

FLUIDS

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Drug-Sub Culture



Richard Barnes for The New York Times

Bigfoot, a drug-smuggling submarine, is now on display at Truman Annex, Naval Air Station Key West in Florida.

THE CRAFT FIRST surfaced like something out of a science-fiction movie. It was November 2006, and a Coast Guard cutter spotted a strange blur on the ocean 100 miles off Costa Rica. As the cutter approached, what appeared to be three snorkels poking up out of the water became visible. Then something even more surprising was discovered attached to the air pipes: a homemade submarine carrying four men, an AK-47 and three tons of cocaine.

Today, **the 49-foot-long vessel** bakes on concrete blocks outside the office of Rear Adm. Joseph Nimmich in Key West, Fla. Here, at the Joint Interagency Task Force South, Nimmich commands drug-interdiction efforts in the waters south of the United States. Steely-eyed, gray-haired and dressed in a blue jumpsuit, he showed me the homemade sub one hot February afternoon like a hunter flaunting his catch

This kind of vessel — a self-propelled, semisubmersible made by hand in the jungles of Colombia — is no longer quite so mythic: four were intercepted in January alone. But because of their ability to elude radar systems, these subs are almost impossible to detect; only an estimated 14 percent of them are stopped. Nimmich said, “If you **can carry 10 tons of cocaine,** you can carry 10 tons of anything.”

Bigfoot isn't just a trophy. It's a reminder of the ever-escalating cat-and-mouse game of drug interdiction. The alternative: semisubmersibles that, though considerably smaller than the sub found in the warehouse, can carry five times as much cocaine as a common fishing vessel. Nimmich said the rise of semisubs has been traced to two unnamed men, a Pakistani and a Sri Lankan, who in early 2006 provided plans to the Colombians for building semisubs quickly, stealthily and out of cheap, commonly available materials. In early September, according to the lawyer who would later represent him and shared his story with me, ArboledaPalacios squeezed into the cramped boat. He and the three others stood in the middle section, the **navigation room barely 12 feet across X 6 feet wide.**

Introduction: Archimedes said objects are buoyed up by the force of the water displaced.

This semisub was carrying 10 tons of cocaine(see article above) + its own weight of 2 tons.

The density of water is about 62.4 lbs/ft^3 . Thus, this 49 foot semisub had to displace 12 tons of water to just barely stay just under the water surface and not be detected.

(a) With this information estimate the diameter of the sub pictured above. Answer: ~ 10 ft.

(b) Does this seem plausible after a inspection of the picture above?