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Virginia Institute of Marine Science

## MARINE RESOURCES ADVISORY SERIES

### SEA GRANT ADVISORY SERVICES PROJECT

Gloucester Point, Virginia 23062

## Discoloration in Rock Crabs: What to do about it

By W. A. Van Engel and P. A. Haefner, Jr.

Soft rock crabs (*Cancer irroratus*) freshly shed from peelers, and hard rock crabs caught by dredgers and potters in winter, are available in the Chesapeake Bay area in limited quantities. Care in handling hard crabs and in processing soft crabs is required of fishermen, processors and consumers before a high quality food can be placed on the dining table.

Rock crabs should be eaten the same day they are dressed. Soft rock crabs can be fried the same way as soft blue crabs. One of the best means of obtaining meat from hard rock crabs is the cooking and picking methods used in New England where a small rock crab industry has existed for many years.

New Englanders cook hard crabs in boiling water for 25 minutes and separate the claws, legs and body after cooling. The meats from the claws and legs are considered the most valuable and large pieces are removed with a slim, curved knife. Much of the body meat is removed through the holes where the legs attach to the body. Small amounts of meat are picked from the body in almost the same manner as from the blue crab.

There is a good New England recipe for preparing whole fresh-cooked crabs. After boiling, carefully remove the back shell, the gills and viscera, replace the back shell and refrigerate the crabs in plastic bags. If crabs or crab meat are to be frozen, it is necessary to precook the crabs in boiling water for 12 to 15 minutes before further processing. The frozen product should be recooked without thawing for five to ten minutes in boiling water before use.

Occasionally, discoloration (darkening or blackening) of papershell or soft crabs may occur when they are dressed and refrigerated overnight. Live, hard rock crabs may blacken at breaks in the shell, at injuries on the legs or at the stumps of missing legs.

The causes of discoloration are varied and only partly known. Basically, the color is produced by enzymes in the crab acting on other chemical substances in the crab body. In some instances, browning can occur when sulfides of the crab's body react with water high in iron.

Discoloration usually can be prevented by precooking (170°F for 12 to 15 minutes). Other preventive methods, successfully used on crustaceans, have not been tested on rock crabs, but should be tried if precooking fails to prevent discoloration. Red crabs (*Geryon quinque-dens*) and jonah crabs (*Cancer borealis*) from the Atlantic coast, Dungeness crabs (*Cancer magister*), the edible crab from the Pacific coast, and shrimp all can become discolored.

For all species, the first step is to wash the product in clean water. Shrimp should be iced immediately and either kept on ice for at least six to seven hours, or dipped in a mixture of one tablespoon of lemon juice to 1¼ pints of water (2.5%) for 10 seconds, or dipped for 10 seconds in a solution of one teaspoon of sodium bisulfite in one pint of water (1.0%). Technical grade sodium bisulfite is available without prescription from chemical supply companies. Usually it is not carried by pharmacies.

Red crabs caught by trawling or potting at the edge of the continental shelf or on the slope must be more thoroughly processed than other crabs to prevent discoloration. They must be washed immediately after capture and then either kept alive in refrigerated seawater or butchered and packed in ice. A better product is obtained if the sections are dipped in a 1.0% solution of sodium bisulfite or a mixture of 1.0% citric acid and 0.5% sodium bisulfite before they are iced. Whole crabs should be boiled for 30 minutes if they are to be sold intact. Butchered crab sections should be boiled from four to ten minutes if the meat is to be shucked out.

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