BATON ROUGE--Many Southerners would attest to the fact that nothing beats the taste of catfish freshly fried, crisply fried and served piping hot. But, when it comes to taste, the catfish itself can actually think about animals tasting and taste-and in some instances, smelling, Caprio is studying smell-far better than man, according to a LSU scientist.

"The catfish has everything," says LSU zoology professor John Caprio. "It has exquisite senses of taste, smell, touch, vision and even has a sixth sense, like sharks and sting rays, which enables it through the electric receptors to locate objects and food the eye cannot see."

Although humans seldom think about animals tasting and smelling, Caprio is studying just that under a National Institutes of Health (NIH) grant.

"In lands animals, including humans, chemical compounds in the form of gases are mixed with the air we breathe and even has a sixth sense, like sharks and sting rays, which enables it through the electric receptors to locate objects and food the eye cannot see."

"Aquatic animals, on the other hand, can both taste and smell these compounds in water even if the chemicals originate at some distance away."

"Of particular interest to NIH, Caprio adds, is the striking similarity between catfish and human anatomy and physiology."

"The anatomy of the taste and smell systems are almost one and the same among vertebrates," he states. "If you looked at tastebuds or smell receptors of a catfish and a human, you couldn't tell much difference. Once we understand how fish detect chemicals and transmit this information to the brain in the form of electrical nervous activity, we might understand how this process occurs in humans."

What is unique is that the catfish actually has two separate systems of taste—one inside the mouth and another spread over the entire body, especially around the head and barbels, or whiskers.

The catfish, in fact, with over 100,000 tastebuds on the side of its body, has been called "a big, swimming tongue."

Caprio credits Boston University scientist Jelle Atena for having shown that tastebuds on the external body skin guide the fish to food, while the oral tastebuds accept or reject whatever's on the menu. This oral system, Caprio emphasizes, acts much like the human taste system in guarding the entrance to the organ's digestive system.

Hungry catfish have been known, for instance, to pick up a foul piece of meat, then spit it out. This procedure may be repeated several times before the discriminating inner system emerges victorious.

The LSU professor said that both taste and smell nerves in the catfish carry messages to the brain in a complex coding system which allows the brain to actually identify the stimulating chemicals.

"We've been able to learn a lot from the neurosurgery we perform on the animals," he added, noting that during the research, the catfish is given a muscle relaxer, and water continuously washed over the gills. "He's just quiet, sitting there in no pain," Caprio said.

The neurosurgery basically consists of sticking electrodes into the nerve systems and intercepting impulses being sent to the catfish brain.