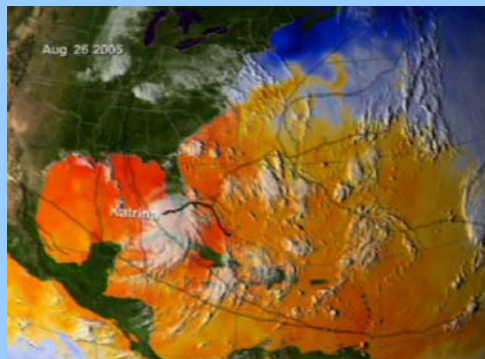
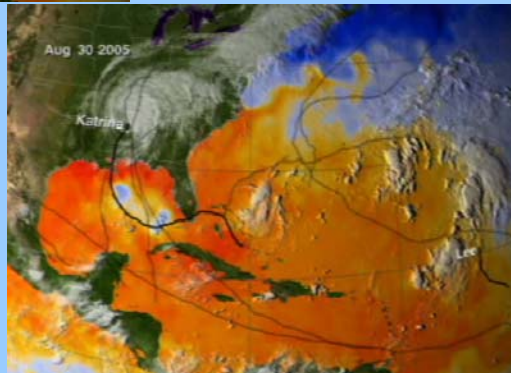


## Forecasting Ecological Effects of Hurricanes in Coastal Ocean and Estuaries

NOAA studies satellite images to understand how hurricanes change habitats of coastal ecosystems of the southeastern USA. We can use ecosystem monitoring to develop forecasts and tools for management to protect the health of these habitats.

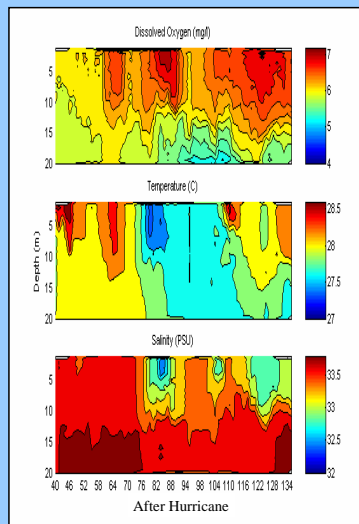
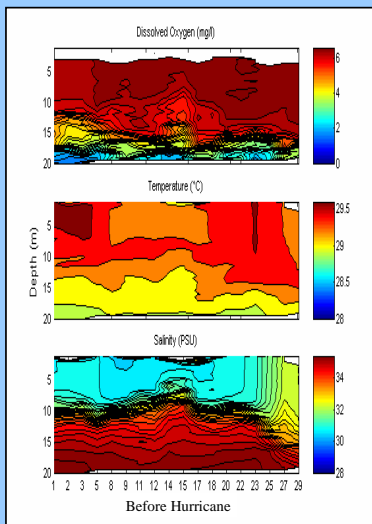


**Before Hurricane Katrina** entered the Gulf of Mexico, the surface waters were uniformly warm (RED)



**Following Hurricane Katrina**, the surface waters of the Gulf of Mexico cooled (BLUE) along the path of the hurricane due to vertical mixing.

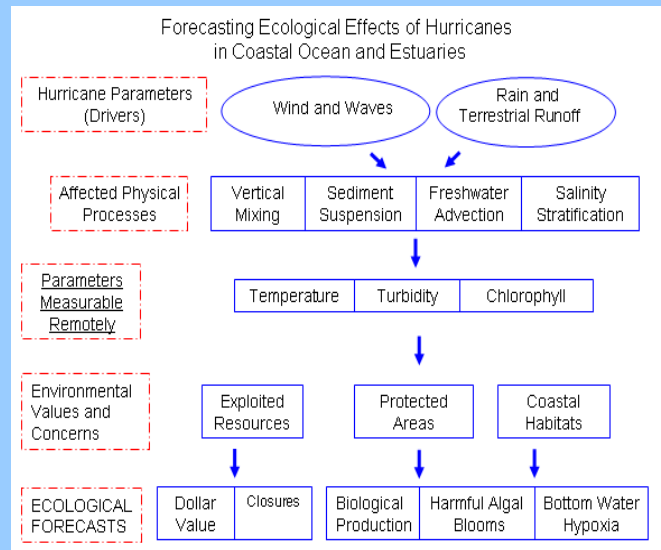
Hurricanes can mix colder nutrient rich deeper waters into the surface waters and stimulate algal growth. Colder waters can temporarily decrease the stress of high temperature on corals.



NOAA monitors hurricanes with sensors on satellites and aircraft. Hurricane Ivan was the strongest in the 2004 season. Note its size and well developed eye.



In estuaries, hurricanes suspend sediment and increase runoff from the land that can cause algal blooms and reduced oxygen in bottom waters.



**NOAA works to forecast ecological changes** following hurricanes that can reduce the value of the oceans resources available for harvest as well as reduce their traditional uses.