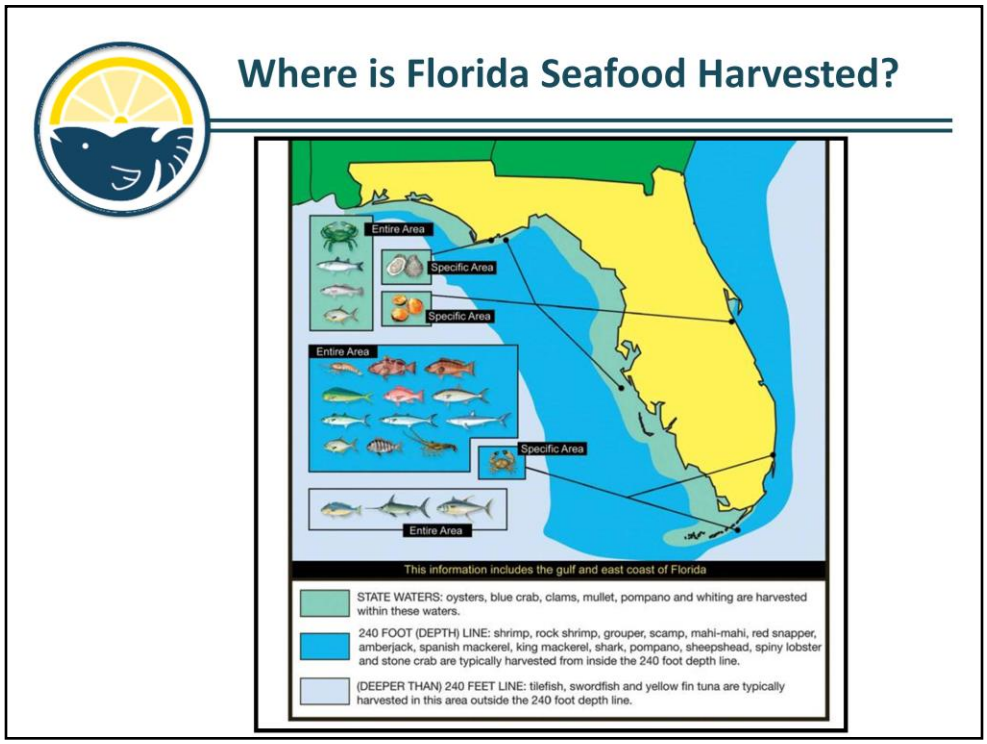
Notes to Instructor
The presentation should take 20-30 minutes to complete.

The Florida Seafood Seasons and Availability 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.

Notes to Instructor

We will cover the variety of wild-caught and farm-raised seafood in Florida; factors that determine when they are available in their various forms; and how consumers can find Florida seafood. There are plenty of opportunities to ask your participants questions about their experiences/observations of finding local seafood.

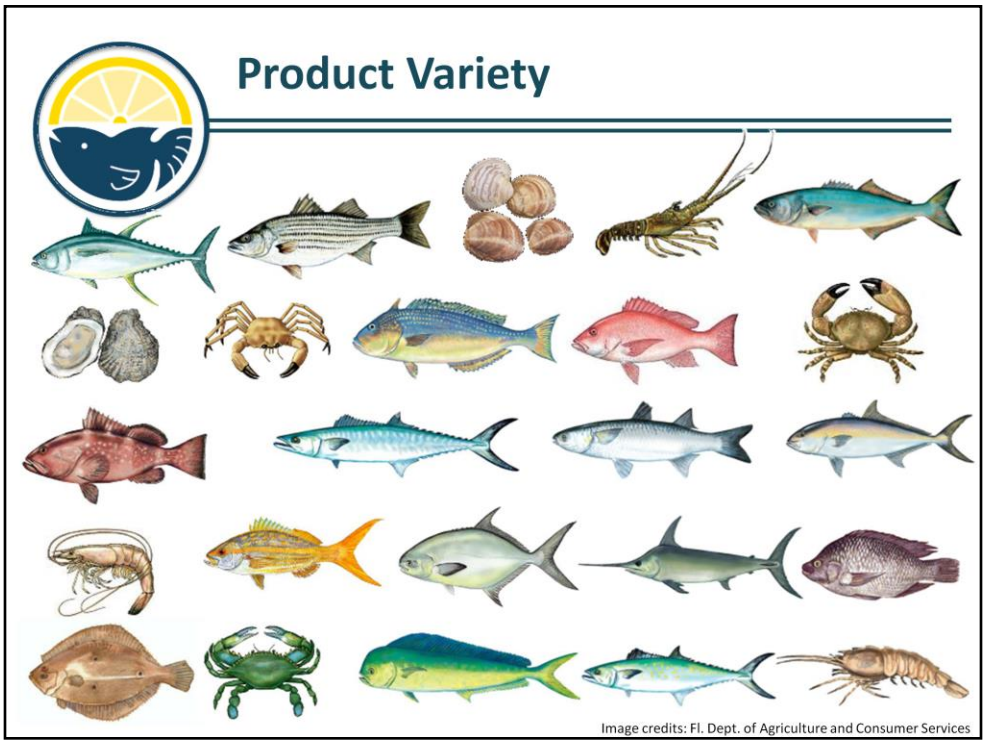


Background

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.

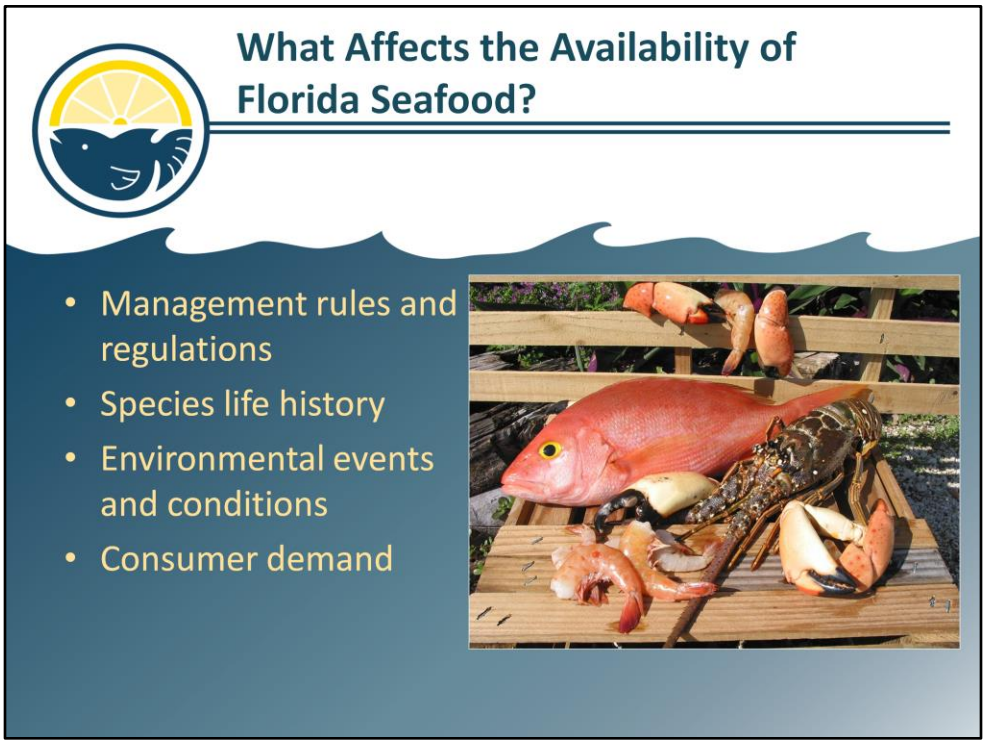
Notes to Instructor
This is a good time to ask participants about their experiences/observations of finding local seafood. Have they found it to be easy to find local seafood? How important is to them to purchase/find locally produced seafood?

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, by being more aware of what types of seafood Florida has to offer, factors that may affect when or if it is available , and where to look for it, you can increase the likelihood that you will be able to get the seafood you want.



Notes to Instructor:
The next several slides describe some reasons why certain seafood products are only available FRESH at certain times of the year.

Background
There are three to four general factors: 1) management rules that set seasons and catch limits; 2) the actual life history of the fish; 3) Mother Nature, like seasons, rainfall, storms, and red tide events, and 4) consumer demand outside of Florida.

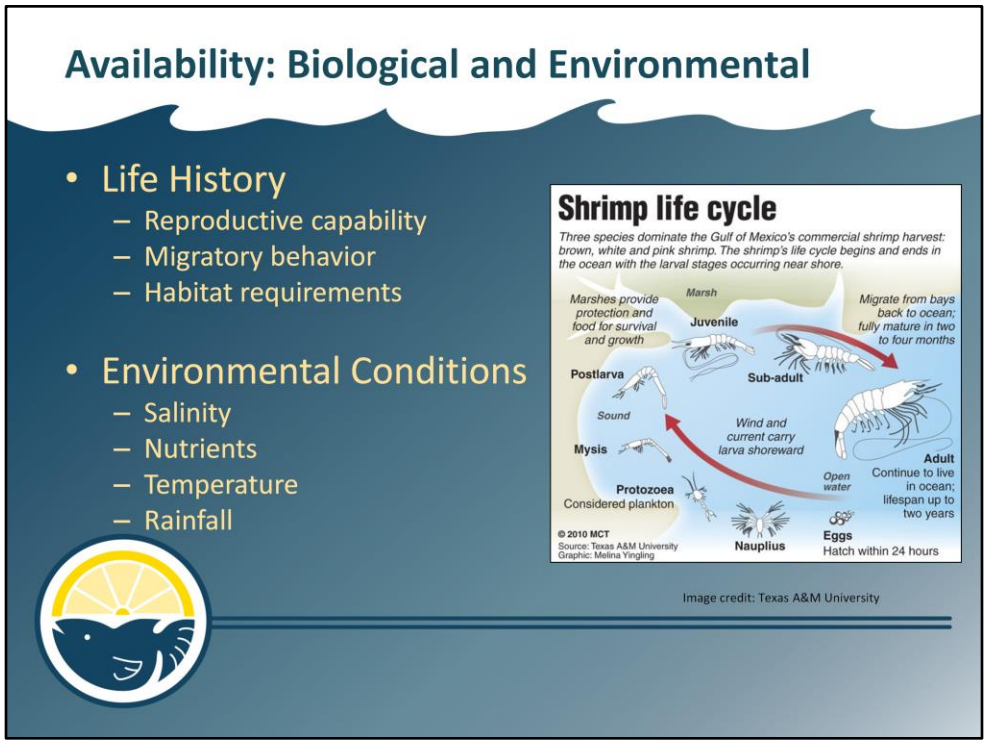
Background

Managers utilize a variety of tools to manage commercial fisheries such as open/closed seasons, quotas, closed areas to protect spawning populations, size limits, gear restrictions, and permits, which limit the number of fishermen in a particular fishery. The regulations often differ between the Gulf and S. Atlantic sides, and even sometimes regionally depending on the species. These rules in addition to demand can affect the availability (and price) of some of our favorite types of seafood.

Examples:

Grouper: Grouper is one of the most popular seafood items in Florida. However it is also a highly regulated fishery. Gulf stocks are managed separately form the S. Atlantic ones and, in fact have a different management system in place than in the S. Atlantic. Grouper in the Gulf are managed by what's called a Individual Fishing Quota (IFQ) or Catch Share system where a selected group of fishermen are allotted a certain allocation of grouper "shares" for the year. As long as they don't go over their shares, they can catch grouper throughout the year. In the S. Atlantic, there is a quota system in place which means all fishermen compete for a set amount of fish in a given period of time. In this fishery grouper is closed for harvest in shallow water Jan-April which can affect the availability of locally caught grouper in certain parts of the state.

Stone crab: Stone crab is unique in that only the legal-sized claws are harvested and the crab is returned alive. A seven-month season (October 15-May 15th) is set to allow females to spawn during the summer months. While some locations might have frozen claws available outside this season, the availability of fresh stone crab claws will be limited due to seasonal closures.



Background

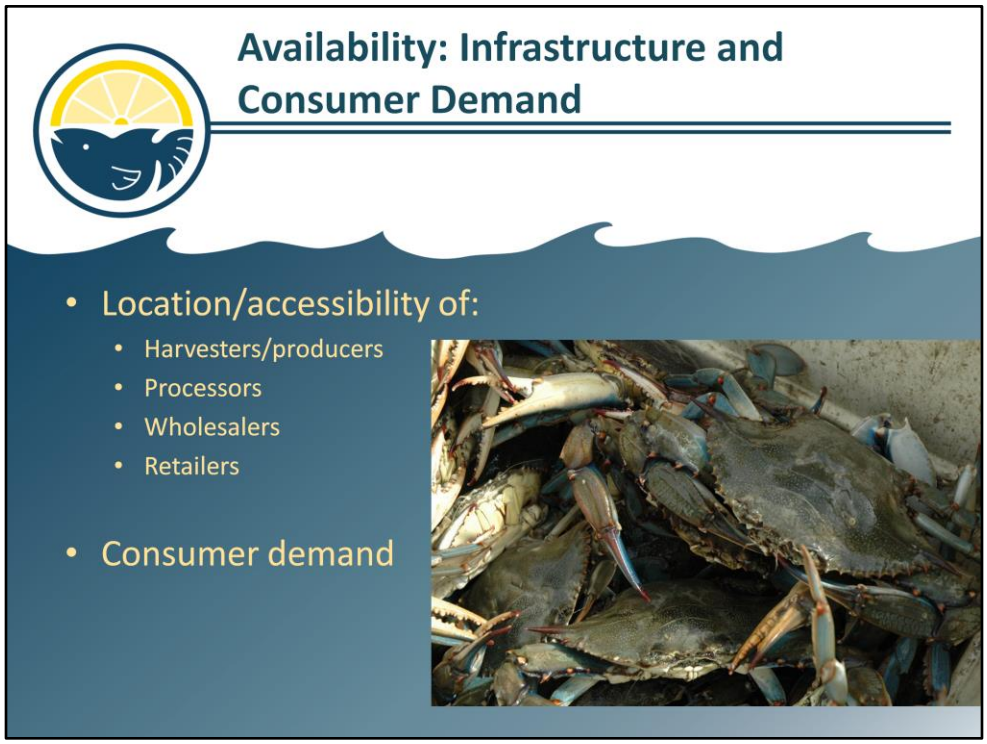
Several biological and environmental factors can influence when a seafood commodity is available fresh. A species life history, reproductive capability, migratory behavior and tolerances to changing environmental factors such as seasonal weather patterns, temperatures, salinities, and nutrient levels can affect the availability of a product.

Examples:

<u>King and Spanish Mackerel:</u> Both fish are highly migratory and large schools have been found to migrate along the U.S. Atlantic coast over long distances. These seasonal migrations are based on water temperature and food availability. The timing of these migrations from year to year is dependent on seasonal weather patterns, ocean temperatures and other factors. Populations in the Gulf and South Atlantic migrate separately and are therefore divided into and managed as two separate fisheries.

<u>Shrimp:</u> nature has made shrimp extremely fertile. A single female may release as many as 300,000 eggs per spawn. Once shrimp spawn offshore, the eggs hatch and the post-larval shrimp ultimately enter the coastal bays where they grow rapidly to sub-adults. Cued by increasing water temperatures and the lunar phase, these young shrimp migrate back offshore to mature, mate, and spawn; all in less than a year. The size of the annual crop is primarily determined by weather events and water quality. Therefore, shrimp production tends to fluctuate from one year to the next, and makes annual variation in harvests normal.

<u>Molluscan Shellfish:</u> Molluscan shellfish such as oysters and clams require the right balance of fresh and salt water, temperature, and nutrients to reproduce and grow within their estuarine habitats. Drought, excess rainfall or floods, red tide or other algal blooms, can throw off these “balances” and result in less production. Commercial shellfish harvesting areas can also shut down if certain water quality standards are not met, thus further reducing the availability of products to consumers.



Background

Getting seafood from the sea to your table can involve a complex mix of harvesters, processors, wholesalers, and retailers. However, not all Florida seafood is harvested in all locations around the state. As such, the availability of supporting infrastructure is geographically dependent. Historically, several communities around Florida (refer to earlier map) were centered around commercial fishing and the seafood industry, thus contributing to some areas having more products than others. Coastal development, competition with imported seafood, regulations, rising fuel prices, and younger generations not continuing to work in the industry have caused many of these communities and businesses to disappear or diminish.

In addition, even if a product is locally available, it doesn't always mean there is a demand for it. Florida is a large producer of king mackerel and mullet eggs, called 'roe', but much of these commodities are shipped out of state and out of the country where demand for them is greater. In the past few years, Chinese interests have been buying more Florida-caught spiny lobster, making it harder to purchase locally even though Florida harvests all of the spiny lobster in the U.S.

Mix It Up!

2011's Top 10	Popular and Lesser Known Florida Options
Shrimp	Shrimp (Brown, Pink, Rock, White, Royal Reds), Crab (Blue and Golden), Spiny Lobster
Canned Tuna	Yellowfin Tuna, Swordfish, Mackerel
Salmon	Mackerel, Yellowfin Tuna, Mullet
Pollock	Snapper, Mahi -mahi, Triggerfish
Tilapia	Tilapia (locally farmed), Pompano, Snapper, Tilefish, Flounder
Pangasius	Mackerel, Tilefish, Pompano
Catfish	Catfish (locally farmed), Striped Bass (locally farmed), Flounder
Crab	Crab (Blue, Stone and Golden), Spiny Lobster
Cod	Grouper, Mahi-mahi, Cobia, Black Drum
Clams	Clams, Oysters, Squid, Octopus

Notes to Instructor
The list on the left shows the top 10 seafood species consumed in the U.S in 2011 (source: National Fisheries Institute).

Background
So, let's mix it up. Florida can offer you a wide variety. Look at the top 10 species of fish consumed in the U.S. today. They are shrimp, tuna, salmon, pollock, tilapia, Asian catfish or pangasius, catfish, crab, cod, and clams. Florida produces some of these top 10, but also produces fresh varieties that are good alternatives, like tuna, grouper, cobia and spiny lobster.

What are Floridians eating? Although Floridians consume much more seafood than the average American, we're not necessarily eating different things. 4 out of 5 of the most consumed seafoods by Floridians are in the US top 10 list. One unique/local Florida species not found in the US Top 10 list is grouper. This means that while seafood is probably more available, we're not necessarily choosing local species. On the bright side, there are local Florida options for all of the top species. Florida is home to a number of harvested wild shrimp species, and both clams and tilapia are farmed in Florida. If consumers care to buy local, they can, while still enjoying the same types of seafood they always have.

Pangasius is a special variety of imported freshwater catfish that has become a popular seafood item in the US. Pangasius is cultured in Vietnam, Cambodia, and neighboring countries. It is typically raised in an aquaculture facility in cages and ponds. (www.seafoodhealthfacts.org/seafood_choices/pangasius.php)

The next important question then is where can I find these items and when?

Notes to Instructor

This chart breaks down the seasonality of some popular Florida species. Specific information for each season can be found below in the notes. Start off this slide by asking the group "Does the seasonal availability affect what Florida seafood species you like to eat? If so, how?"

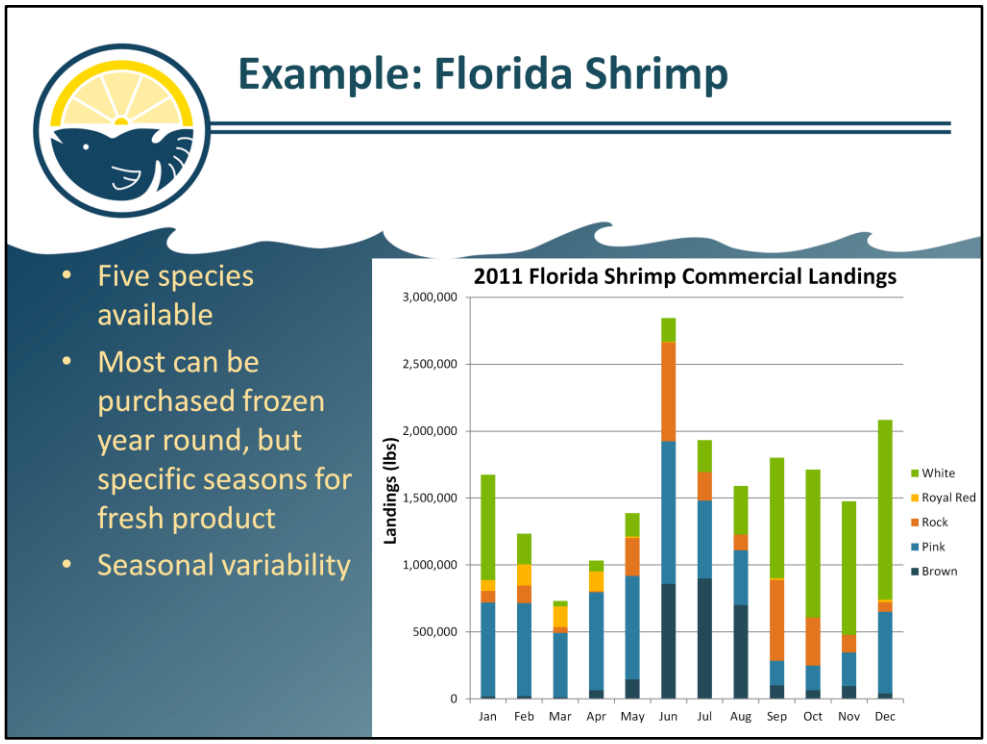
Background

Most seafood species are generally harvested year-round but some species have peak months of harvest throughout the state. You can view the Commercial Fishery Landings for Florida at: http://myfwc.com/research/saltwater/fishstats/commercial-fisheries/landings-in-florida/ (2011 is the latest year with final numbers). The species above are generally harvested and available year-round.

Notes to Instructor
This chart breaks down the seasonality of some popular Florida species. Specific information for each season can be found below in the notes. After going over this slide and the previous slide ask the group "Does what you observe at your local seafood market match with what we have posted on the slides for availability? What are some differences or similarities that you've noticed?"

Background
Most seafood species are generally harvested year-round but some species have peak months of harvest throughout the state. You can view the Commercial Fishery Landings for Florida at: http://myfwc.com/research/saltwater/fishstats/commercial-fisheries/landings-in-florida/ (2011 is the latest year with final numbers).

For the examples above:
Mahi-mahi has the greatest amount of pounds harvested during the months of May and June but they are still harvested during other months of the year.
Pompano is mainly harvested during the months of Nov-Apr but there are still some harvested during off-peak months.
Spiny Lobster season starts in August and this is when the highest amount (pounds) of lobster are harvested. The amount starts to decrease a bit in November with most harvesting ending in March.
Stone Crab season runs from October 15-May 15, with October and November (on average) having the highest amount (pounds) of stone crab claws landed. Harvesting is prohibited during the summer months (between May 15-October 15). Unlike shrimp that can be frozen for long periods, stone crab claws do not freeze well so it is rare that consumers will be able to purchase them outside the normal season.



Background

Shrimp are the most popular seafood in the United States and are a naturally renewable resource. Five types of wild shrimp are commercially harvested in Florida from the Gulf of Mexico and South Atlantic and for most Florida seafood, shrimp can be purchased frozen year round, but there are specific times of the year when the various species can be purchased fresh. The graph shows the pounds (lbs.) of shrimp landed commercially in Florida in 2011. Notice the variability in the amount of shrimp landed each month for the 5 species of shrimp and how the pounds of shrimp landed varies throughout the year for each species as well as monthly. This variability can change from year to year as well.

[To the left of the presentation slide is the 2012 shrimp landings (preliminary data as of 6/11/13) which you can use as a comparison to show how each year can be different (this is optional, and is just as a reference to you).]

Pink shrimp from Gulf waters make up the majority of Florida's wild-caught shrimp. Shells are light pink with a pearl-like texture and a distinguishing pink dot on the tail. The meat is white with pink tones and has a firm, tender texture and a mild sweet flavor**. Nearly 85 percent of the pink shrimp harvested in the United States comes from the west coast of Florida.**

White Shrimp from the waters along Florida's Atlantic coast have a sweet taste and firm meat. White shrimp tend to be caught near shore in shallower waters and do best in areas of lower salinities. Their shells are gray with a blue tint when raw but "pink up" when cooked**. The 2010 commercial white shrimp harvest totaled over 4.8 million pounds.**

Brown Shrimp aka **"**Brownies" tend to be found in deeper waters and higher salinities than white shrimp. They are in both Gulf and Atlantic waters and have a stronger ocean flavor due to higher iodine content with a firmer texture than white shrimp. Shells are reddish-brown and turn pink when cooked.

Rock Shrimp are named for their tough, rock-hard shell. The cooked meat is white with red skin tones and has a sweet shrimp taste with a firm lobster-like texture. Most are sold fresh or frozen, raw, peeled and deveined. 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.

Royal Red Shrimp are mostly caught in the deep waters of the Atlantic, and have a deep red color, a soft, delicate texture and a unique briny ocean flavor. Deep water shrimp harvesting is more difficult and limits the availability of royal reds. They are normally harvested March through June.

Notes to Instructor
The instructor might want to ask the class what steps do they take, if any to purchase locally caught seafood before going over these items.

Background
In Florida it is not difficult to find someone selling seafood out of their truck or at a roadside stand. While this doesn't necessarily mean the operation isn't legitimate, keep in mind that a variety of permits and licenses are required to hold and sell seafood for the sake of the resource and safety concerns. Buying from reputable dealers with the proper permits helps to keep these operations in business. A food permit (Chapter 500, F.S.) from the Florida Department of Agriculture and Consumer Services is required of any person who operates as a food establishment, seafood dealer, or retail food store. It also helps to ensure the resource is properly managed as all commercial seafood that is landed/harvested is to be reported so that fisheries managers can better track the quantities of product being harvested. If you aren't sure about the legitimacy of a retail operation, ask to see its permits.

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 from?" 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.

Seafood is required by law to have a country of origin label and whether or not 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

It is important to realize that it might not always be possible to buy local seafood. The product might be out of season, it's too expensive, or Florida just doesn't harvest certain types of seafood (ex: salmon or sea scallops). If there is something you want that is not available, ask the seller what local products he/she has that would be comparable to what you are looking for.

Notes for Instructor
The instructor should become familiar with Florida Seafood @ Your Fingertips mobile app. Available at Flseagrant.org/seafoodatyourfingertips/

Background
An important part of being a more informed seafood consumer is knowing when and where you can get fresh Florida seafood. Using the mobile app, consumers can locate seafood markets that sell Florida seafood around the state. The app also provides seasonality and nutritional information for some of the most popular Florida seafood products.