

ROFFER'S OCEAN FISHING FORECASTING SERVICE, INC.
TOLL FREE 800.677.7633 & (321) 723-5759 // 24 HR FAX (321) 723-6134 // fish7@ROFFS.COM
ROFFS™ FISHERIES OCEANOGRAPHIC ANALYSIS
FOR NORTH FLORIDA TO SOUTH CAROLINA (LAT./LONG.)
UPDATED ON THURS. 30 JULY 2015

Rationale:

We are providing this oceanographic analysis showing the outline of the Gulf Stream to aid in the lost at sea search for Perry Cohen and Austin Stephanos. This analysis is based on watching real-time infrared and ocean color satellite imagery (NOAA, NASA, European Space Agency), not models that are often dependent on time averaged and lower resolution altimeter data. We conduct a sequential image analysis, i.e., looking at one image after another to follow the different water masses and their boundaries. We use the last derived image, sometimes a combination of several images, to provide the background image. The water mass boundaries are traced manually after carefully judging the validity of each boundary. Clouds and high uneven atmospheric interfere with the observations and appear as white areas. Arrows on the analysis indicate direction not speed. With more ocean observing equipment such as HF radar (extending from the coast to past the Gulf Stream) and fixed ocean buoys with current meters, one would be able to get both current speed and direction. The outlined water mass boundaries are provided as they are convergence zones and hopefully will pull the floating boys to these boundaries which would provide more distinct targets for the search and rescue efforts. These water mass boundaries are strong convergence zones and could easily pull the boys and their cooler into these zones. There are too many scenarios to consider on where the likely position of the teens are especially since we do not know exactly where they entered the water Friday. We are assuming that they fell into water near the western boundary of the Gulf Stream off Jupiter and have remained in the western boundary of the Gulf Stream and filaments for this analysis.

Today's Update:

The potential areas where the boys could be has increased substantially over the last few days due to the continued northeast movement of the counter-clockwise rotating Gulf Stream eddy. The eddy appears to have developed again and is centered near 79°15'W & 30°50-55'N. The eddy continues pull Gulf Stream water and potentially the boys, westward to the elongated finger-shaped filament west of the eddy that extends south to 80°45'W & 30°45'N. Buoy experiments in the past have verified this type of motion. It is quite reasonable to think that the boys could have been pulled inshore when this eddy was off Jacksonville a few days ago and are now drifting southward toward Cape Canaveral. It is also reasonable to think that the boys are simply circulating around this eddy as it moves northeastward. The eddy moved approximately 30 miles in last 24 hours. Finally it is reasonable that they are along the western boundary of the Gulf Stream current moving away from the coast as the Gulf Stream southeast of Charleston, SC is directed eastward. In this case they will be transported northeastward toward North Carolina and based on the location of the Gulf Stream they would be transported to Cape Hatteras as there presently are no large eddy features north, between Charleston, SC and Cape Hatteras to pull them westward.

Note that we believe that the flow of the water near the Gulf Stream is with the Gulf Stream, meaning that the coastal waters are being pulled offshore from near the 20 fathom (120 feet) depths. We do not see a path for the boys to be pulled inshore toward Charleston until the eddy moves further north. The winds have not been favorable for pushing the boys to the coast off South Carolina and Georgia.


Bottom Line:

The search area is now extremely large considering the various movements of the water masses to carry the boys. We are now uncertain how much our analyses are assisting the search although we continue to receive calls asking for direction. Our best estimate is that the search should continue from the eddy area, the area where the eddy is traveling, as well as, the filament of blue water that extends southwestward to Jacksonville, FL. IF the boys were not caught in the eddy circulation then they would be far east of Charleston, SC headed northward toward Cape Hatteras.


Again we are hopeful that these analyses will help people direct their search efforts to areas where there are increased chances for Austin and Perry to be found alive.




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