

Lobster and Crab Fisheries Division  
Maine Department of Marine Resources

What Causes the "Black Lobster"?

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Every year, particularly during late spring and early summer, the Maine Department of Marine Resources receives inquiries from concerned seafood retailers and consumers about the occasional cooked lobster that is found to have some dark black, often objectionable looking matter in the body cavity. In most cases these so-called "black lobsters" are believed to be either diseased or in some way contaminated, thereby resulting in rejection of these culinary delights.

This scenario is indeed unfortunate because not only is the discarded lobster perfectly edible, but moreover the consumer's confidence in seafood may be negatively impacted. Accordingly, this note is intended to explain why some lobsters display pronounced darkening of internal tissues and, in fact, are quite safe to eat.

Every connoisseur of lobster recognizes the edible coral or red, more technically known as the ovary with developing eggs. The lobster ovary is a five lobed, H-shaped organ and in mature females, extends from the base of the eyes well into the tail region (Figure 1). During the maturation process the ovary

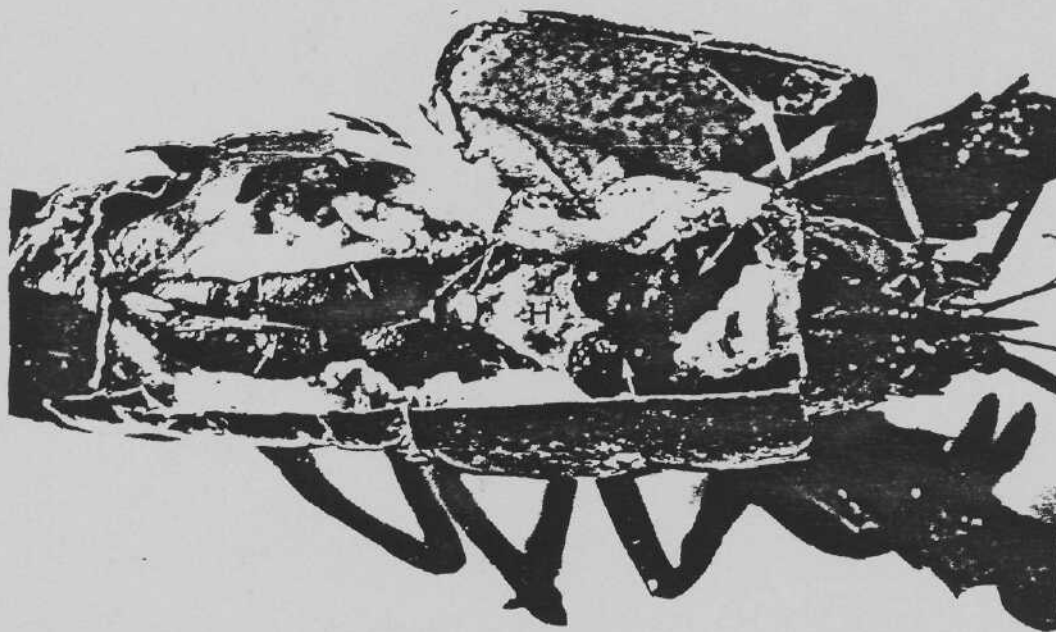


Figure 1. A dissected female lobster showing the lobes of the ovary (arrows) and the heart (H). (From Talbot, 1981).

changes from white to various shades of yellow-green before turning dark green when the eggs ripen. Upon cooking the protein of the egg color complex is denatured and astaxanthin, a red pigment, is liberated causing the ovary to change from green to red.

Even though an ovary may contain mature eggs and the time of egg deposition is near, some factor such as unfavorable holding conditions or another stressor may interfere with spawning. When this occurs the eggs are not extruded and fertilized but rather broken down within the reproductive tract. During this process lipovittelin, a fatty protein, is reclaimed from the eggs and resorbed, turning the blood dark green. When this massive resorption occurs the underside of the female's tail becomes extremely dark and the ovary, when viewed internally, may appear as a dark gelatinous mass.

Understandably, a resorbing egg mass may be a real "turn off" to the unsuspecting, uninformed seafood consumer. However, by knowing that the condition is a natural biological phenomenon the consumer may, with confidence and without trepidation, enjoy his or her feast on that occasional "black lobster". If sight of the dark material is offensive, we suggest simply scraping and/or washing this material away. Whether this material is removed or not, the lobster is by all means completely safe to eat.

For additional information on this subject please contact the Lobster and Crab Fisheries Division, W. Boothbay Harbor, ME 04575 (telephone no. (207) 633-5572).