**UNCW professors study Splenda in Cape Fear River**

By [Kate Elizabeth Queram](http://www.starnewsonline.com/personalia/kqueram)

Dumping a packet of artificial sweetener into your coffee each morning could contribute to ocean and river pollution, according to research by four professors at the University of North Carolina Wilmington.

The study, funded by [**UNCW**](http://www.starnewsonline.com/section/topic71)'s Center for Marine Science and conducted by researchers at the university's Marine and Atmospheric Chemistry Research Laboratory, found that approximately 10 percent of sucralose, the main component in Splenda, is absorbed by the body during digestion. The remaining 90 percent is flushed from the body into sewage treatment systems, eventually making its way into waterways like the [**Cape Fear River**](http://www.starnewsonline.com/section/topic91).

"Sucralose is made from sugar," said Jeremy Morgan, a chemistry professor at UNCW and one of the scientists who researched the issue. "Our bodies recognize and metabolize sugar, and break it down and use it for energy. Sucralose isn't very different from sugar, but the enzyme in our body that breaks down sugar doesn't know what it is. It's a lot sweeter than sugar, but our body almost can't see it."

The result, Morgan said, is similar to the hazards posed when people dump unused prescription drugs down the toilet.

"The classic idea was that if you don't use the drug in a certain amount of time, you just dump it down the toilet," he said. "With sucralose, because it goes straight through us, that's basically what we're doing. If you're going to use it, it's going to go into the wastewater, and there's no way around it."

Dumping a packet of artificial sweetener into your coffee each morning could contribute to ocean and river pollution, according to research by four professors at the University of North Carolina Wilmington.

The study, funded by [**UNCW**](http://www.starnewsonline.com/section/topic71)'s Center for Marine Science and conducted by researchers at the university's Marine and Atmospheric Chemistry Research Laboratory, found that approximately 10 percent of sucralose, the main component in Splenda, is absorbed by the body during digestion. The remaining 90 percent is flushed from the body into sewage treatment systems, eventually making its way into waterways like the [**Cape Fear River**](http://www.starnewsonline.com/section/topic91).

"Sucralose is made from sugar," said Jeremy Morgan, a chemistry professor at UNCW and one of the scientists who researched the issue. "Our bodies recognize and metabolize sugar, and break it down and use it for energy. Sucralose isn't very different from sugar, but the enzyme in our body that breaks down sugar doesn't know what it is. It's a lot sweeter than sugar, but our body almost can't see it."

The result, Morgan said, is similar to the hazards posed when people dump unused prescription drugs down the toilet.

"The classic idea was that if you don't use the drug in a certain amount of time, you just dump it down the toilet," he said. "With sucralose, because it goes straight through us, that's basically what we're doing. If you're going to use it, it's going to go into the wastewater, and there's no way around it."

After leaving the home, wastewater flows to a treatment plant, where it undergoes a series of processes designed to remove contaminants. But unlike other chemicals, sucralose is not regulated by the Environmental Protection Agency, meaning the trace amounts left in treated wastewater go unchecked.

"There's a lot of criteria that the wastewater plant must meet in order to make the water clean enough, so it's perfectly fine except that it contains this unregulated compound," said Robert Kieber, a professor of chemistry at UNCW and another of the study's researchers. "The EPA has it listed as a contaminant of emerging concern, so it's on their radar."

To determine the amount of sucralose that persists in treated wastewater, researchers sampled water up and down the Cape Fear River as well as 80 miles off the Carolina coast, well into the Gulf Stream. Traces of sucralose were evident in each sample, suggesting that the compound doesn't degrade easily and can travel long distances.

"The lowest concentrations were in the Gulf Stream and the highest were in the treated wastewater," said Brooks Avery, a chemistry professor at UNCW and member of the research team. "Sucralose is highly water-soluble, and the fact that it can make it out into the Gulf Stream suggests that it can travel a long way and that there's very little that can break it down."

Very little research exists on the environmental effects of sucralose, team members said, but based on the data currently available, there's no evidence that the compound negatively affects marine life.

"The questions that people have asked - does it impact algae? Does it impact sea grass? Those answers have been no, but that doesn't mean it's not going to impact something," Kieber said. "It's just that someone hasn't answered the right question yet."

***Answer the following questions on your own paper.***

1. What is the title of the article?
2. The Cape Fear River is in which state?
3. What “food” is polluting the Cape Fear River?
4. What percent of Splenda is absorbed by the human body during digestion?
5. Where does the other 90% go?
6. Explain how Splenda is getting into our rivers?
7. Where does wastewater go when it leaves the home?
8. Why does the Environmental Protection Agency not remove sucralose from waste water?
9. ***"The EPA has sucralose listed as a contaminant of emerging concern, so it's on their radar."*** What does this statement mean?
10. Traces of sucralose were found in the ocean, 80 miles off of the coast of NC! Why should we be concerned about this?
11. Which type of water had the highest concentrations of sucralose?
12. What evidence do we have that the compound negatively affects marine life?
13. Should we still be concerned?
14. Is your name on your paper?