

Fish and Shellfish

FISH AND SHELLFISH are great sources of protein. They come in vast varieties, and some are sold at market price. Market price is the current price at which a product can be sold. Market price for the colossal-size shrimp pictured here—10 or less per pound—is typically \$20 per pound and up depending on the time of year and/or the season. Preparing and cooking these pricey shrimp perfectly is important for customer satisfaction and for the bottom line.



Objective:



Summarize fish and shellfish preparation and cooking methods.

Key Terms:



butterfly fillets
calamari (calamary)
calcareous
cephalopods
ceviche
crustaceans
deveining
drawn
dressed
en papillote
escargot

fabrication
fatty fish
fillets
fin fish (finfish)
flatfish
goujonettes
invertebrates
lean fish
mollusks
opaque
paupiettes

round fish
sashimi
seafood
shellfish
shrimp
shucking
steaks
sushi
translucent
whole

Fish and Shellfish Preparations

Preparations vary throughout the world based on available fish and shellfish as well as on cultural preferences.

FIN FISH

Fin fish (finfish) are true fish as distinguished from shellfish. They include all edible saltwater and freshwater fish with fins. True fish have two distinct characteristics: breathing through gills and a body covered in scales. Fin fish are in two basic types: flatfish and round fish, which are easily identifiable by their physical characteristics.



FIGURE 1. Any fish with fins is considered fin fish. Two large cod are the fin fish pictured here. Both flatfish and round fish are fin fish.

Flatfish and Round Fish

A **flatfish** is a bottom-dwelling bony fish—oval and flat in shape—with two eyes on the upper part of the head. It swims on one side of the laterally compressed body and has both eyes on the upper side. Flatfish include flounder, halibut, sole, and sanddab.

A **round fish** is an aquatic vertebrate with a round body shape, with one eye on each side of the head. It has a backbone along the upper body and a fillet on each side. Round fish include catfish, cod, perch, salmon, snapper, tilapia, trout, and tuna.

Shellfish

Shellfish are crustaceans and mollusks. **Seafood** is any edible sea life and includes fin fish and shellfish. Shellfish are broken into two distinct categories by physical characteristics: crustaceans and mollusks.

Crustaceans

Crustaceans are a class of arthropods distinguished from others by their method of water respiration and two pairs of antennae. Arthropods are the largest division of the animal kingdom, ranging from spiders to lobster. Crustaceans have an outer shell (exoskeleton) that can be fairly thin and easy to remove (e.g., shrimp, crayfish, etc.) or thick, spiny, and very hard (e.g., crab and lobster). In all cases, the shells are inedible but are used to make stock. Crustaceans have no backbone and are typically found in saltwater. The legs and claws are jointed.

Mollusks

Mollusks are animals in a group of marine invertebrates of the phylum Mollusca that typically have a soft unsegmented body and a calcareous shell. **Invertebrates** are animals lacking backbones. In addition, something **calcareous** is chalky; contains calcium carbonate. Mollusks have one shell or two hinged shells. The shells are quite hard, inedible, and designed as armor to protect the delicate aquatic life inside. Mollusks include land snails and the following

marine varieties: abalone, queen conch (pronounced “konk”), periwinkles, clams, mussels, oysters, and scallops (sea and bay types). **Cephalopods** are a category of “prehistoric-looking” mollusks with no shell. They have a single internal shell that does not aid in protecting them. Also, the shell is not edible. Yet cephalopods have fully edible tentacles.

Fish and Shellfish: Storage and Handling Guidelines

Fish and shellfish are highly perishable and must be kept on ice or under refrigeration at all times. Keep frozen fish frozen until ready for use; never refreeze thawed fish. Keep fresh fish and shellfish at or below 40°F (4.44°C) and preferably near freezing (32°F or 0°C). Crushed ice is an excellent refrigerant because it delays deterioration. Under regular refrigeration (minus ice), quick surface drying and eventually dehydration and spoilage occur. When ice is not available, wrap fish and shellfish in nonabsorbent paper (coated freezer paper) to prevent drying and to prevent odors from reaching other foods in the refrigerator. Store fish and shellfish in separate storage units or chests—away from foods that may absorb their odors.



FIGURE 2. These round fish are stored on ice at the seaport and are shipped under refrigeration to grocers and fishmongers. Crushed ice is an excellent refrigerant because it delays deterioration.

Fresh fish have the following characteristics:

- ◆ Fresh smelling (no strong odors)
- ◆ Bright, clear, and bulging eyes
- ◆ Reddish-pink color around the gills
- ◆ Bright, shiny scales that cling tightly to the fish
- ◆ Firm, elastic flesh (springs back to shape when pressed)

Fresh shellfish have the following characteristics:

- ◆ Animals die quickly and rapidly deteriorate when out of the water; they quickly become inedible.
- ◆ Shellfish harvesters must catch the animals and keep them alive.
- ◆ Beds of ice and straw are still used to transport shellfish from coastal areas inland.

- ◆ Trapped lobsters are stored in underwater cages until ready for transport to seawater tanks at markets.
- ◆ Sea scallops and geoduck clams are unable to completely close their shells. As a result, they quickly lose bodily fluids and die after capture. Both are shucked, and the flesh is stored under refrigeration.
- ◆ Crabs (especially Alaskan king crabs) are cooked at the seaport and frozen before they are delivered.

FABRICATION

Fabrication is the process of cutting and manipulating the physical form of food. Fish and shellfish are typically trimmed, cut, or physically altered in some manner before cooking. Depending on the seafood, the fabrication can take a number of forms.

Fin Fish Fabrication

- ◆ If a fin fish is **whole**, it is an untrimmed or uncut fish, just as it came from the water.
- ◆ If a fin fish is **drawn**, it is a fish with the entrails and viscera (intestines, internal organs, and guts) removed. Internal organs are generally considered inedible. In addition, internal organs decay faster than the rest of the animal, potentially ruining the flesh if left intact.
- ◆ If a fin fish is **dressed**, it is eviscerated (gutted or filleted) fish, usually with the scales, head, tail, and fins removed.
- ◆ **Fillets** are boneless slices of fish or fish sides cut lengthwise from the backbone. When the entire “side” of fish is removed as a fillet, round fish have two fillets (one on each side of its body), but flatfish have four fillets (two per side). The fillet can be the whole side of a fish removed from the skeleton or smaller pieces of a whole side.
 - **Butterfly fillets** are boneless slices of fish fabricated by removing the entire skeleton, leaving the two sides of a round fish connected in the middle by a thin strip of flesh.
 - **Goujonettes** (goo-sha-NET) are thin strips of boneless flesh cut from the fillets of all flatfish and round fish.
 - **Paupiettes** (paw-p-YET) are thinly sliced fillets stuffed and rolled or even split and stuffed prior to service. Fillets are minced for fish sticks, patties, fish balls, and other applications.
- ◆ **Steaks** are cross-section slices of dressed fish cut right through the skeleton. Steaks are cut large enough to serve one person. Fish steaks typically have a “U” shape based on the round shape of a fish opened at the belly. Flatfish typically are not cut into steaks.

Shellfish Fabrication

Lobsters (in French “homard”) are large seawater crustaceans similar in shape to crayfish. The claws and the tail are meaty in most varieties. Crabs (in French “crabe”) are edible crustaceans with tender, sweet claw and body meat. Lobsters and crabs are typically not fabricated before cooking as they are often cooked alive. In some cases, they may be cut in half or into

pieces in advance. **Shrimp** (in French “crevettes”) are small crustaceans with sweet meat used for appetizers and garnishes. Typically the heads are removed prior to sale.

Deveining

Deveining is the process of removing the digestive tract of shrimp prior to cooking. This “vein” is easily found and removed by making a shallow slice down the back “spine” area of the shrimp and spreading the flesh open slightly. The vein is black or white in color. Shells are left on or removed, depending on the intended use.



FIGURE 3. These grilled shrimp were deveined before cooking. Notice how the back “spine” area has been sliced open and the vein has been removed.

Shells

Raw mollusks always are sold live in their shells. When mollusks are alive, their shells are tightly closed. Slightly open shells should close when touched. If the shells remain open, the animals are dead and should be discarded. Mollusks are most commonly steamed or boiled, but they can be removed from their shells and smoked, fried, or baked. If cooked in the shell, the shells open as the animals die. (If any shells remain closed after cooking, they should be discarded.) Snails, or land snails, are the only land-animal in the mollusk category. They are associated with classic dishes (e.g., Escargots à la Bourguignonne and Escargots à la Fettucini).

Oysters (in French “huître”) are edible bivalve mollusks with a delicate flavor. They are often eaten raw, unlike most mollusks. A classic and popular dish is oysters on the half shell. **Shucking** is removing the shell of an oyster, clam, etc. To shuck an oyster, hold it in a heavy cloth with the flatter side of the shell up. Insert the tip of an oyster knife into the hinge and twist to open. The muscle must be severed from the upper shell, and the upper shell must be discarded. Next, the oyster must be cut free from the lower shell.



FIGURE 4. Shucking is removing the shell of an oyster, clam, etc. prior to eating. Notice the small size of the oyster knife and that the chef is protecting his hand with a towel. Special gloves are available to prevent punctures and cuts when opening oysters.

Clams (in French “palourde”) are edible bivalve mollusks typically harvested at low tide. They are usually removed from their shells before cooking. To shuck a clam, clean the outer shell with a stiff brush while holding it under cold running water to remove mud and grit. Then follow Steps 2 and 3 for shucking oysters.

Typically scallops are removed from their shells prior to cooking; this is not necessary with all scallops. You can follow the shucking process for oysters. Mussels (in French “moule”) are edible mollusks found in all the oceans, especially in cold waters. They are cleaned and cooked whole; the shells open during cooking.

Cephalopods

Cephalopods have one long internal bone (pen) inside the main body that must be removed. Squid (in French “calamari” or “calamari”) has a pinkish-purplish skin that covers most of its body, including the tentacles. While safe to eat, the skin is undesirable and is commonly removed during the cleaning process. The main body is in the shape of a tube and is typically cut into “rings” prior to cooking. To clean and prepare a squid, do the following:

- ◆ Rinse the squid in cold water.
- ◆ Draw back the rim of the body pouch to locate the top of the quill-shaped “pen,” which is loosely enclosed in flesh. Remove and discard the pen.
- ◆ Free the pouch by grasping the body in one hand and the head in the other. Gently pull the two sections apart. The viscera—including the ink sac—should come away with the head and tentacles. Rinse the pouch in cold water and remove any membranes.
- ◆ Skin the pouch. Slip a finger under the irregularly patterned skin that covers creamy white flesh. Peel off the skin, and pull off the triangular fins. Then skin the fins.
- ◆ Sever the tentacles from the rest of the head with a sharp knife, slicing just below the eyes. Discard the head and viscera.

FISH AND SHELLFISH COOKING METHODS

The methods used for cooking fish and shellfish will depend on the dish being served and the desired results.

Lean and Fatty Fin Fish

The selection of a cooking method for fin fish is based more on its fat content than on shape, taste, or nutrition. Generally, fat content is a primary method of classifying fish. Fin fish are classified as lean or fatty.

Lean Fish

Lean fish are fish that are low in fat. They can easily become dry, especially when overcooked. Common lean fish are catfish, cod, grouper, halibut, orange roughy, perch, red snapper, sea bass, sole, and walleye pike.

Fatty Fish

Fatty fish (oily fish) are fish with 2 percent body fat by weight. Fatty fish are “good for your health” in that they contain high levels of Omega-3 fatty acids, which are polyunsaturated fatty acids primarily found in fish, fish oils, vegetable oils, and leafy green vegetables. They appear to reduce the risk of stroke and heart attack. Fatty fish contain enough fat that they tolerate more heat when cooked than lean fish and do not dry out too quickly. Common fatty fish are herring, mackerel, salmon, sardines, shark, tuna, and whiting blue fish.

Fatty Fish and Lean Fish

Baking, grilling, poaching, broiling, steaming, and poaching are excellent ways to cook fatty fish. Fatty fish should not be cooked using fatty cooking methods (e.g., deep-frying, sautéing, and stir-frying). The result of cooking fatty fish with a fatty cooking method is greasy, oily fish. Smoking fatty fish provides great results because fatty fish resist drying. Once smoked, they often are cooked and canned for sale. Aside from sardines, the skin of fatty fish is generally considered inedible.

Lean fish offer more versatility in cooking than fatty varieties. Most lean fish may be cooked by any frying method in addition to poaching, steaming, grilling, baking, and broiling. Baking, poaching, and sautéing are excellent cooking methods for very thin and tender fish (or fillets), such as tilapia and bass. Thin, tender cuts may not “hold up” when boiled or deep-fried because of the potential to fall apart. Also, these cuts may fall apart when grilled and could burn easily and overcook when grilled or broiled. However, thicker cuts of lean fish can work very well with grilling and broiling techniques when care is taken to ensure an appropriate distance from the heat source and when the heat level is monitored. Most lean fish cooked without moisture require the addition of some fat—generally butter or olive oil—in the cooking process to keep the fish moist and to add flavor. The skin on small, lean fish (e.g., perch) and even some larger flatfish (e.g., halibut or sole) is thin and can be eaten, but the skin of most lean fish is considered inedible.

En Papillote

En papillote (n pah-p-YOTE; literally “in paper”) is a way of baking foods by wrapping them in buttered or oiled parchment paper, with the edges folded securely to retain juices and aroma. It is a preferred method to cook whole fish, steaks, fillets, and some seafood. The paper pouch commonly contains a liquid (e.g., wine, stock, or lemon juice), spices and herbs, and butter or olive oil as desired. The fish is steamed effectively in the pouch, making it an excel-



FIGURE 5. Here is a classic en papillote (in paper) presentation.

lent and easy technique to cook fish and seafood while keeping it moist and flavorful. The paper envelope puffs and browns during baking and makes a dramatic presentation. When the pouch is opened, the appealing aroma is gently released.

Fried

Most fried fish is battered or breaded (or dredged in flour), which gives fish a desirable, crunchy golden crust. Battered fish has a thicker, heavier coating than breaded fish that has a thinner, lighter crust. Battered fish is usually deep-fried, while breaded fish has excellent results whether deep-fried or pan-fried.

Judging Doneness

Regardless of the cooking method, all fin fish is somewhat **translucent** (some light passes through) when raw. Fin fish becomes **opaque** (no light passes through; milky white) when cooked. Other indicators of fin fish doneness:

- ◆ It is moist and flakey when properly cooked.
- ◆ The flesh of the whole fish should separate easily from the bones.
- ◆ The internal temperature should read 145°F (using a probe-type or instant-read thermometer).

Raw Fish Types and Guidelines

Raw fish dishes are loved and are traditional in many cultures, including the United States. Sushi- or sashimi-grade fish is of the highest quality and is safe to prepare and eat raw. No clear health parameters or regulations are available from the Food and Drug Administration (FDA) or other agencies to describe the quality of sushi-grade fish. The only FDA recommendation is that any fish eaten raw must be frozen prior to eating (to destroy parasites) at –4°F for 7 days or flash frozen for 15 hours at –31°F. Other indicators of quality are purchasing from a reputable vendor who can guarantee the fish was immediately bled (to destroy the neural canal) and the fish temperature was immediately reduced upon harvesting. Three typical ways of “cooking” and serving raw fish are sushi, sashimi, and ceviche.

Sushi

Sushi is a Japanese dish comprised of small, formed balls or rolls of sweet vinegared cooked rice served with garnishes of thinly sliced raw fish or other seafood (also other meats), vegetables (e.g., cucumbers and avocado), or eggs. Sushi is wrapped in a thin layer of dried seaweed (nori), rolled into a tube shape, and cut into slices.

Sashimi

Sashimi is a Japanese dish of paper-thin sliced fish served very raw and highly spiced. The thinly sliced fish is garnished with shredded carrot, lettuce, or cabbage and is served with grated fresh ginger and horseradish. Sashimi is served with small bowls of sauce (e.g., soy-

based and wasabi mustard-based) for dipping just prior to service. The presentation can be sliced pieces (e.g., sushi) or an original presentation altogether.

Ceviche

Ceviche is a Central and South American raw fish or shellfish dish marinated in lime or lemon juice with olive oil and spices. The acidic citrus juices coagulate the protein, thereby “cooking” the fish or shellfish. Typically, the fish or shellfish is cut into small pieces or is diced. Ceviche is usually served as an appetizer.

Cooking Crustaceans

Shrimp and lobster have some similarities and differences in terms of preferred cooking methods. Shrimp and lobster turn white with pinkish lines when fully cooked. When properly cooked, the meat is firm, not rubbery. Crab also turns white with pinkish lines when fully cooked; the meat is tender and even stringy.

Shrimp

Shrimp can be boiled or steamed with or without the shell, fried in any method, baked, grilled, and even broiled. Shrimp are seldom available alive in the United States. They are easily overcooked because they cook quickly, so cooking must be carefully monitored. Shrimp varieties include tiger, gulf whites, pinks, and browns. The main difference is where they are caught. Flavors of all varieties are nearly identical.

Shrimp are sold (and selected for use) by size. The size variations are based on the shrimp count per pound. Colossal size is 10 or less. Other sizes are 11 to 15, 16 to 20, 21 to 30, 31 to 35, and 36 to 45. About 100 per pound are miniature size. The shrimp size affects the cooking method chosen. For instance, small shrimp are not good for grilling and broiling.

Lobster

Lobster is most commonly steamed or boiled (in the shell), but it is successfully broiled, baked, grilled, and fried when the shell is removed. Lobster is available live for the freshest results. However, it may be purchased precooked and/or sold frozen or refrigerated. The tail and claw are the primary areas of lobster meat. Varieties of lobster include Spiny and American. The main quality issue is the source of origin: cold or warm water. Cold-water lobsters from Maine, Australia, Nova Scotia, etc. are considered far superior in quality, taste, and texture. Warm-water lobsters are harvested in the Gulf of Mexico, South Africa, etc.

Whole lobsters are often steamed and served. For some people, it is messy to crack and cut up the shells at the table. So it is far more common to see just the lobster tail served—broiled, baked, or steamed. The tail is prized as the most edible and largest piece of meat on the lobster. Lobster dishes include:

- ◆ Lobster à l'Américaine (in French “Homard à l'Americaine”) is raw lobster sautéed in oil with tomatoes (a provencal preparation).

- ◆ Lobster Nippon is a Japanese dish in which the tail is removed from the shell, battered, and deep-fried in a tempura fashion.
- ◆ Lobster Newburg (in French “Homard à la Newburg”) is prepared with live lobsters in sherry, fish stock, and Velouté sauce.
- ◆ Lobster Thermidor (in French “Homard Thermidor”) is a live lobster split lengthwise, seasoned with salt, oiled, and roasted. The lobster meat is coarsely chopped and placed back in the shells. Next, a stock of white wine, fish fumet, and meat gravy is cooked and flavored with chervil, tarragon, and chopped shallots. The stock is added to a Béchamel sauce, along with English mustard. Finally, some sauce is placed in each shell. The lobster meat is added, covered with more sauce, and topped with grated Parmesan cheese and melted butter. The dish is quickly browned in the oven.

Crab

Crab is the most delicate of the crustaceans and is typically steamed or boiled. Crab is almost always cooked in the shell. Then the meat is removed. While there is meat in the main body, the primary areas of meat are the legs. Because of the difficult nature of cracking the crab’s outer shell and removing the meat, crab legs are typically sold precooked and frozen. Meat only, from the body and legs, is sold canned and refrigerated or frozen. A variety of crabs are available—Dungeness, blue, Alaskan King, and stone. Only soft-shell crab is commonly sold live for immediate cooking. Soft-shell crab is a small animal that has shed its hard outer shell due to its growth, making the entire crab edible. When the outer shell is shed, it is harvested. As such, it is the only variety commonly fried, baked, broiled, sautéed, etc. The taste of the various crab varieties differs slightly, and availability is often seasonal. Crab legs are commonly served steamed with butter or as pan-fried crab cakes.



FIGURE 6. Crabmeat is delicate, flaky, stringy, and tender. This is a spicy crabmeat Gunkan sushi garnished with ginger and wasabi.

Cooking Mollusks

Mollusks (in French “moules”) are small and tender shellfish. The meat is far smaller than the shells suggest. Mollusks are cooked in a variety of ways and with a wide variety of toppings, sauces, and accompaniments.

Clams

Clams are most commonly shucked and fried, or they are steamed or boiled for soup and stew applications. Clams in the shell are cooked by dry or moist heat. A classic New England clambake uses steaming and grilling techniques—lobster, mussels, crab, steamers, quahogs, etc. Clams are chewy and rubbery when overcooked. Therefore, minimal cooking time is suggested.

Mussels

Mussels are easily recognizable by their long oval shape and black shells. Mussels are almost always cooked in their shells—steamed or boiled in stock. Similar to other mollusks, they are rubbery when overcooked. Mussels served with a spicy tomato sauce are popular appetizers. They are included in a New England clambake and the famous Spanish dish paella—a dish of rice, shellfish, chicken, and vegetables cooked with a healthy portion of garlic and saffron.

Oysters

Oysters are the most versatile of the mollusks in terms of cooking methods. They can be eaten raw, grilled, fried, smoked, and added as enrichment to dressing or bread-based stuffing. Grilled oysters on the half shell is easy to prepare, has a delightful taste (according to some), and has a pleasant aroma. Famous oyster preparations include:

- ◆ Oysters on the half shell are simply shucked, drizzled with lemon juice and hot sauce, and eaten raw out of the shell.
- ◆ Oysters Rockefeller (in French “Huîtres à la Florentine”) is arguably the most famous cooked oyster preparation. Oysters on the half shell are topped with butter, garlic, herbs, and breadcrumbs. Then they are baked or broiled.
- ◆ Oyster stew is another famous dish, known primarily as a traditional “soup” served on New Year’s Eve to welcome the upcoming year.



FIGURE 7. Oysters on the half shell is a classic dish in which the oysters are shucked, drizzled with lemon juice and hot sauce, and eaten raw out of the shell.

Scallops

The two main varieties of scallops are sea and bay. Sea scallops are harvested in the oceans. Bay scallops, however, are from the Chesapeake Bay and other eastern seaboard sites. Typi-



BROADENING AWARENESS...

AMAZING ASPECTS: Fatty Fish and Heart Health

Cutting fat from our diets has been promoted for decades. Therefore, eating fish as a low-fat protein source rather than beef, lamb, or pork has been encouraged. Eating fish instead of red meat is still a healthy choice, but the recommended fish has changed.

Fatty fish (e.g., salmon, herring, sardines, and tuna) are high in a specific fatty acid called Omega-3, which is a specific compound thought to reduce inflammation in the body, including in the blood vessels (which leads to heart attack and stroke). Omega-3 is known to decrease triglycerides (unhealthy fat levels in blood), lower blood pressure, reduce blood clotting, boost immunity, and reduce arthritis symptoms. One or two servings a week appear to reduce the risk of heart attack—specifically sudden cardiac death.

Most lean freshwater fish have far less Omega-3 than fatty saltwater fish. Although this compound is available in pills and capsules, the evidence suggests that they are not nearly as effective as eating fish. Oddly enough, there is evidence that farm-raised fish may not have as much or as effective Omega-3 fatty acids as wild caught fish.

cally, scallops are processed at the harvesting point. The shells and roe are discarded. When scallops are frozen, they must thaw under refrigeration before cooking. Scallop cooking is of two distinct varieties: quick and easy or sauced and baked.

Pan-seared scallops are more about the technique and less about the ingredients. It is necessary to wash and dry the scallops (unless they arrive dried), season with Kosher salt, and place in a very hot pan. The pan should not be crowded. In addition, the scallops should not be moved once they are in the pan. The goal is an even caramelized crust. It is best to flip after 2 or 3 minutes (based on size and thickness). If overcooked, they become rubbery. Frequently, they are served caramelized side up with a *buerre blanc* (white butter) sauce and some greens.

Escargot

Escargot is the French word for land snail and describes several dishes prepared with land snails. Land snails are different than marine-based mollusks (e.g., periwinkles, abalone, and conch). They eat grape leaves and other greens in vineyards. Also, they hibernate in the winter months. Snails are packaged 12 to 24 per can accompanied by the same number of cleaned snail shells. The equipment needed to eat land snails includes snail pans for



FIGURE 8. Escargots à la Bourguignonne—snails in garlic butter is a classic way to serve snails. A stuffing mixture of mashed garlic, salt, pepper, butter, shallots, and parsley is prepared and placed in the shells and topped with snails. The stuffed shells are broiled until slightly browned and bubbly and are served with crusty French bread to soak up the juices.

cooking, forceps to hold them while eating, and a two-tined fork to remove the snails from the shells.

Cooking Cephalopods

Squid and octopus are probably the most challenging shellfish to cook to an optimal degree of doneness.

Squid

Calamari (calamary) is squid (squid tentacles sliced into rings) dipped in batter or breading and deep-fried. In Italian, calamari (calamary) is the word for squid. Numerous calamari recipes originated in the Mediterranean. It takes seconds to cook with tender results. In a hot fryer, it is easily overcooked, which results in a rubbery mess. The meat changes texture when it cooks, but the color remains white. Squid can be cooked slowly in moisture (e.g., marinara sauce) to effectively stew the squid. When stewed, the squid takes on the color of the liquid in which it is cooked. Long, slow, and moist cooking results in tender meat. Squid can be quickly steamed or boiled for use in salads and other applications.



FIGURE 9. Calamari (squid) is typically cut into “rings” and fried. Notice the tentacles are fried as well.

Octopus

Octopus is tougher meat than squid and is almost always stewed or braised. It may be marinated and grilled, baked, or broiled. The color is whitish and may change if cooked in a colored broth or sauce. Octopus is meaty and becomes tender only if cooked slowly in moisture or marinated before dry heat cooking is applied. It is typically served hot as an entrée. Yet grilled octopus is gaining popularity as a salad ingredient.

Summary:



Fish and shellfish are bountiful and come in many varieties. Fin fish are of two types: round fish and flatfish. Shellfish are of three types: crustaceans, mollusks, and cephalopods. Knowing how to prepare and cook each type properly is based largely on knowing the characteristics of each type. One consistent theme is not overcooking fish and shellfish to avoid dry and/or rubbery results.

Checking Your Knowledge:



1. What types of seafood are shucked, and how is it done?
2. How are squid cooked to produce tender results?
3. How can you tell when fish is done cooking?
4. What style of cooking should be avoided when making salmon?
5. What is the color of shrimp when it is done cooking?

Expanding Your Knowledge:



There is still plenty more to learn about fish and foods from the seas and waterways. What is the difference between flatfish and round fish? What types of fish fall into each category? In what category do frogs fit? Are frogs a type of seafood? Squid are known to shoot ink at their enemies. Is the ink toxic? The biggest animal in the sea is a whale. Why don't we eat whales? Why is shark recommended in limited quantities?

Web Links:



How to Grill Fish

<https://www.youtube.com/watch?v=3HnWB0ZV6ZU>

Prepare a Cooked Seafood Platter

<http://www.youtube.com/watch?v=s-kdkh-AgLo> Need Help Cooking Fish and Seafood?

Seafood Preparations

<http://www.cookingfishmonger.com>