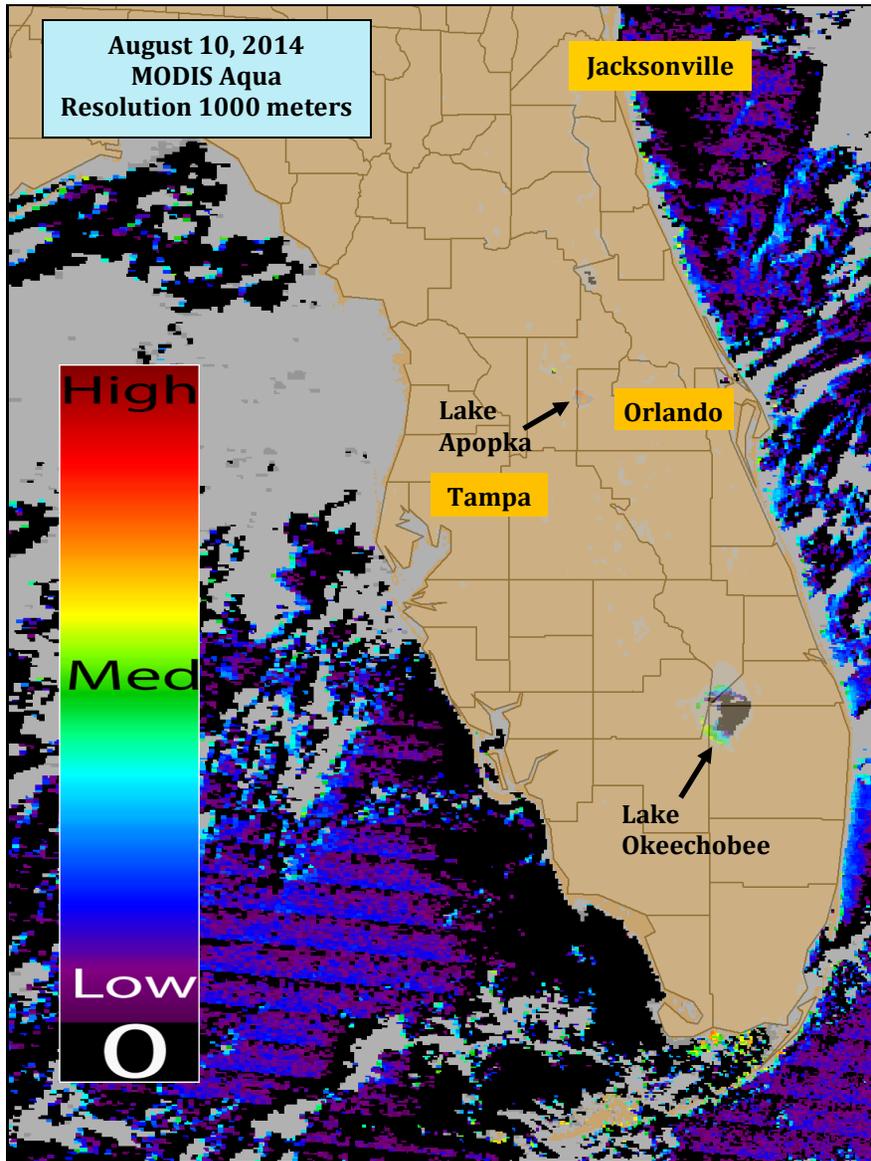


To report an illness related to a freshwater, estuarine, marine toxin or harmful algal bloom, please contact the Florida Poison Information Center at 1-800-222-1222.

Images/data are obtained from Florida Fish and Wildlife Research Institute, Florida Water Management Districts, National Oceanic and Atmospheric Administration (NOAA), NOAA National Climatic Data Centers and National Weather Centers. Support to produce this report comes from NOAA/NASA Contract NNH08ZDA001N.



MODIS Images display a chlorophyll-a index generated with a Moderate Resolution Imaging Spectroradiometer provided by the National Aeronautics and Space Administration (NASA)

Very low likelihood of a bloom

May indicate clouds or missing data

Low estimated chlorophyll-a concentrations

Medium estimated chlorophyll-a concentrations

Higher estimated chlorophyll-a concentrations

## CyanoHAB Conditions Report

- As shown in the true color image on page 2, cloud cover obscured much of the state and made data collection and interpretation difficult.
- Glint was also present around parts of the state.
- Lake Apopka (Orange/Lake Counties) displayed high estimated elevated chlorophyll-a concentrations.
- Lake Okeechobee (Okeechobee/Glades/Hendry/Palm Beach/Martin Counties) displayed low to medium estimated elevated chlorophyll-a concentrations.

## New tactics to monitor harmful algal blooms in Indian River Lagoon

Media Contact: Brandon Basino | Released: Friday, July, 25, 2014

FWC researchers have begun using new approaches to more quickly detect and track harmful algal blooms in the Indian River Lagoon, which spans 156 miles and makes up 40 percent of Florida's east coast, supporting commercial and recreational clam and oyster farming. To provide spatial snapshots of blooms (the big picture of where blooms may be occurring in the lagoon) the FWC established a flow-through monitoring program this year. The flow-through monitoring system analyzes water quality while the research vessel is in motion, traveling throughout the lagoon, as opposed to traditional methods of tracking blooms that require scientists to collect water and examine it back in the lab. The flow-through system pumps water from the surface through instruments that measure salinity, temperature and chlorophyll fluorescence, an indicator of algae. This information is then integrated with GPS coordinates to create maps of surface waters that can show "hot spots" of blooms. Monthly, between June and August (typical bloom season) the FWC maps surface waters in the Indian River Lagoon system, which includes Mosquito Lagoon and Banana River, to detect blooms and to put routine monitoring data into a spatial context. The equipment produces real-time data, which allow researchers to adaptively sample bloom patches as they are noticed in the field. At select stations, researchers also collect samples to be analyzed for the amount and diversity of algae; this is done in partnership with the St. Johns River Water Management District and the University of Florida. The information will help in the short term to detect blooms and in the longer term to identify the causes of blooms, ultimately leading to better management strategies.

To learn more about the FWC's harmful algal bloom program, including monitoring in the Indian River Lagoon, visit [MyFWC.com/RedTide](http://MyFWC.com/RedTide).

## Marine Update: SW Florida Coast and IRL

**Red Tide Update – FWRI/FWC 8/8/2014:** *Karenia brevis* was detected in low to medium concentrations in several water samples analyzed 8/2/2014—8/7/2014 from offshore of Hernando, Pasco, and Pinellas counties. Two additional samples collected inshore of Sarasota and Manatee counties contained background concentrations of *K. brevis*. No bloom levels of red tide have been detected alongshore or inshore.

**IRL Update – FWRI/FWC 8/8/2014:** FWC has received multiple reports of fish kills and discolored water over the past couple of weeks in the Indian River Lagoon system. Sampling has revealed bloom concentrations of multiple algae species, including *Takayama tuberculata* and *Pyrodinium bahamense*, in the Indian River Lagoon system, most notably between Bennett Causeway south to Pineda Causeway.

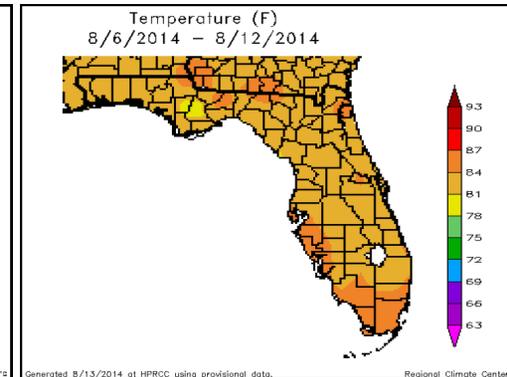
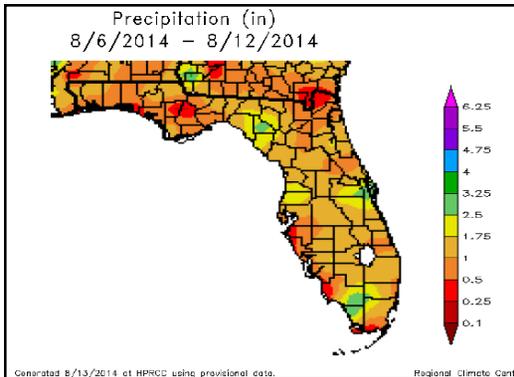
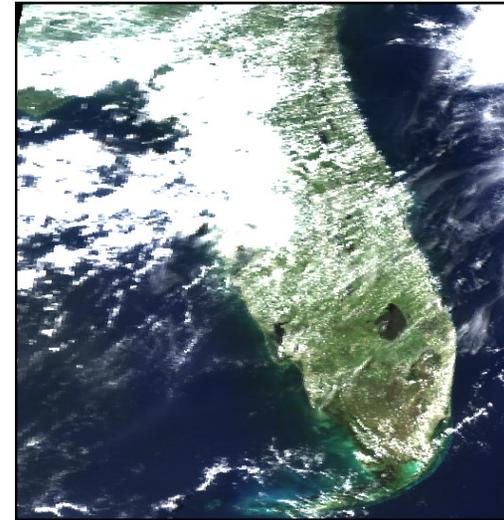
## Interpreting Moderate Resolution Imaging Spectroradiometer Data

- The Moderate Resolution Imaging Spectroradiometer (MODIS) is deployed by NASA onboard the Terra (EOS AM) and Aqua (EOS PM) satellite. It passes over the Earth, collecting new imagery every 1-2 days.
- This imagery is used as a surveillance tool. Data collected by the MODIS sensor are used to generate a chlorophyll-a index, which is used to forecast harmful algal blooms. The results are not specific to any one HABs species, and should be followed-up with onsite field observations. Data is only suggestive of a potential HAB event.
- MODIS uses a spectral band that is much coarser than MERIS; therefore, only select larger water bodies in FL are visible using this technology.
- MODIS is better at depicting low to medium chlorophyll-a concentrations. Once a potential bloom is depicted, a switch in algorithms may be used to improve the visibility. MODIS has a few spectral bands, which have higher resolution that are more comparable to MERIS. However, these bands do not cover all of FL.
- Several environmental factors may affect how results can be interpreted. For example, areas with abundant aquatic vegetation may present with a high chlorophyll-a index resulting in a false positive bloom reading.
- The sensor identifies biomass near the surface (in the upper few feet of water). As a result, it may underestimate the total biomass for blooms that are mixed or dispersed through the water column.
- While patches of red or warm colors may indicate higher chlorophyll-a concentrations, these data have not been verified in most cases using ground-truth methods.

## Weather Conditions: Precipitation and Temperature - 08/06/14 to 08/12/14

- Weather conditions can impact the duration and location of blooms and the satellite imagery shown in this report may no longer be relevant.
- Images represent the last image taken with a realization that blooms may have moved, dissipated or intensified.
- Cloud coverage can obscure imagery and create patches or gray areas on map and obscure bloom detection.

August 10, 2014 MODIS Aqua True Color Image



To review HABs satellite reports in the Gulf of Mexico and marine waters visit the NOAA Harmful Algal Bloom Operational Forecast System bulletin archive at:  
<http://tidesandcurrents.noaa.gov/hab/bulletins.html>



For Individual Weather Station Data, visit:  
<http://www.sercc.com/climate>

For information, please contact:  
Laura Morse, Public Health Toxicology Program, at 850.245.4444 x 2080 or [laura.morse@flhealth.gov](mailto:laura.morse@flhealth.gov)