

Auburn scientists find tar balls are better left alone

March 26 2012, by Jamie Creamer

(PhysOrg.com) -- The April 2010 Deepwater Horizon oil spill in the Gulf of Mexico and the waves of tar balls deposited on the beaches shortly thereafter prompted the National Oceanic and Atmospheric Administration to produce a tar ball fact sheet. Among the factoids was one stating that those sticky, coin-sized clumps of weathered oil, though unsightly and annoying, are not a human health hazard.

But new research findings out of Auburn University indicate that [tar balls](#) are reservoirs for a multitude of bacteria, including at least one pathogen that can cause life-threatening sickness in some humans.

The pathogen is *Vibrio vulnificus*, a naturally occurring bacterium that thrives in warm seawater, is absorbed by filter-feeding oysters and is most often associated with severe illness and death in individuals with certain medical conditions, such as [liver disease](#) or cancer, who eat [raw oysters](#). As such, *V. vulnificus* infection is the leading cause of death related to seafood consumption in the United States.

Especially among those at-risk populations, however, exposure to the bacterium through a wound can lead to tissue-killing, potentially [fatal infections](#), and it is in that context, Auburn aquatic [microbiologist](#) and study leader Cova Arias said the discovery of high numbers of *V. vulnificus* in tar balls has "clear public health implications."

"Tar balls are sticky, especially during the warmer months, and they are difficult to remove," the Department of Fisheries and Allied

Aquacultures associate professor said. "If a tar ball contacts a skin abrasion, it could vector *V. vulnificus* and cause severe [wound infections](#) that may lead to death. People whose immune systems are compromised should be fully aware of the risks and go out of their way to avoid any contact with tar balls."

An unexpected finding in a post oil spill study originally designed to monitor total bacterial counts in tar balls that washed ashore from [Dauphin Island](#) to Gulfport, Miss., in the weeks and months following the BP disaster, was that tar balls along the Alabama and Mississippi coasts harbor high levels of *V. vulnificus*.

"We already had the *V. vulnificus* methodology set up in our lab, so it made sense to analyze the tar balls for the pathogen," said Arias, for whom a major research focus is food safety in oysters and the development of post harvest techniques and processes that significantly reduce *V. vulnificus* counts in the bivalve mollusks.

At each location along the coast where they gathered tar balls, Arias and collaborators Ash Bullard, a marine parasitologist and Auburn fisheries assistant professor, and graduate research assistant Zhen Tao also collected sand and seawater samples and, in their analyses, found that the total bacterial counts and the number of *V. vulnificus* bacteria in tar balls up and down the Gulf coast were significantly higher than in the sand and seawater samples collected from the same sites.

Though, based on their volume and when they began to appear, the small wads of tar the scientists collected from along the Gulf beaches likely were from the BP oil spill, tests to officially make that determination were cost-prohibitive. But Arias said the source of tar balls is inconsequential to the study.

"We believe our findings apply to tar balls regardless of their origin," she

said. "What matters is that people be aware that tar balls can be hazardous to their health and that the more tar balls you encounter, the higher the risk."

The research findings were published online Nov. 23, 2011, in *EcoHealth*, a global, peer-reviewed journal of the International Association for Ecology and Health.

Provided by Auburn University

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