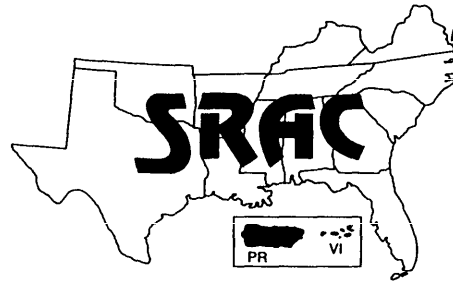


Southern
Regional
Aquaculture
Center



September 1993

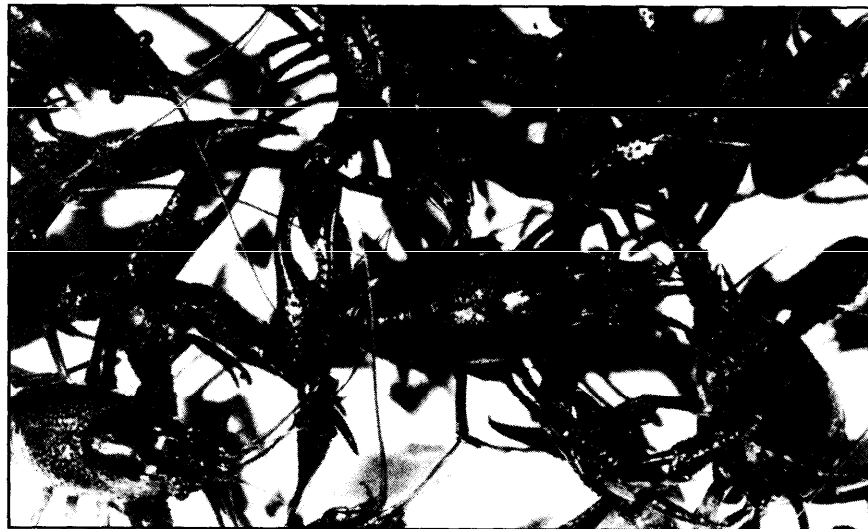
Crawfish

A Healthy Choice!

Katheleen F. Ladewig* and Senae L. Schaer

When you think about crawfish, most people envision Louisiana parties, family gatherings, and boiled crawfish. Due to the increased interest in crawfish, farmers have transformed fields into crawfish farms, and have expanded production along the Gulf coastal regions of the United States.

Two species of crawfish are commercially produced: the Red Swamp (*Procambarus clarkii*) whose outer covering is deep red, and the White River (*Procambarus zonangulus*) whose shell is creamy white and light lavender. There is no difference in the taste or texture of the meat, only in the outer appearance of the shell. Also, the Red Swamp has yellow fat which is commonly seen in the head of the crawfish after cooking, and the White River has green fat, and for that reason the White River is not as acceptable for cooking. It is simply a matter of choice and appearance.



Commercially valuable crawfish are native to Louisiana and adjacent states; however, they are also raised in most of the southern states. Crawfish are also of interest to consumers in Spain, China and Costa Rica, where they are considered a delicacy.

People enjoy crawfish for a number of reasons: crawfish are full of protein, low in calories and saturated fat, easy to prepare, and they taste great!

Characteristics

Crawfish, like shrimp, crabs and lobster, belong to the scientific class Crustacea. These animals have a hard external shell called an exoskeleton, which provides some protection and gives rigidity

to their bodies. Since the exoskeleton does not increase in size as the crawfish matures, it must be shed periodically. Recently-shed crawfish are soft; therefore, crawfish who have these "soft shells" are called soft shell crawfish. This product is being used in restaurants as a menu specialty item.

Crawfish are aquatic animals and must spend most of their lives in water. However, in late spring and early summer the females burrow to the water table to hatch their young. This burrowing activity results in the numerous crawfish "chimneys" one sees on the banks of rivers, streams, and most commonly, the highway ditches. While in the burrows, the females will lay and hatch about 400 to 800 eggs.

Commercial information

There are thousands of acres of managed crawfish ponds in the lower Gulf Coast regions. They provide a consistent supply of fresh crawfish for the consumer. Crawfish production acreage has

* Professor and Extension Nutrition Specialist, Human Nutrition Section, Animal Science, Texas A&M University.

increased to about 160,000 acres in Texas, Mississippi, Florida and Louisiana, with most of the acreage found in Louisiana. Overall U.S. aquaculture production of fish and shellfish increased from 203 million pounds in 1980 to some 762 million pounds in 1990. It is estimated that by the year 2000, that figure will reach 1.26 billion pounds. Countries such as Costa Rica and Sweden are beginning to produce crawfish with U.S. help. The Swedish market demand is creating international appeal for crawfish.

Forms available

The most important aspect of crawfish farming is how you, the consumer, can get this low-fat product to your table. There are three forms of crawfish available to the consumer:

1. **whole/live** crawfish in sacks;
2. **whole, cooked and seasoned** crawfish purchased at the local supermarket (fresh/frozen); and
3. **peeled tail meat** purchased in fresh or frozen packages.

Purchasing

It takes approximately seven pounds of live crawfish to yield one pound of peeled tails. Large, mature crawfish have a lower yield of meat per pound than immature crawfish. Immature crawfish are young and full of tail meat. As a crawfish matures and gets older, the percentage of tail meat to total body weight decreases. Therefore, when purchasing crawfish one is easily misled by the motto: "bigger is better."

One should plan on purchasing three to four pounds of live crawfish per person per meal, and one pound of fresh or frozen tails to feed three.

Nutritional information

People are eating crawfish because they taste great, but health is also a factor that should be included in the decision to eat crawfish. Low

in fat and calories, high in protein and minerals, crawfish can be included in the diet of anyone who is concerned about cholesterol, fat or calories.

Crawfish are high in vitamins including A, B₆ and B₁₂, Biotin and Niacin, and a good source of calcium, phosphorus, iron and protein.

Although crawfish, along with lobster and shrimp, tend to be higher in cholesterol than most other shellfish, a 3 1/2-ounce serving provides about one-half of the daily recommended allotment for cholesterol by the American Heart Association. In fact, studies have shown that blood cholesterol levels are affected more by the saturated fat in your diet than the cholesterol you eat. Although crawfish may be somewhat high in cholesterol, it is extremely low in fat, and has not been shown to raise blood cholesterol levels.

The Food Guide Pyramid

Americans are always searching for a healthy diet. Eating healthy has been made easier with the help of the USDA's Food Guide Pyramid.

The food pyramid visually guides consumers to eat a variety of



healthy foods while avoiding excessive fats and sugars. The Food Guide Pyramid suggests 2-3 servings per day from the Meat, Poultry, Fish and Dry Beans Group. Crawfish are an excellent choice from this group and also add variety to the diet.

Crawfish are high in protein, and low in fat and sodium. Crawfish are well within the 300-milligram daily limit of cholesterol recommended by the American Heart Association and the National Academy of Sciences. In fact, crawfish provide just a fraction of what is recommended for fat and saturated fat.

Handling

Live whole crawfish

- Crawfish are fragile products because of their shell covering. They should be treated gently in order to reach the restaurant or consumer in perfect condition. Some use the phrase that the bags or sacks of crawfish should be carried just like one would carry an infant.
- Crawfish need gentle care; therefore, when setting the sack down be sure that it is not dropped, and that the whole sack reaches the ground at the same time. Crawfish sacks should not be stacked more than three sacks high.
- Live crawfish must be refrigerated or lightly iced until they are prepared.
- If transporting the product in a cooler make sure the lid is left slightly open to allow the crawfish to have oxygen. Sprinkle water on the crawfish to keep them moist in the cooler.

The crawfish will stay alive for approximately 24 hours, but must be prepared as soon as possible.

Crawfish tail meat

- should be held at 32 to 35°F;
- should be used within 1 or 2 days or frozen.

Care at home – before preparation

Live crawfish should be kept at 42 to 45° F until preparation. Live crawfish kept lower than 38° F will die because their gills will frost over.

Care at home – after preparation

Boiled and prepared crawfish dishes should be refrigerated at 40° F or below until they can be reheated.

Nutritional Values of 3-Ounce Serving of Crawfish	
Protein	23.92 g
Fat	1.35 g
Carbohydrates	0.00
Calories	114.00
Cholesterol	178.00 mg

Conclusion

People are eating more crawfish, because they taste great and are a healthy food. Low in fat and calories, high in protein and minerals, crawfish can be included as a tasty

meal in anyone's diet. If they did not taste so good, no amount of health or consumer information could persuade people that crawfish make a meal low in fat, high in protein, and a great way to maintain a healthy heart and life.

Crawfish are easy to prepare, great at parties, and allow everyone to experience a little of that famous "cajun magic."

Recipes

Boiled Crawfish

Serves 10-12

When boiling crawfish you can use a large boiling pot that is usually heated by a butane flame for outdoor gatherings, or you can use the stove top and a large, deep pot for indoor cooking. For a 40- to 50-pound sack of crawfish, fill an 18- to 20-gallon pot with about 10 gallons of water.

Option 1: Add 1 1/2 (16 oz.) boxes of salt, one half bulb of garlic, and 3 tablespoons of cayenne pepper.

Option 2: Add 1 1/2 (16 oz.) boxes of salt, 3 lemons cut in half, 3 or 4 onions cut in half, 3 tablespoons red pepper and 2 tablespoons black pepper (optional).

Option 3: Add 2 or 3 boxes dried crab boil mix or 2 or 3 bottles liquid crab boil and garlic.

For each of these options, bring water/spice solution to a boil; add crawfish. Simmer for about 10 minutes, turn off heat and let stand 6 to 10 minutes to soak up seasonings. Use a basket or strainer to remove crawfish quickly so they do not overcook.

After the crawfish have been removed from the water, try boiling ears of corn cut in half and small new potatoes for side dishes. The corn and potatoes soak up the seasonings and provide a spicy meal. Boil the potatoes 15 to 20 minutes and corn about 5 to 10 minutes.

Alternative Method: Boil the crawfish in about 10 gallons of water. Add the seasoning after the crawfish is boiled. Season the boiled crawfish by sprinkling a mixture of salt and cayenne pepper (amounts according to your preference) on the boiled crawfish and vegetables.

Crawfish Etouffée

Serves 8

1 tablespoon oil
1 cup chopped onions
1/4 cup chopped bell pepper
2 cloves garlic, minced (optional)

2 tablespoons cornstarch
1/2 cup water

1/2 cup chopped celery
2 pounds peeled crawfish tails
1/2 cup water

2 tablespoons minced green onions
2 tablespoons minced parsley

Heat oil in a pot. Add onions, bell pepper, garlic and celery. Cook until soft. Add tails, and cook over medium heat for 5 to 10 minutes, stirring often. Add 1/2 cup water, bring to a boil, and simmer for 15 minutes. Stir occasionally.

Dissolve cornstarch in remaining 1/2 cup water; add to mixture, stirring until smooth. Add green onions and parsley and simmer 10 minutes, covered. Serve over hot, fluffy rice.

Crawfish Jambalaya

Serves 4-5

1 tablespoon flour	1 1/8 cups uncooked rice
1 tablespoon salad oil	1/2 teaspoon black pepper
1 cup finely chopped onion	1/8 teaspoon red pepper
2 tablespoons minced green onion tops	1 small bay leaf
water	2 tablespoons minced parsley
1 pound or 2 1/2 cups crawfish tails	2 1/2 teaspoons salt

Brown flour in oil. When light brown, remove from heat and add onions. Stir constantly until onions are almost cooked. Add 1 1/2 cups cold water, boil roux slowly for about 1/2 hour or until boiled down to 1/2 cup. Add crawfish and cook until crawfish turn pink. Add about 2 cups minus 2 tablespoons water and bring to a boil. When water is rapidly boiling, add balance of ingredients, stir to blend and cook covered about 1/2 hour.

Louisiana Cajun Pasta

1 bag (8 oz.) twist pasta	1 teaspoon red pepper
2 tablespoons butter	1/4 teaspoon celery salt
2 large onions, chopped	2 tablespoons salt
1/4 cup minced green pepper	1 tablespoon chopped parsley
1 clove garlic, chopped	3 green onions, chopped
1 1/2 pounds peeled crawfish tails	1/2 lemon, sliced/twisted
1 cup plain yogurt	

Boil pasta according to package directions. Melt butter in large pot. Add onions, green pepper and garlic. Sauté until the mixture is tender or clear. Add crawfish tails. Cook on low until crawfish are cooked. Remove pot from heat and add yogurt, red pepper, celery salt and salt, blending gently. Put the mixture back on the stove with low heat. Add drained, cooked pasta and blend it in gently. Take the mixture off the stove and put it into a serving dish. Sprinkle the chopped parsley and green onions over the top of the pasta. Garnish with twisted lemon slices on pasta just before serving.

Crawfish Pizza

Crust

3 cups cooked rice	1/2 cup grated cheese
2 eggs	1 teaspoon salt

Mix well and press out on 16x11 1/2 pan, leaving a small lip around edges. Bake 20 minutes at 450°.

Sauce

2 (8 oz. each) cans tomato sauce	2 tablespoons Worcestershire sauce
2 teaspoons steak seasoning	1/2 teaspoon red hot sauce
1 teaspoon Jalapeno pepper sauce or 1 pepper, chopped fine	

Pour sauce over crust and spread evenly.

Top with:

1/2 cup chopped celery	1 pound peeled crawfish tails
1 bell pepper, chopped	1/4 cup grated cheese
1/2 cup chopped onions	

Bake at 450° for 15 minutes or until cheese melts.

The work reported in this publication was supported in part by the Southern Regional Aquaculture Center through Grant No. 89-38500-4516 from the United States Department of Agriculture.