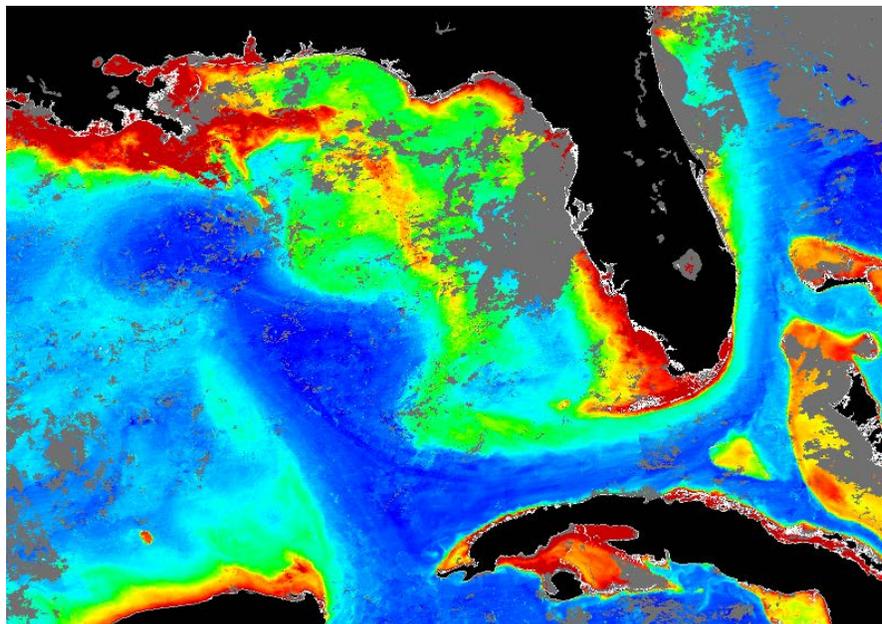


Evaluation of Gulf of Mexico oceanographic observation networks impact assessment on ecosystem management and recommendation

Matthieu Le Hénaff

This project, led by Matthieu Le Hénaff from the Cooperative Institute for Marine and Atmospheric Studies (CIMAS) and member of AOML's Physical Oceanography Division (PhOD), is assessing Gulf of Mexico observation networks from an ecosystem management perspective. The NOAA RESTORE Act Science Program funded this 2-year project, which also involves 3 scientists from the University of Miami (UM), the University of South Florida (USF) and the Florida Fish and Wildlife Conservation Commission (FWC). The project is based on applying a rigorous ocean observing system evaluation methodology, developed for regional networks by the joint UM and NOAA/AOML "Ocean Modeling and OSSE Center" (OMOC), and to expand it to study the impact of observations on the estimation of biological activity. The project includes three objectives: 1) assess the performance of existing observation networks to monitor the Gulf of Mexico from an ecosystem monitoring and management perspective, expanding the evaluation approach implemented for physical oceanography monitoring; 2) investigate the connections between ocean physics, biogeochemistry and ecosystem dynamics; and 3) make recommendations to improve existing observing networks to address particular resource management objectives.

The investigators are using existing ocean circulation and biogeochemical models, as well as observations of ocean circulation, chemistry, and biology from satellites and existing observing platforms in the water. In collaboration with ecosystem and resource managers, Le Hénaff and co-investigators establish realistic observation and management scenarios, which form the foundation for Observing System Experiments that quantify the impact of various components of the existing Gulf of Mexico observing system and help identifying observational gaps. An important project outcome will be recommendations on how to improve observing networks in the Gulf of Mexico to better support effective and sustainable resource management



The project will quantify, for example, the ability of the existing Gulf of Mexico observing system to monitor episodes of export of nutrient-rich waters from the Mississippi River Delta to the Florida Keys reefs (ocean color image from August 13, 2014, USF).