The nose knows: UF to help train experts in sniffing out oil spill-contaminated seafood

May 12 2010, by Mickie Anderson

(PhysOrg.com) -- To keep consumers safe from seafood that could be tainted by the Gulf oil spill, regulatory officials will rely on an incredibly sophisticated, delicate tool: the human nose.

Next month, University of Florida researchers will help government seafood inspectors learn to use their sense of smell to evaluate seafood products harvested from the Gulf of Mexico. The training is meant to keep consumers from eating seafood tainted with oil spilled in the water following the April 20 explosion of the Deepwater Horizon offshore drilling rig.

Seafood harvested in the Gulf may have ingested the water-soluble chemicals, making it dangerous for human consumption.

Scientific instruments can perform the same task but take much longer to get results, said University of Florida professor Steve Otwell, who has led UF's professional seafood sensory school since it began in 1995. The instruments can only run about 20 to 30 samples in a week, and at a cost of $700 per sample, are expensive.

Those instruments rely on electronic recognition signals and can detect chemicals in much smaller concentrations, down to parts per billion. But the nose can quickly detect levels that are considered unhealthy — and when it comes to getting seafood from the ocean to a diner's plate, the clock never stops ticking.

“Sensory analysis can be a very powerful tool,” said Otwell, a professor of food science and human nutrition with UF’s Institute of Food and Agricultural Sciences. “And it can be recognized for regulatory purposes. But only if you are trained to do it and it’s proven that you have the ability to do it.”

For years, Otwell said, UF has taught government inspectors and food industry professionals to evaluate seafood for freshness and consumer appeal, so it made sense to have UF lead the contaminant-detection training.

In the last two weeks, UF officials have been freezing baseline samples of fresh, uncontaminated seafood to use in the training, expected to be held in mid-June on the Gainesville campus. UF will also help officials in Texas, Alabama, Louisiana and Mississippi set up similar training.

The Food and Drug Administration and Department of Commerce are the federal regulatory agencies that oversee seafood safety.

During the four-day training, which will be based on techniques learned from earlier oil spills such as the Exxon Valdez in 1989, a group of about 25 inspectors and regulators will learn protocol for handling seafood samples and examine different types and levels of contaminated seafood. They’ll be tested on their ability to sniff out polycyclic aromatic hydrocarbons — or PAHs — in fish, shrimp and crab, Otwell said.

And if history’s any guide, some of them won’t pass the smell test.

“You know from your own personal experience that some people can smell better than others,” he said. Some are gifted sniffers, he said, while others make lifestyle choices, such as smoking, that hinder their ability.

The training is an attempt to “educate and sharpen” a sense that’s

naturally there, he said.

As evidence of the olfactory system's power, Otwell points to things like just mowed grass, or spring flowers, and how a whiff of something can evoke memory.
For doubters, he offers this challenge: Hold your nose. Pop a slice of cheese in your mouth. Once you're mid-chew, let yourself breathe normally.

"The difference is phenomenal," he said. "The nose is a powerful instrument. If you don't believe it, take the cheese test."

Provided by University of Florida