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Microwaving Alabama Seafood

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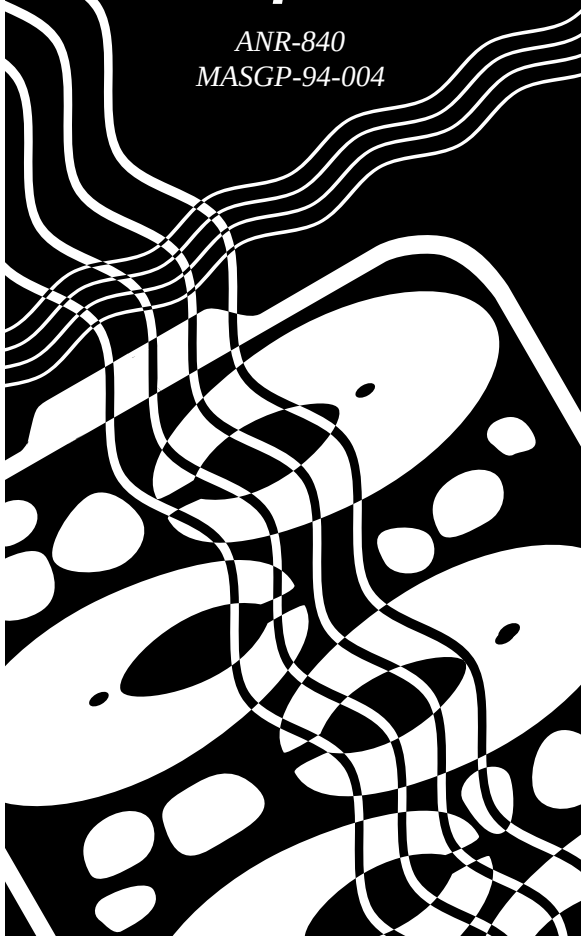

Microwaving Alabama Seafood

Microwave cooking is well suited to today's lifestyles. It is fast, which is necessary in many single-parent and dual-wage-earner families. Microwave cooking requires little or no added fat, an important consideration when reducing the intake of fat is a major nutritional concern. And, it enhances flavors because water, which can dilute flavors, is seldom added to recipes.

Fish and seafood are prime candidates for microwave cooking. Most varieties of fish and seafood cook very quickly because they have less skeletal matter and connective tissue and are lower in fat than equivalent amounts of red meat and poultry. And, microwave cooking actually enhances subtle fish and seafood flavors.

People often associate microwave cooking with fast-foods, while fish and seafoods are regarded as health-foods. Thus, cooking fish and seafood in the microwave oven seems an excellent way to prepare "fast-health-foods."

"Microwave-able" Alabama Seafoods

Whether you purchase or catch them yourself, many Alabama fish, crustaceans, and molluscs are ideal for microwave cooking. The following is a basic list of Alabama seafood suitable for the microwave oven. Check with your local seafood retailer to find out what is fresh, seasonal, and suited to your budget.

Fish

Amberjack	Shark (several species)
Bluefish	Snapper (numerous species)
Catfish	Spanish Mackerel
Cobia (Ling)	Striped Bass
Dolphin (Mahi Mahi)	Swordfish
Drum (several species)	Triggerfish
Grouper (numerous species)	Trout (several species)
King Mackerel	Tuna

Molluscs	**Crustaceans**
Clam Meats	Crab Meat
Mussel Meats	Freshwater Lobster Tails
Oyster Meats	Freshwater Prawns
Scallop Meats	Rock Shrimp
	Shrimp (numerous species)

Serving Amounts

When purchasing whole or drawn (eviscerated, gutted) fish, allow ⅔ to ¾ pound per serving. For pan-dressed fish, allow ½ to ⅔ pound per serving. And, purchase ¼ to ⅓ pound of fish steaks or fillets per person.

Usually, 6 to 8 medium to large clams, oysters, or scallops is a normal serving, although some people will eat more. It may take as many as 1 dozen mussels to provide one serving because of their smaller size.

It usually takes three or four freshwater lobster tails to make one serving. One pound of tail meat from prawns, rock shrimp, or shrimp will feed three to four people. And, 1 pound of crab meat combined with other ingredients in a casserole can feed as many as six people.

Freshness And Quality Attributes

Fresh seafood should not smell "fishy." Choose seafood that has a faint sea odor. Freshly cut fish, peeled crustacean meats, and shucked mollusc meats should be moist, never slimy or dried around the edges.

Fresh, high-quality fish have clear, well-rounded eyes. Older fish may have sunken eyes that are clouded and dry. The gills of a fresh fish are bright red, not darkened or slimy. The flesh should be moist and springy to the touch, not mushy.

Crustaceans—shrimp, lobster, and others—also have several easily noticed quality-recognition points. The tail meat from prawns, shrimp, lobster, and rock shrimp should be uniformly light colored with no signs of discoloration around the tail joints. Reject crustacean tail meat that is slimy or smelly. Likewise, fresh softshell crabs and cooked crab meat should have a mild, pleasant odor. The color of whole crabs should be bright. Make sure live crabs are alive. Live crabs will quickly thrust their claws upward when tapped with a fork or other utensil.

Molluscs purchased in the shell should also be alive. Live, hard-shelled molluscs hold their shells closed tightly when handled. Containers of shucked mollusc meats must bear either a "last sale date" or "date shucked." (Fresh mollusc meats can only be sold for 14 days after shucking.) Choose oysters that have a natural creamy color and clear liquid.

Storing Seafood

Fish, crustaceans, and molluscs are among the most perishable muscle protein commodities. Ideally, seafood should be purchased the day it will be used. Of course, that is not always possible. Therefore, care must be taken to adequately and appropriately refrigerate fish and seafood until it is prepared and cooked.

Live, hard-shell molluscs stored un-iced in the refrigerator at 34°F to 40°F should remain alive for 7 to 10 days. Freshly shucked mollusc meats can be stored for a week to 10 days if packed in ice in the refrigerator. With the exception of shucked scallop meats, shucked mollusc meats are not good candidates for freezing, with a shelf life of just 1 month. Thaw frozen shucked mollusc meats overnight in the refrigerator only.

Fresh softshell crabs will maintain their quality better when wrapped in plastic and packed in ice in the refrigerator; for maximum quality, use them within 2 days of purchase. Softshell crabs can be stored and good quality maintained for up to 6 months if they are wrapped in several layers of plastic and stored in a freezer at 0°F or lower. Thaw softshell crabs overnight in the refrigerator only.

If you plan to eat them fresh, fish, shrimp, scallop meats, crab meat, freshwater prawns, and lobster tails can be placed in zip-top storage bags or covered plastic containers and kept on ice in the refrigerator (32°F to 34°F). Fresh, shucked scallop meats, crab meat, and crustacean tail meat can be stored in this manner for 3 or 4 days. Fresh fish stored this way will keep for 5 to 7 days. Alternately, scallop meats, crustacean tail meat, and fish can be frozen in water and stored in a freezer at 0°F or lower for 4 to 6 months. Thaw these seafoods carefully, either overnight in the refrigerator or under cold, running tap water immediately before use.

Cooked crab meat should not be frozen in water. Cooked crab meat can only be stored in the freezer for relatively short periods of time (less than 1 month). Thaw frozen crab meat overnight in the refrigerator only.

Microwaving Basics

Microwave ovens cook foods altogether differently from other cooking devices, because heat is not produced and transferred into the food. Rather, the oven generates microwaves, which cause the water molecules in the food to change polarity or vibrate very rapidly. This rapid vibration creates friction, which in turn produces heat. Thus, the food is cooked by heat generated internally. The following general pointers can be applied to the microwave cooking of any food:

Power Rating—How quickly foods cook in any microwave oven depends on that oven's power rating. Most late-model microwave ovens have power ratings that range from 500 watts to 750 watts. Some ovens allow you to adjust the power setting. Others have fixed settings. Check the manufacturer's label (usually located on the rear of the oven cabinet) for your microwave oven's power rating. An oven rated at just 500 watts may take ⅓ more time to cook a recipe than one that is rated between 600 watts and 750 watts. Some microwave ovens also have a defrost setting that can be used to thaw frozen foods prior to cooking.

Microwave Cookware—Microwave cooking requires that only certain types of cookware be used. Cookware containing metals like aluminum, iron, steel, and the like should **never** be used in microwave ovens. Heat-resistant glass and stoneware bowls, baking dishes, and measuring cups make excellent microwave cookware. Chances are, you already have everything you need for microwave cooking.

Plasticware—Be careful if you plan to use plasticware in the microwave oven. The chemical composition of some varieties of plasticware is such that they contain enough water to melt. Check to be sure that the plasticware you intend to use in the microwave oven is imprinted with words like "Microwave Safe."

To successfully cook fish and seafood in the microwave oven, several additional factors need to be considered before, during, and after the cooking process:

Arrangement—Before cooking, it is best to arrange the items to be cooked around the outer edge of the dish or in a "spoke-and-wheel" fashion so that they can cook evenly. Place the thickest portions near the outer edge.

Piercing—Some varieties of seafood, like large shrimp, lobster, and freshwater prawn tail meats, may need to be pierced before microwave cooking to prevent them from exploding. This is particularly true in recipes where they are not covered with liquid.

Covering—Some recipes, like soups and chowders, require that all of the flavors and aromas stay inside the container. For such recipes, completely cover the cooking dish with plastic wrap or a tight-fitting lid. Other microwave recipes simply need a way to control spattering while cooking. For that purpose, cover loosely with a paper towel or a lid left slightly ajar. In either case, be careful when uncovering the dish, as escaping steam can burn you.

Rotating—Most microwave cooking recipes contain some mention of the need to rotate the dish once it is partway through the cooking process. This is done to overcome the effects of any "cold spots" in the microwave oven cooking chamber. Usually, the dish should be rotated one-quarter turn halfway through the cooking time. (See Cooking Time, page 10.)

Standing—Most microwave cooking recipes include some amount of "standing time," during which the dish is allowed to stand without being exposed to microwaves. This allows the heat already built up in the food to finish the cooking process. At the same time, this prevents overcooking, which might occur if the dish is exposed to microwaves during the entire cooking time. Don't check for doneness until after the standing time. It is better to undercook delicate fish and seafoods. Then, you can add more cooking time, preferably in 30-second increments, later.

Seafood Microwave Cooking Techniques

Certain fish and seafood preparations seem to do better in the microwave oven than others. For example, almost any plain-cooked seafood does extraordinarily well in the microwave oven. So do dishes that are microwave oven versions of

poached and sauteed fish and seafood recipes. However, fish and seafood cannot be deep fried in a microwave oven. And, as you would imagine, boiling whole lobsters in a microwave oven is nearly impossible.

Some fish and seafood preparations can be successful given the proper cooking utensils. **Breaded** fish and seafood can be oven-fried in special microwave oven browning skillets. This does not hold true for **batter-coated** fish and seafood, which tend to get soggy. The microwave oven also provides a quick and easy way to lightly cook clams, oysters, and mussels in the shell until they pop open.

Other seafood varieties and preparation methods bear close watching. Crustacean tail meat is easily overcooked, especially when it is not in a sauce or casserole. Overcooked shrimp, for example, become tough. It is best to test crustacean tail meat for doneness several times during the cooking process. Reheated leftover fish or seafood can also become tough. One way to prevent tough leftover seafood is to reheat it in a sauce.

The following table provides generalized cooking and standing times for several types of fish and seafood. You should use the table as a rough starting point, because your actual cooking times may vary according to the wattage of your microwave oven or the shape or size of the cookware you use.

Fish or Seafood	Preparation	Cooking Time	Standing Time
Pan-dressed fish (8 oz. each), 1 lb.	Pat dry, season to taste; brush with lemon butter; arrange with thickest parts toward outside of dish; cover loosely.	4 to 5 minutes on high	3 minutes, covered
Fish steaks or fillets, (½-inch thick), 1 lb.	Pat dry, season to taste; arrange in even layer; brush with lemon butter and cover loosely; or add bouillon or fish stock, and cover tightly.	3 to 5 minutes on high (plain) or 4 to 5 minutes on high (in liquid)	3 minutes, covered
Shrimp, medium	Peel and devein; pierce each with fork; arrange in single layer; brush with lemon butter; cover loosely; or add water, bouillon, or fish stock and cover tightly.	3 to 4 minutes on high (plain) or 4 to 5 minutes on high (in liquid)	3 minutes, covered
Oysters or clams in the shell (about 10)	Scrub well; arrange in circle; cover loosely.	3 to 5 minutes on high until shells open	1 minute, covered

Cooking Time Is Critical

The most important point to remember when cooking fish and seafoods is to **not overcook** them. Perfectly microwaved fish and seafoods are moist and flavorful. Overcooked, they become dry and tasteless. Remember to rotate your fish or seafood dish one-quarter turn halfway through the cooking time. Of course, this is not necessary if your microwave oven is equipped with an automatic turntable.

To estimate microwave cooking time, weigh your fish or seafood before adding it to the other recipe ingredients. You should allow 3 to 4 minutes per pound for fish and seafood that will be cooked on "high." For 1 pound of seafood, test for doneness after 3 minutes, then again every 30 seconds thereafter. For 2 pounds of seafood, test for doneness after 5½ minutes to 6 minutes, then again every 30 seconds thereafter.

Fish is done, but still moist, when the thickest part turns opaque and just starts to flake when tested with a fork. Crustacean tail meat, scallop meats, and the meat in softshell crabs all turn opaque when done. Molluscs in the shell, like oysters, clams, and mussels, open when cooked. The edges of mollusc meats begin to curl and turn opaque when done.

Added Flavors

• Fresh or dried herbs like thyme, rosemary, dill, basil, and oregano enhance the flavor of seafood. Fresh herbs can be added directly to seafood recipes. Dried herbs are more effective if they are first soaked in water, drained, and patted dry before adding to seafood.

• Marinades can be as easy as a bottled salad dressing or a homemade combination of oil with vinegar or fresh lemon or lime juice and your choice of seasonings.

• Sauces should enhance—not mask—the flavor of seafood. Match the flavor level of the sauce to the seafood being cooked. Cook in wine or fish stock, or baste with a mixture of equal parts of lemon juice and butter or margarine.

Other, General Pointers

• Be sure seafood is completely cleaned (washed, scaled, eviscerated, peeled, etc.) before cooking.

• Make sure live molluscs and crustaceans are alive. Remove mud and debris from mollusc shells by scrubbing with a brush under running water. Thoroughly rinse live crabs with a garden hose or kitchen sink sprayer.

References

This pamphlet was compiled using information condensed from the following publications. Consult them for additional information about seafood cooking, nutrition, preparation, preservation, safety, and storage.

Perkins, B. E. 1987. Circular CRD-40, "Saving Your Catch." Alabama Cooperative Extension Service. MASGP-87-001.

Perkins, B. E. 1990. Circular CRD-53, "Preparation and Preservation of Alabama Seafood." Alabama Cooperative Extension Service. MASGP-90-005.

Perkins, B. E. 1991. Circular ANR-578, "Seafood Safety." Alabama Cooperative Extension Service. MASGP-91-003.

Perkins, B. E. 1992. Circular ANR-758, "Grilling Alabama Seafood." Alabama Cooperative Extension Service. MASGP-92-004.

Perkins, B. E. 1992. Circular ANR-766, "Smoking Alabama Seafood." Alabama Cooperative Extension Service. MASGP-92-005.

Perkins, B. E. 1993. Circular ANR-817, "Stovetop Seafood Cooking." Alabama Cooperative Extension Service. MASGP-93-008.

Perkins, B. E. 1993. Circular ANR-833, "Alabama Seafood Facts." Alabama Cooperative Extension Service. MASGP-93-014.

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rian E. Perkins, *Extension Seafood Technologist*

Auburn University
Marine Extension And Research Center
4170 Commanders Drive, Mobile, AL 36615
334-438-5690

Cooperating Agencies
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