooking. Ciguatera Fish Poisoning (CFP) is described as an acute neurological disease, but also includes gastrointestinal and cardiovascular symptoms. One of the most

prominent symptoms of CFP is temperature reversal; cold objects feel warm, and warm objects feel cold. Onset of symptoms occurs within 6 hours.

Vibrio bacteria are another area of concern especially with the consumption of raw oysters and particularly for people with compromised immune systems. You are at risk of serious illness if you eat raw shellfish and have any of these health conditions: liver disease, iron overload disease, diabetes, cancer, stomach disorders, or any illness or medical treatment that weakens the body's immune system. If you are at risk, raw or undercooked shellfish containing *Vibrio* can make you sick. To safeguard your health, eat oysters or clams that have been thoroughly cooked (heat destroys the bacteria). Symptoms of infection from *Vibrio* include nausea, vomiting, fever/chills and diarrhea and usually occur within 24-48 hours after consumption. *Vibrio* rarely affects healthy individuals and when it does symptoms are mild and temporary. http://FoodSafetyNews.com and http://www.issc.org/client_resources/Education/English_Vv_Risk.pdf

Purchasing seafood from reputable licensed vendors helps to ensure products are harvested, processed and sold according to federal, state, and local regulations. To find where you can purchase Florida seafood products visit the Florida Seafood at Your Fingertips Mobile App.

When shopping or dining out at restaurants, purchasing Florida seafood may prove to be a challenge. Privately owned restaurants are more likely to offer locally harvested seafood and will often promote it on their menu. If you are unsure, ask your server where their seafood was harvested. Note: you want to know where it was harvested and not where it was processed as much seafood gets shipped to different states and/or countries for processing.

Background

Since seafood needs to stay cold and is highly perishable, you should purchase it last. Avoid raw juices from seafood from dripping on other foods and keep packages of seafood in plastic bags to help in avoiding that cross contamination.

When purchasing quality seafood, it's important to buy from reputable dealers which are those associated with a known record of safe handling practices and that maintain high quality product. Employees should be in clean clothing and wearing hair coverings. They should not be smoking, eating or playing with their hair. They should not be sick or have any open wounds. They should be wearing disposable gloves when handling food and change gloves when doing nonfood tasks and after handling raw fish. Fish should be displayed on a thick layer of fresh ice, preferably in a case or under some type of cover.

Seafood is required by law to have a country of origin label and state whether it was farm raised or wild caught. Keep in mind it will not say whether it was caught/raised specifically in Florida or another state so this is where a consumer will need to follow up with more specific questions.

When at the store consumers can look for the "Fresh from Florida" logo, which by law requires the product to be harvested/raised in Florida. When asking whether a product is from Florida, be sure to ask where it was harvested/raised and not just "where do you get your seafood?" because although businesses often get their seafood from local processors/wholesalers, the product itself might come from other parts of the US or other countries.

Florida seafood like all seafood can be processed and sold in many forms. Products can be fresh, fresh-previously frozen, and frozen. Fresh seafood, like produce, are harvested in seasons and are more abundant during certain times of the year. When in season, seafood will often be plentiful and prices may reflect this abundance. This is a good opportunity to buy fresh Florida seafood at a cheaper price. It's important to note that some seafood may be available year round and are therefore always in season!

While there are specific seasons for many types of Florida seafood that might limit the availability of a product in the fresh form, most Florida seafood can be purchased year round frozen. Just because a product is frozen doesn't mean it is lower quality. In fact, some seafood are often frozen on the boat to lock in freshness and may actually preserve nutrients and quality better than what you would get in a fresh product. By law, if a product has been previously frozen it must be labeled as such. Products labeled "fresh frozen" indicate the seafood was frozen while it was fresh, in many instances within hours of harvest. Commercial freezers, which operate on a much colder temperature than most home freezers are able to maintain the integrity of products for several months to years. Commercially frozen seafood can be stored in the freezer for up to 6 months. Because stores can

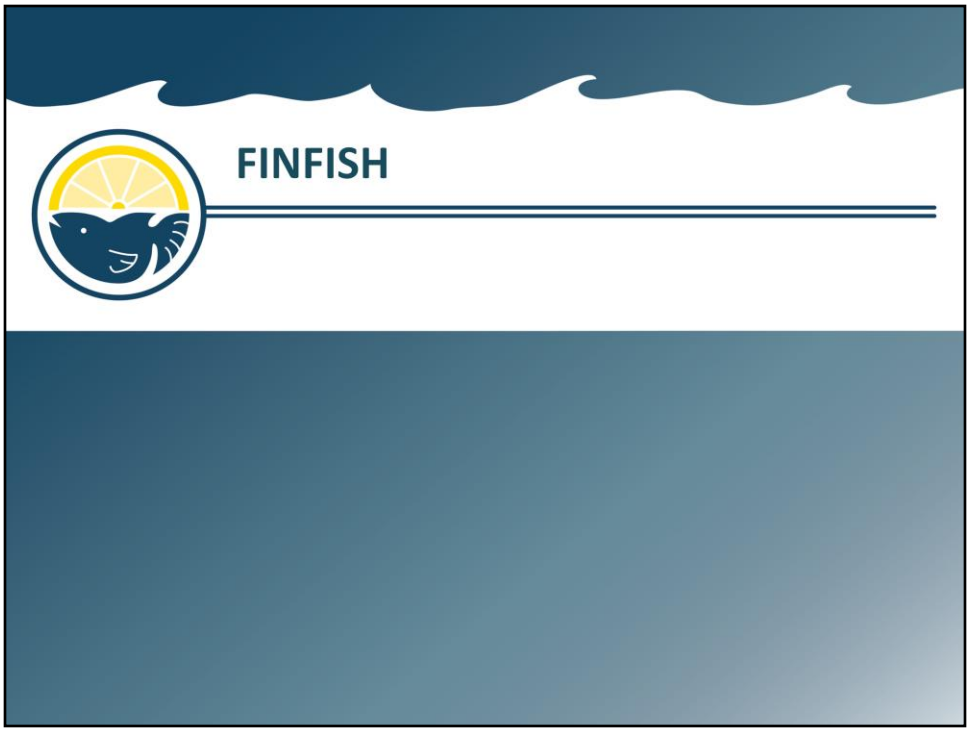
buy frozen seafood in bulk, frozen seafood often offers the best value to the consumer.

Whether fresh or frozen, it's always a good idea to wait until you get to the store before deciding which exact type of fish or shellfish to buy. Planning a menu with some flexibility ensures that you'll be able to purchase the freshest items in the case and take advantage of what's on sale. With a wide variety of products, you can likely substitute one Florida species for another.

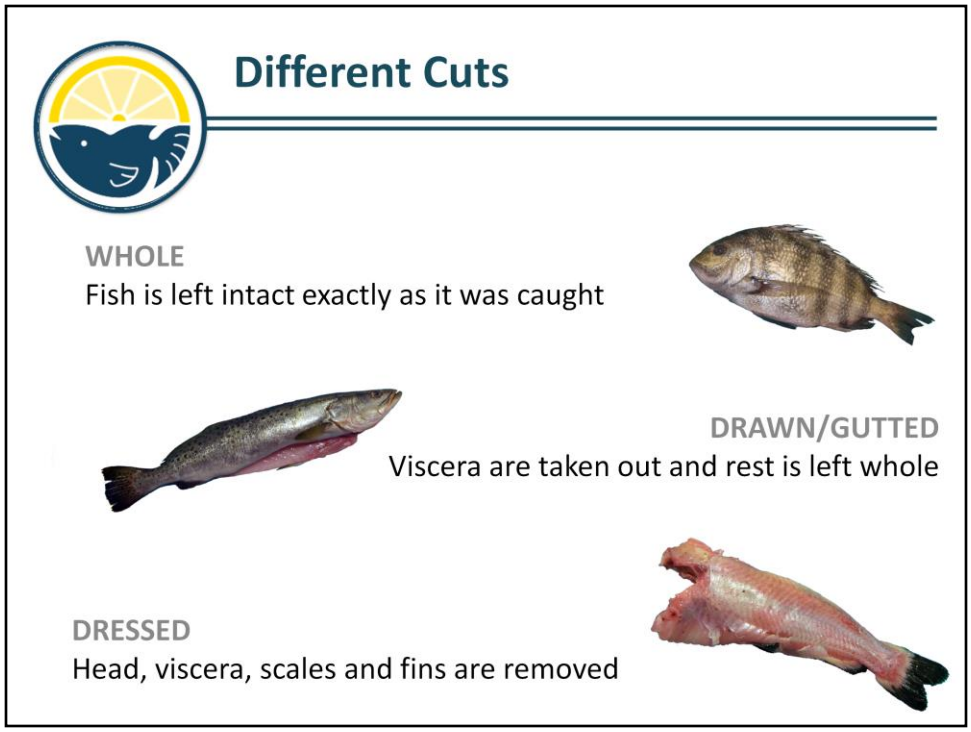
Talk to your seafood dealer (aka fishmonger). If you have questions/concerns about the products you are purchasing, talk to the people who are selling them to you. Legitimate fish mongers should be able to provide you with the details you are seeking such as type of seafood, where it came from, how fresh it is, etc. Its important to realize that it might not always be possible to buy local seafood. The product might be out of season, too expensive, or Florida just doesn't harvest certain types of seafood (eg: salmon or sea scallops). If there is something you want that is not available, ask the fish monger what local products he/she has that would be comparable to what they are looking for.

References

Doris Hicks, DE Sea Grant and Clemson Univ Cooperative Extension (publication in your additional materials).
http://www.seafood.nmfs.noaa.gov/Purchasing_Seafood.html



Notes to Instructor
The following slides are going to specifically discuss how to purchase finfish



Background

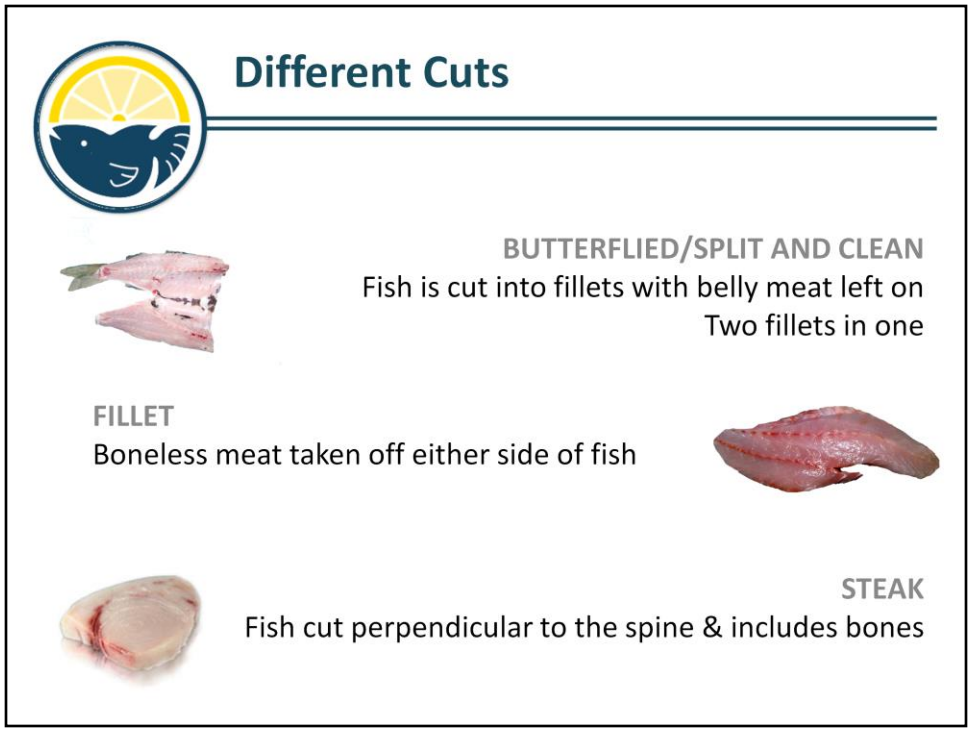
There are many different ways to purchase finfish. The most popular cut is a boneless skinless fillet. But you can also purchase a whole fish and have the seafood dealer (fishmonger) customize the cut according to what kind of recipe you will be using. Usually when you purchase a whole fish, you save money—especially if they cut fish for free. You can also ask for leftover backbone, head or any part of the fish that you can cook with (ex. Mullet has a gizzard which you can cook.

Whole: One of the best ways to purchase fish is whole because you are better able to tell if the fish is fresh. You can better customize your cut and utilize the by-product for cooking. Nothing has been done to the fish. It is still fully intact. When cooking whole fish, the backbone is an excellent heat conductor and the skin keeps the moisture in.

If you can not use a whole fish, you have several other cuts to choose from.

Drawn/gutted- the entrails/guts have been taken out with an option to be scaled

Dressed- the entrails, fins, scales and head have been take out and sometimes it is even skinned.



Background

Butterflied- the fish is cut down the backbone to make fillets in which the belly meat is left on. This is often called split and cleaned and comes with the option of leaving the backbone on or off.

Fillet- a side of the fish that has been completely removed from the central bone. It can be either boneless or the ribs can be left on. Also look for pin bones which are the bones found in the center of the fish, some fish will have more than others.

Steak- a cross-section of a whole fish or large fish fillet, which is cut perpendicular to the spine and includes the bones. Fish steaks can be contrasted with fish fillets, which are cut parallel to either side of the spine and do not include the larger bones. Fish steaks can be grilled, pan-fried, broiled or baked. Larger fish, such as tuna, swordfish, salmon and mahi-mahi are often cut into steaks. Fish steaks from particularly large fish can be sectioned so they are boneless.

How much do I buy? Finfish

Fish Purchasing Option	Amount per Person
Whole	$^3/_4$ to 1 lb.
Dressed or cleaned	$^1/_2$ to $^3/_4$ lb.
Fillets and steaks	$^1/_3$ to $^1/_2$ lb.

Notes to Instructor
one source for yields is http://www.chefs-resources.com/finfish

Background
The amount of fish depends on your appetite but there are rules of thumb.

When buying whole fish with head and tail, you would need to purchase between 10 ounces to 1 ¼ pounds per portion and will be dependent on the meat yield. Yield is the % of useable meat when taken off the whole fish. Portions of filleted fish can vary from 3 ounces to ½ pound per person. This is mostly important when it comes to price. For example, if a whole pompano has a fillet meat yield of 50% and costs $7 per pound then once you discard all byproduct from the whole fish you will technically be paying $14 per pound for the fillet. In this case a $7/LB whole fish is the same price as a $14/LB fillet.

Yield depends on the species of fish you are cutting. For example, a sheepshead has a lower meat yield (30%) than a whiting (35%). Ask your fishmonger if they know the yield of the fish before they cut into it.

When buying dressed or cleaned fish you would need top purchase about 8 ounces per person.

Instructor notes: one source for yields is http://www.chefs-resources.com/finfish

References
http://www.uidaho.edu/extension/twinfalls/seafoodatitsbest
http://www.deseagrant.org/outreach/seafood-technology-faq-how=much-seafood-should-i-buy

Background

Use your eyes, hands, and nose when selecting fresh fish. Whole fish can better give you signals of freshness. The really best way to tell is by smelling the gills on a fish, they should be reminiscent of the ocean and have no fishy/ammonia smell. Whole fish should have bright, clear, full eyes that are often protruding. As the fish loses its freshness, the eyes become cloudy, pink and sunken. The gills of fresh fish should be bright red or pink and free of slime. Avoid purchasing whole fish with dull-colored gills that are gray, brown, or green. Fresh fish should be free of loose or sloughing slime. The flesh of whole fresh fish should be firm but elastic, springing back when pressed gently with the finger. The skin should be shiny with scales that adhere tightly. The characteristic colors and markings of fish start to fade as soon as the fish leaves the water but the skin should have a bright, shiny appearance. Don't be afraid to ask your fish monger so you can smell the fish or have them touch the flesh for you. Make sure anything you buy is cold (at or below 40 degs F; review Keep It Cold slide at the end of this presentation).

Source: Doris Hicks, DE Sea Grant

Background
Fillets should have firm, elastic, translucent flesh and a fresh-cut, moist appearance. There should be no browning around the edges, no ragged edges, and the muscle should not separate (known as gaping). The flesh should adhere to the bones. Watch for evidence of bruising or reddening of the flesh from retention of blood. You can ask to smell fillets, too. There should be no fishy or ammonia smell. Make sure, too, that prepackaged steaks and fillets contain a minimum of liquid. Fish fillets stored in liquid deteriorate quickly.

Make sure anything you buy is cold (at or below 40 degs F; review Keep It Cold slide at the end of this presentation).

Notes to Instructor
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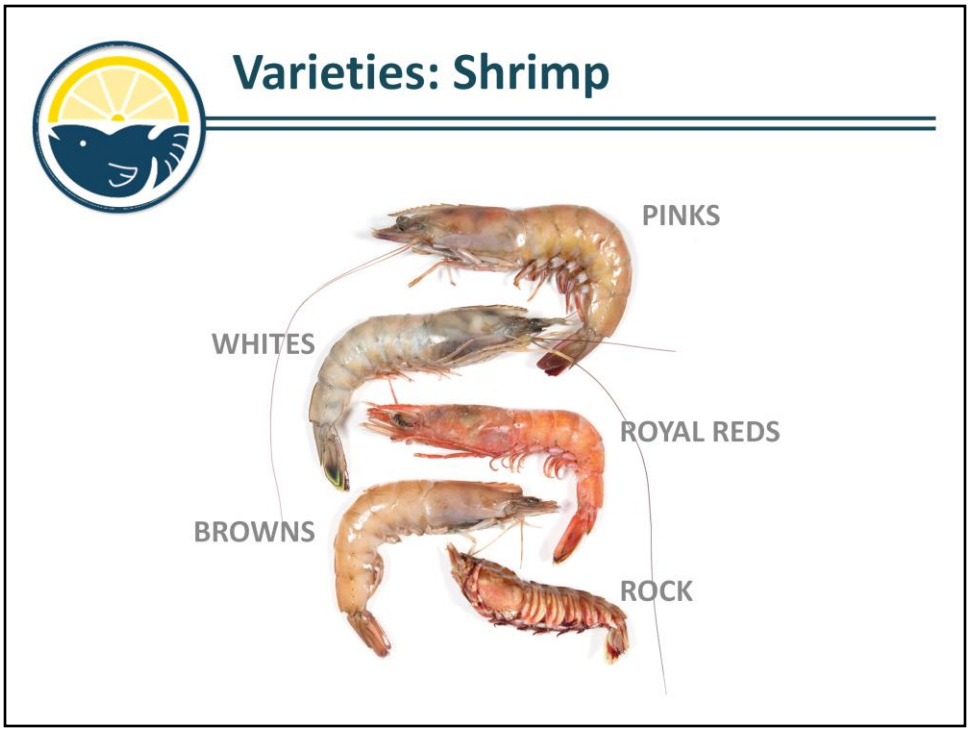


Background
Florida harvests 5 species of commercial shrimp**:** Pink, brown, shrimp, royal red and rock shrimp.

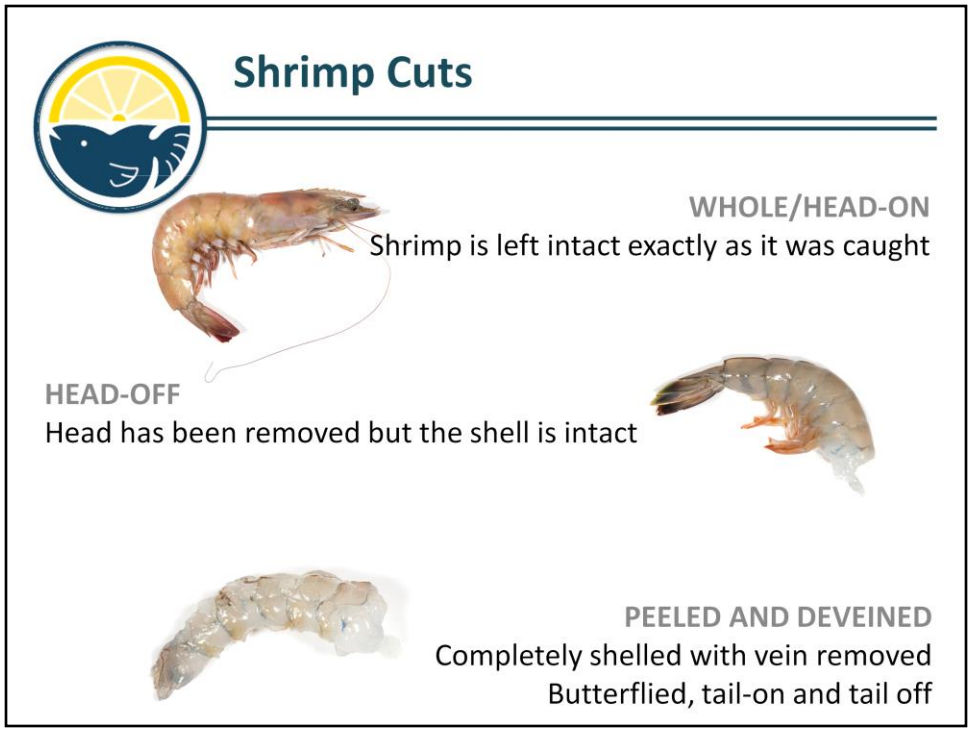
<u>Pinks (aka Hoppers)</u>
The Key West Pinks mature on the coral sand bottoms of the Tortugas region and develop the distinctive pink color.
Firm
Slightly Sweet
Great for Boils and Cocktails
Does well with all forms of cooking

<u>Whites</u>
Found closest to shore
Firm
Balanced Taste, slightly sweet
Best All Around Shrimp for different types of cooking
All methods of cooking

<u>Royal Reds</u>
Deep water – 600 ft-2,000 ft
Tender
Sweet
No Salt needed
Half the cooking time of other shrimp
If overcooked, they become mushy.. Not rubbery
These shrimp are usually harvested when the season for other shrimp species is closed
Best broiled or grilled (high heat)

<u>Browns</u>
Firm
Robust
Flavorful and Full-bodies
Great for Boils and cocktails
Does well with all types of cooking

<u>Rock</u>
Unique Species
Hard shell unlike other shrimp
Tend to be smaller
Lobster Taste
Firm
Sweet
Great broiled, grilled and sautéed
Virtually all Rock Shrimp are caught by boats equipped with on board freezers to immediately preserve the product until it is further processed on shore



Background

Head-on

Shrimp left intact are great for boils and grilling. Be aware that when purchasing head on shrimp you can expect about 40% waste.

Head-off

May also be called “green headless”. The head has been removed but the shell is still intact. When the shell is left on, it tends to impart a lot of the flavor onto the meat and it helps protect the meat from drying out. Easy Peel is when there is a cut made into the back of the shrimp (where the vein resides) so that the consumer can easily peel the shrimp without have to use a tool. If you are peeling the shells prior to cooking, you can freeze them to make a shrimp stock at a later date.

Peeled and Deveined

These shrimp are completely shelled and their veins are taken out. There are different forms on peeled and deveined shrimp. Butterflied (fantail) is when the original round body has been cut into two sections which remain attached on the ventral side, thus appearing as a "butterfly" form when laid open.

Tail on is self-explanatory. The traditional tail-on form provides an attractive, convenient feature for cocktail shrimp, while the tail-off form is more often used for smaller shrimp (great for sautéing).

Pieces may result during handling and processing. Although this form is only a portion of the original shrimp, it represents a wholesome, nutritious selection and often is priced better.

Raw Shrimp

Raw shrimp meat should be firm and have a mild odor. The shells of most varieties of shrimp are translucent with a grayish green, pinkish tan, or light pink tint. The shell or meat is not slippery. The shells should not have blackened edges or black spots. Cooked shrimp should be firm and not have an unpleasant odor (mild smell). The color of the meat should be white with red or pink tints.

Fresh vs Frozen

A lot of shrimp is frozen on boat before it ever gets to a store. Very few docks have dayboats that can go out just one day for shrimping. Most stay out weeks to catch enough shrimp to make it viable. Dayboats are mostly found on the West Coast of Florida because shrimping grounds are closer and therefore require less resources (ex. fuel). There is nothing wrong with frozen shrimp as long as it was immediately frozen once caught. In fact, sometimes a frozen shrimp is better quality than a fresh one. However, once shrimp is thawed out or exposed to air, it quickly deteriorates so it is best to keep shrimp frozen (not thawed out).

How Much Do I Buy? Shrimp

Shrimp are sold by count

Shrimp Size	Number per Pound
Jumbo	<20
Large	20-30
Medium	30-40
Small	>40

Background

Sizing

Shrimp are sold by count, which is the number of shrimp in a pound (so a 16/20 shrimp will have 16 to 20 shrimp in a pound).

It is very important to remember that when you buy whole shrimp and you take the head off you will lose anywhere from 35% to 50%, so a 13/15ct Head-On Shrimp ends up being a 21/25ct Head-off Shrimp.

Yields

Remember that shrimp with heads lose more than half their whole weight by the time the head is removed and the rest of the shrimp is peeled and deveined. Shrimp lose even more weight when they are cooked.

If a recipe calls for 1lb shrimp with shells but without heads, you can usually substitute the following:

- 1 2/3 pounds shrimp with heads
- ¾ pound peeled shrimp
- 2/3 pound peeled and cooked shrimp

One pound of raw, headless, shell-on shrimp will yield approximately ¾ pound of cooked, peeled & deveined shrimp

What to Look For: Shrimp

Background

Raw Shrimp

Raw shrimp meat should be firm and have a mild odor. When shopping for fresh shrimp, look for tightly adhering shells, intact legs, firm flesh and mild sea-breeze aroma.
The shells of most varieties of shrimp are translucent with a grayish green, pinkish tan, or light pink tint. The shell or meat is not slippery. The shells should not have blackened edges or black spots.

Cooked

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Fresh vs Frozen

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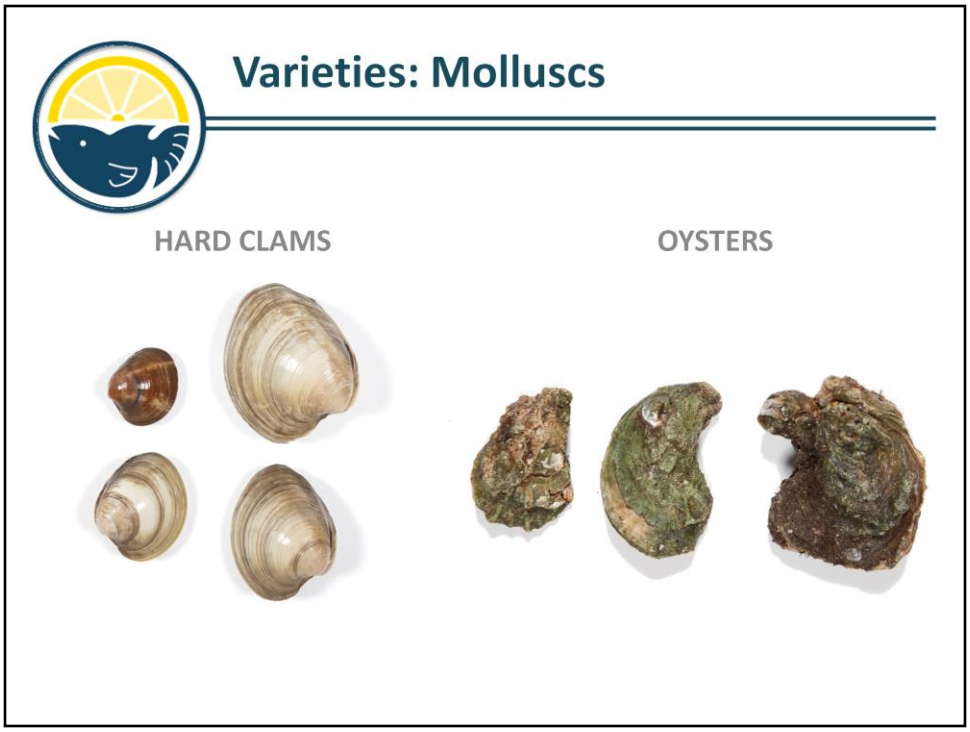


Background

Clams and oysters are the major molluscan shellfish varieties that are harvested in Florida. Squid are also a type of mollusc that may be commercially harvested and available in Florida although the fishery is relatively small and finding Florida squid may be very difficult.

<u>Clams</u>

Florida has two commercially important types of hard clams, the northern quahog (*Mercenaria mercenaria*) and the southern quahog (*Mercenaria campechiensis*).

The majority of hard clams harvested in Florida are of the northern quahog variety. The majority of clams are farm-raised on leased coastal water bottoms though hard clams are also wild-caught in Florida's coastal waters. Hard clams are harvested and available year round. Clams meat is extra lean, firm, and rich with sweet to slightly salty flavor.

<u>Oyster</u>

The Eastern oyster (*Crassostrea virginica*) are harvested commercially along Florida's Gulf Coast. Oyster meat is extra lean, tender to firm with a slightly salty flavor. There really is only 1 species of oyster harvested in Florida but depending on where it is harvested, it will taste different due to varying environmental and water conditions.

How Much Do I Buy? Clams

Clam Size	Number per Pound	Hinge Size
Cherrystone	3-4	2 inches
Topneck	5-7	1 ½
Middleneck	7-9	1 ¼
Littleneck	10-13	1
7/8th inch	14-18	7/8
Pasta	18-25	¾

Background

Type	Amount	Size
Cherrystone	3-4/lb	2 inch hinge*
Topneck	5-7/lb	1 ½ inch hinge
Middleneck	7-9/lb	1 ¼ inch hinge
Littleneck	10-13/lb	1 inch hinge
7/8th inch	14-18/lb	7/8 inch hinge
Pasta	18-25/lb	¾ inch hinge

Shucked clams ½ pint per serving

*Clams are graded and marketed by the depth of the shell at the hinge side

How Much Do I Buy? Oysters

Oyster Type	Amount per Serving
In Shell	6 whole oysters
Shucked	1/3 – ½ pint

Background
In shell 6 whole oysters per serving
Shucked 1/3-1/2 pint per serving

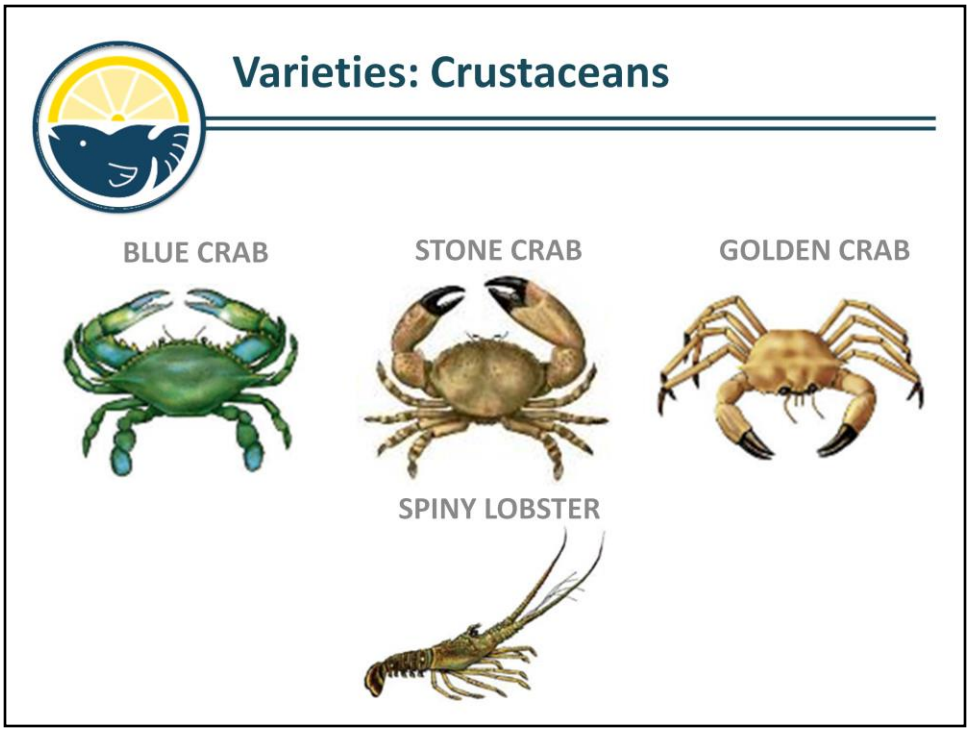
Background
When purchased in the shell be sure they are ALIVE when you cook them. Shells should be tightly closed. If shell is gaping, the shell should shut when lightly tapped—that is another indicator that it is alive. Clams should be closed and not sound hollow. Oysters should sound full when hit against each other.

They must also not have broken shells, gaping shells, empty shells, or heavy shells that might filled with mud or sand.

Clams and oysters can be bought already shucked in jars or cans. When oysters and clams are sold shucked, the meat should be plump and lie in plenty of their own clear, natural liquid.

You can also ask the seafood dealer (aka fishmonger) to show you the tags on bivalve shellfish if you're curious about where they came from. (the source must be kept on record to trace possible sources of illness). The tags will also show when they were harvested but knowing this date will be of little help if the shellfish has been store improperly.

If you find whole Florida squid, you want to ensure that the eyes are clear and full. The meat should be very firm, untorn, and cream colored possibly with reddish brown spots. Avoid squid with yellowy skin as this indicates aging.



Background
Florida commercially harvests a variety of crustaceans, including three types of crab (blue, stone, and golden) and 2 lobsters. Spiny lobsters are one of Florida's top commercial seafood products however there is also a very small fishery for Spanish or shovelnose lobster. Though rare, consumers may be able to find this Florida lobster in some markets.

Blue crabs
The blue crab, one of the most valuable crustaceans in the United States, is aptly described by its scientific name, Callinectes sapidus which translates to beautiful, savory swimmer (Calli -- beautiful; nectes -- swimmer; and sapidus -- savory). Blue crabs can be identified from the other 2 Florida crabs by it's dark green or bluish colored shell and by the last pair of legs, which are shaped like swimming paddles.

Blue crab meat is delicate and sweet and can be purchased in a variety of forms. Whole crabs can be purchased and eaten either hard or soft. The soft-shelled-crab is a hard shelled crab that has shed it's shell by molting. They are harvested before their new shell has had the chance to harden. These are considered a delicacy and are generally eaten in its entirety with or without gills and viscera. Blue crab meat may also be purchased picked. Picked meat is available fresh or pasteurized.

Stone crabs
The U.S. is the only supplier of stone crab claws and they are almost entirely commercially harvested in Florida. They are one of Florida's top commercial fisheries and considered a delicacy. Florida law prohibits the taking of whole stone crabs. Fishermen are allowed to take claws 2 3/4 inches or longer and are required to return stone crabs safely to the water. Freshly harvested claws are cooked immediately after harvest to prevent the meat from sticking to the inside of the shell. Claws are usually served in the shell and may be purchased either as fresh-cooked or frozen. The meat of stone crabs is firm and sweet and should have a mild aroma. It is often served accompanied by a mustard dipping sauce.

Golden Crab
The golden crab, is a large, deep water crab with a golden-cream shell that sets it apart from its close relatives, the deep-sea snow and king crabs. Golden crab is available live, as uncooked clusters and as cooked halves, clusters and picked meat.

Spiny Lobster
Spiny lobster meat is lean, firm and sweet, with a distinctive flavor. Unlike the American lobster, spiny lobsters do not have claws. Therefore, most of the meat comes from the tail. Lobsters are available for purchase either fresh or frozen in the following forms: whole, tail, split tail, or picked tail meat.

How Much Do I Buy?
Crabs & Lobster

Species	Amount per Serving
Blue crab – in shell	3 – 4 whole crabs
Blue crab – picked	1/6 – 1/4 lb
Stone crab	3 – 4 claws
Golden crab	2 clusters
Spiny lobster	1 lb in shell

Background

Stone crab

Serving size of stone crab is dependent on the size of the claw but 3 – 4 claws per serving is a good estimate. Stone crab claws are graded by size. 2.5 lbs of medium sized claws yield approximately 1 pound of picked meat

Medium: 6 – 8 claws/pound
Large: 5 – 6 claws/pound
Jumbo: 2 – 4 claws/pound

Spiny lobster

1 pound of cooked meat yields approximately 4 servings and a 1 pound whole lobster yields 1/3 lb. cooked meat.

Background
Shellfish may be sold live, cooked, or freshly-shucked. Each has a different characteristic for determining freshness.

Live
Live crabs and lobsters should have leg movement and the tail of lobsters should curl tightly underneath the body when the lobster is picked up. Lobsters and crabs will not be very active if they have been refrigerated but they should move at least a little bit. Discard any dead crabs and lobsters or ones with broken shells. Lobster (fresh or frozen) should have a mild aroma, firm flesh, and tightly adhering shells free of black spots.

Cooked
Cooked lobsters or crabs in the shell should be bright red and not have an unpleasant odor.

Picked
Picked lobster meat will be snowy white with red tints and picked crab meat will be white with red or brown tints. Cooked, picked meat should have good color and not have an unpleasant odor.

Notes to Instructor
The following slides are going to specifically discuss how to purchase frozen seafood

Background

Frozen seafood can be superior in quality to fresh products. With recent technological advances, fishing fleets are able to clean and flash-freeze fish virtually moments after they are caught. Flash-freezing, a process used for Frozen at Sea (F.A.S.) fish, instantly, in as little as 3 seconds, freezes the water inside fish tissues, thus preserving juices and maximizing flavor and texture when cooked. The modern fishing trawlers harvest is cleaned, processed, and flash frozen (minimum temperatures of -40 C) aboard ship within 2 hours of catch. Quality and freshness are maintained because the seafood is packed and shipped frozen, held in sub-zero freezers, and never thawed until you use it. Commercially frozen seafood is quickly frozen at its peak freshness and there are now a wide-variety of top-quality and wholesome seafood to be found in the freezer case. When properly thawed, frozen fish is comparable to fish that was never frozen. The majority of Florida seafood products can be purchased frozen year-round.

Frozen fish and shellfish should be packaged in a close-fitting, moisture- and vapor-proof package. Select packages from below the load line of the freezer case. Look for packages that still have their original shape and the wrapping intact with little or no visible ice. Seafood should be frozen solid with no signs of freezer burn, such as discoloration or drying on the surface, and not have an unpleasant odor. There should be either no odor or the odor is fresh and mild. Do not allow the package to defrost during trip from store to home.

Source: Doris Hicks, DE Sea Grant and Clemson Univ Cooperative Extension, Safe Handling of Seafood

Background

Keep It Cold – Whether you've purchased seafood that is fresh or frozen, always keep it cold to ensure peak quality. Seafood should always be purchased last and kept cold during the trip home. Seafood and other perishable items should never be left in a hot car unless packed in ice or in a cooler. Ask your grocer or fish monger to pack your seafood on ice for the ride home. Plan to use your seafood purchases within one to two days, or freeze them.

Place seafood immediately in the refrigerator when you get home from the seafood market. The refrigerator temperature should be at or below 40 degrees F. Fish should be stored in the coldest part of the refrigerator in its original packaging. Live shellfish (clams, oysters, crabs, lobsters, and crayfish) should be stored in the refrigerator in well-ventilated/open containers to allow air circulation. Do not store live shellfish in airtight bags or containers. Do not cook or eat shellfish that have died during storage. Live clams, oysters, and mussels have tightly closed shells or the shells will close when tapped. Live crabs, lobsters, and crayfish move their legs.

Store frozen seafood products immediately in the freezer when you get home from the seafood market. Put in coldest part of the freezer at a temperature as close to 0 degrees F or -18 degrees C as possible. Avoid prolonged storage by planning your purchases, keeping in mind "first in, first out". Store them in their original moisture and vapor proof packages. Commercially frozen seafood can be stored in the freezer for 6 to 12 months depending on the type of fish and the amount of fat it contains.

Freezing of seafood at home can be done when you end up with more than you can eat immediately. Freezing seafood in the home or commercial freezer will not improve quality but only maintains the quality of the food at the time it is frozen.

To freeze seafood at home, start with a high quality and carefully handled product. Fish should be cleaned first under cold water and then patted dry. Wrap with plastic wrap, taking out as much air as possible. Then overwrap the fish with freezer paper or aluminum foil. Carefully seal all packages and label with the contents, amount of seafood, and date. Place the packages in the coldest part of the freezer where the cold air can circulate around them, freezing them quickly. Note: oily fish spoil faster due to high fat content

Most shrimp available in the market has been previously frozen. Be sure shrimp has not been frozen if you plan to freeze it. Refreezing shrimp under non-commercial conditions can significantly affect the flavor and texture and may make the shrimp unsafe to eat when thawed.

Shellfish (shucked clams, oysters, or mussels) can be frozen in rigid air tight plastic containers. Be sure the meats are covered with their liquid and there is a ½ inch space between the liquid and the container lid to allow for expansion. Scallop meat can be frozen in plastic freezer bags. Be sure to take out any air from the bag and seal tightly or pack scallops tightly in covered freezer containers. Frozen, shucked shellfish can be stored for 3-4 months.

Source: Doris Hicks, DE Sea Grant and Clemson Univ Cooperative Extension, Safe Handling of Seafood

How Long Can I Store Seafood?

PRODUCT		FREEZER STORAGE	REFRIGERATOR STORAGE
FISH FILLETS/ STEAKS (LEAN)	Flounder	6 months	1-2 days
	Grouper		
	Mahi-Mahi		
	Pompano		
	Snapper		
	Tilapia		
FISH FILLETS/ STEAKS (FATTY)	Mackerel (King and Spanish)	2 months	
	Mullet		
	Swordfish		
	Yellowfin Tuna		
SHELLFISH	Blue Crab Meat (Fresh)	NA	7 – 10 days
	Blue Crab Meat (Pasteurized)		Unopened – 6 months Opened – 3 days
	Clams (Live)		< 7 days
	Oysters (Live)		< 7 days
	Shrimp	6 months	1-2 days
	Spiny Lobster		1-2 days
	Stone Crab		1-2 days

The shelf life of seafood varies. This is dependent on numerous factors including how the seafood is processed and the fat content. In general you should use fresh seafood quickly (within two days after purchase). A good rule for ensuring high quality frozen seafood is the First In, First Out concept. Lean fish can be frozen for up to 6 months whereas fatty fish should be used within 2 months.

Temperature fluctuations in home refrigerators will affect optimal shelf life as will opening and closing refrigerators and freezers often. Maximum refrigeration storage life is at 32 degrees F.

Questions