

Passing the ‘Sniff Test’

In Assessing Gulf Coast Seafood, the Nose Knows

Inside [NOAA’s Seafood Inspection Laboratory](#) in Pascagoula, Miss., NOAA’s expert seafood assessors are training state personnel to use their sense of smell and taste to detect any unusual odors and flavors in Gulf Coast fish — aromas that could indicate contamination by oil or dispersants from the Deepwater Horizon/BP oil spill.



An inspector from NOAA’s Seafood Inspection Program conducts sensory analysis - a smell test - of a sample of fish.

[High resolution](#) (Credit: NOAA)

Steven Wilson, the chief quality officer for [NOAA’s Seafood Inspection Program](#), gives us a behind-the-scenes look at what it takes to ensure that the seafood that reaches your local market or seafood counter is safe to eat.

What varieties of Gulf Coast seafood are being “sniff-tested”?

Right now, we’re targeting 10 species of seafood, including shrimp, different types of snapper and grouper, and possibly croaker, from fishing areas that have been closed due to oil and are being evaluated for possible re-opening.

Using your sense of smell is one of the best methods for determining the safety and acceptability of seafood —sensory analysis is a commonly used tool in seafood safety and quality inspections. An essential element of the job of a NOAA seafood inspector is to determine what qualifies as Grade A fish, which means that seafood must have good flavor and odor.

How do you train people to use their sense of smell?

People are trained by exposing them to various kinds and concentrations of odors and flavors. This process takes time. Some people, unfortunately, are not trainable — some just don’t have an adequate sense of

smell to do this work. However, most people have a sense that can be trained to detect specific odors and refined for enhanced sensitivity.

Highly experienced expert assessors from NOAA's seafood inspection program are training state personnel to act as sensory screeners in the field. Using "first-line" screeners — who perform sensory testing right at the docks or at state laboratories — allows us to be as efficient as possible. They help us determine when we need to deploy expert assessors from NOAA and the Food and Drug Administration, our partner in seafood safety.

The Deepwater Horizon/BP oil spill is on a scale we've never seen before, and we can use all the extra hands — and nostrils — we can get. We are expecting to process tens of thousands of samples in the coming months.



What are sensory testers “sniffing” for?

Sensory testers smell for the distinct scent of oil or chemicals that might differ from the normal odor of fish and shellfish ready for market. When we get a whiff of oil in a seafood sample, we know that the product is unfit for both human consumption and for commercial sale.

In “harmonization” class, we spike fish samples with set concentrations of oil specific to the Deepwater Horizon/BP spill, as well as dispersants, to determine how sensitive our testers and trainees are.

Learning to discern an odor or flavor and properly describing it is something that comes from experience. Some odors or flavors are easily masked by a competing odor or flavor so the training and evaluations need to take place in a controlled setting such as a laboratory. We train people to not only fine-tune their sense of smell to the oil and dispersants from this particular spill, but also to be able to repeat their sensory abilities and standardize how they describe what they are smelling.

What is the process for sensory testing samples from the affected regions of the Gulf Coast?

For fish like snapper and grouper, we collect a minimum of six, one-pound samples. First, the fish are filleted. Then, a panel of 10 expert assessors will smell each of the raw samples and record the odor. The samples are then cooked, and the process is repeated so that the experts may smell and taste the fish in its cooked state.

Cooking the product is important for two reasons: First, it releases aromas that may be less detectable in a raw state. Second, some of the testers may be more sensitive to the smell of cooked fish versus raw fish. Either way, smelling both raw and cooked samples assures that our testers can detect the full aromatic possibilities of the fish.

What happens to the samples after they pass or fail the sensory testing?

If they pass, then a 200-gram mixture of all the fish sampled from a specific location is sent to [NOAA's Northwest Fisheries Science Center in Seattle](#) for chemical testing to verify it is free from unsafe concentrations of polycyclic aromatic hydrocarbons (PAHs) — the primary chemical constituents of oil and tar.

If the samples fail the sensory tests, then the fishing area from which the samples were collected would likely remain closed until repeated sensory testing and subsequent chemical analysis confirm that seafood from that area is free from unhealthy PAH levels. Sensory testing is the key – and first line of defense – to ensuring what lands on America's dinner tables is safe to eat.

It's often said that fish you buy at the market should smell like the salty sea. Is this true?

That's exactly right. If it smells "fishy", beware ...

NOAA and the U.S. Food and Drug Administration have taken [additional measures](#) to ensure that Gulf Coast seafood that lands on America's dinner tables is safe to eat. You can learn more from NOAA's

[Protecting the Public from Oil-Contaminated Seafood: Fishery Area Closure and Surveillance Plan](#)

[PDF]. 